UNITED STATES Coast Pilot®



Alaska: Cape Spencer to Beaufort Sea

2026 (44th) Edition

This edition cancels the 43rd Edition and includes all previously published corrections.

Weekly updates to this edition are available at:
nauticalcharts.noaa.gov/publications/coast-pilot/index.html

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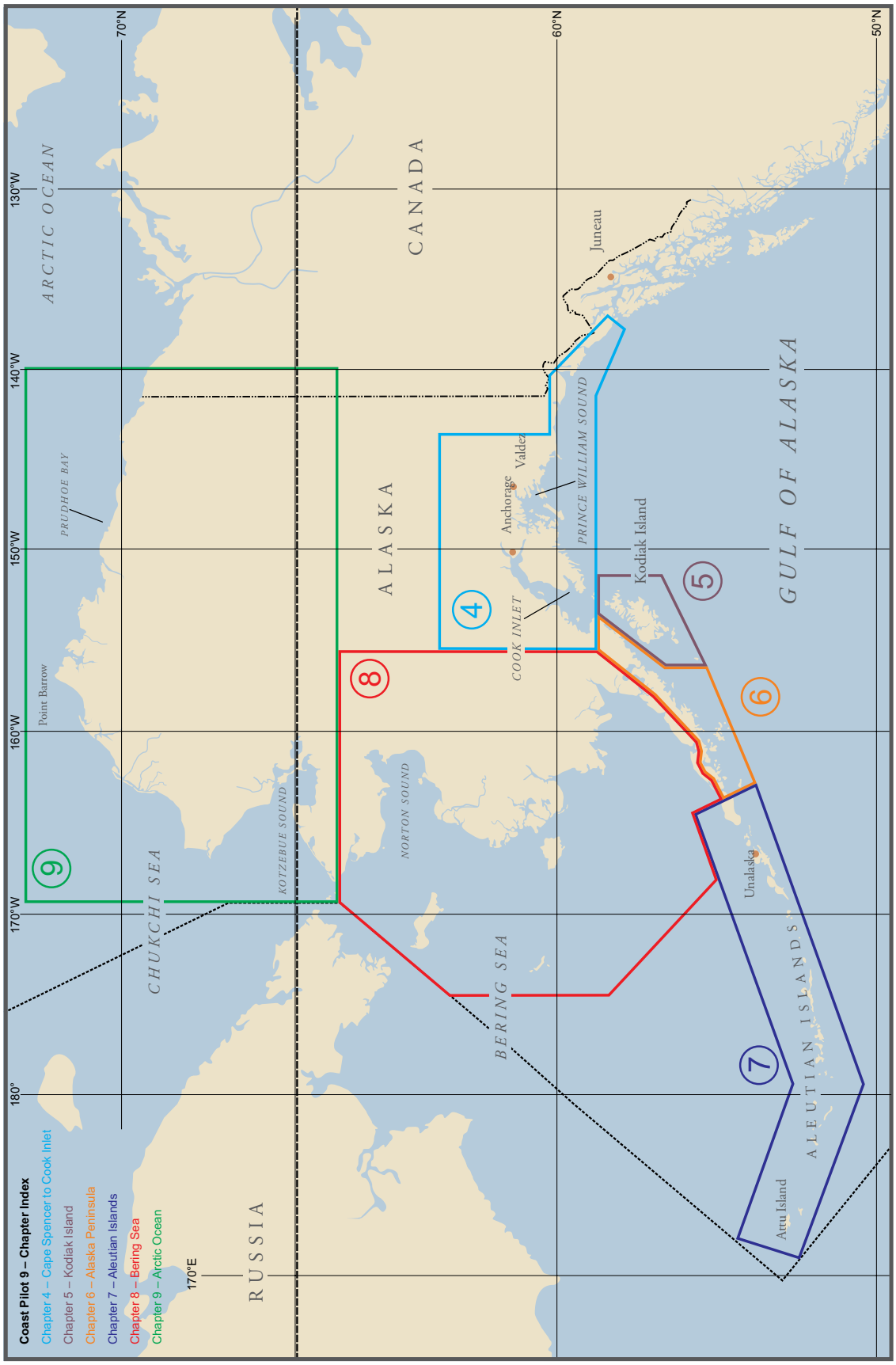
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Chapter 5 – Kodiak Island
Chapter 6 – Alaska Peninsula
Chapter 7 – Aleutian Islands
Chapter 8 – Bering Sea
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Preface

The United States Coast Pilot is published by the National Ocean Service (NOS), National Oceanic and Atmospheric Administration (NOAA), pursuant to the Act of 6 August 1947 (33 U.S.C. 883a and b), and the Act of 22 October 1968 (44 U.S.C. 1310).

The Coast Pilot supplements the navigational information shown on NOAA nautical charts. The publication is continually updated and maintained from inspections conducted by NOAA survey vessels and field parties, corrections published in Notices to Mariners, information from other Federal agencies, State and local governments, maritime and pilots' associations, port authorities, and concerned mariners.

NOAA's Office of Coast Survey encourages public feedback regarding its suite of nautical charting products and services through **ASSIST**, Coast Survey's stakeholder engagement and feedback tool. This allows customers to submit questions or comments or to report an error with NOAA's nautical charts and products.
Customers can access **ASSIST** at *www.nauticalcharts.noaa.gov/customer-service/assist/*
Those who prefer to communicate by telephone can contact Coast Survey at 1–888–990–6622.

Coast Pilot corrections are no longer published in the NGA Notice to Mariners effective 01 January 2021. Additional information regarding the NGA policy change can be referenced at *msi.nga.mil/NTM* in the Notice to Mariners 52/20 Hydrogram and Marine Information sections.

Coast Pilot Updates

Check for weekly critical updates for this edition at *nauticalcharts.noaa.gov/publications/coast-pilot/index.html*
(See **33 CFR 164.33 Charts and Publications**, chapter 2, for regulations.)

Customers may print the specifically affected paragraphs to revise this book, or download an updated file (PDF) of the entire volume.

A *Weekly Record of Updates* is provided directly preceding the index.

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General Information

(1)

UNITED STATES COAST PILOT®

(2) The United States Coast Pilot, published by the National Oceanic and Atmospheric Administration (NOAA), is a series of ten nautical books (volumes) that encompasses a wide variety of information important to navigators of U.S. coastal/intracoastal waters and the waters of the Great Lakes. The Coast Pilot is intended to be used as a supplement to NOAA nautical charts. Much of the content cannot be shown graphically on the charts and is not readily available elsewhere. Topics which are covered include environmental factors of weather, climate, ice conditions, tides, water levels, currents, prominent coastal features and landmarks. Specific information on vertical clearances, wharf descriptions, small-craft facilities, hazards, dredged channels and depths are also provided. Navigation services and regulations are also identified including pilotage, towing, anchorages, routes and traffic separation schemes, environmental protection, and other Federal laws.

(3) New editions of each volume are issued annually. Fully updated files are posted weekly on the Internet, and are also available through NOAA Certified Chart Agents at *www.nauticalcharts.noaa.gov*.

(4) **Amendments** to this publication are available at *nauticalcharts.noaa.gov/publications/coast-pilot/index.html.*

(5)

Using the Coast Pilot

(5) <Deleted Paragraph>

(6) **Chapter 1** contains definitions of general and standard terms used throughout the volume, discussions of NOAA charting products and services, descriptions of maritime services by various U.S. Government agencies, Notices to Mariners and other information pertinent to safe navigation.

(7) **Chapter 2** contains selected extracts from the Code of Federal Regulations (CFR) that affect mariners.

(8) **Chapter 3** contains general information that is peculiar to the region covered by a particular Coast Pilot volume. For example, practical information regarding offshore currents and dangers, coastal aids to navigation, prominent landmarks and the general character of the coast and depths helpful in approaching the region.

(9) In **Chapter 4 and the remaining numbered chapters**, the detailed description of the region begins. A map precedes each chapter and outlines the nautical charts used in the area to be discussed. In these chapters, as much as possible, the coastal description is in geographic sequence, north to south on the east coast, east to west on the gulf coast, clockwise around each of the Great Lakes and south to north on the west coast and Alaskan coast. Features are described as they appear on the largest scale chart, with that chart number prominently shown in blue.

(10) **Appendix A** contains contact information regarding the various products, services and agencies detailed throughout the volume.

(11) **Navigation Rules**— preceding Appendix A, contains the International (72 COLREGS) and Inland Navigation Rules, technical Annexes, and associated Federal rules and regulations.

(12) The **Weekly Record of Updates** is intended as a log for critical updates applied to this volume.

(13) The **Index** contains geographic names mentioned throughout a Coast Pilot volume. These names are boldfaced and indexed along with the number of the largest scale chart on which the entire feature appears. Asterisks preceding a chart number in the index of Coast Pilot 5 indicate charts published by the National Geospatial-Intelligence Agency, and in the index of Coast Pilot 6, charts published by the Canadian Hydrographic Service.

(14)

Bearings

(15) Bearings and courses are in degrees true and are measured clockwise from **000°** (north) to **359°**. The bearings of an aid to navigation (e.g., directional light, light sector, range) are given as viewed from the bridge of a vessel toward the light.

(16)

Bridges and Cables

(17) Vertical clearances of bridges and overhead cables are in feet above mean high water unless otherwise stated; clearances in Coast Pilot 6 are in feet above Low Water Datum unless otherwise stated. When the water level is above Low Water Datum, the bridge and overhead cable clearances given in the Coast Pilot and shown on the charts should be reduced accordingly. Clearances of drawbridges are for the closed position, although the open clearances are also given for vertical-lift bridges. Whenever a bridge span over a channel does not open fully to an unlimited clearance position, a minimum clearance for the sections over the channel is given; the same applies to swing and pontoon bridges with openings less than 50 feet horizontally. Clearances given in the Coast Pilot are those approved for nautical charting; most are supplied by the U.S. Coast Guard (bridges) and U.S. Army Corps of

Engineers (cables). See charts for the horizontal clearance of bridges, as these are generally given in the Coast Pilot only when they are less than 50 feet (15 meters). Tables listing structures across waterways, found in some Coast Pilots, show both horizontal and vertical clearances. Submarine cables are rarely mentioned.

(18)

Cable ferries

(19) Cable ferries are guided by cables fastened to shore and sometimes propelled by a cable rig attached to the shore. Generally, the cables are suspended during crossings and dropped to the bottom when the ferries dock. Where specific operating procedures are known they are mentioned in the text. Since operating procedures vary, mariners are advised to exercise extreme caution and seek local knowledge. **DO NOT ATTEMPT TO PASS A MOVING CABLE FERRY.**

(20)

Courses

(21) These are true and are given in degrees clockwise from **000°** (north) to **359°**. The courses given are the courses to be made good.

(22)

Currents

(23) Stated current velocities are the averages at strength. Velocities are in knots, which are nautical miles per hour. Directions are the true directions to which the currents set (see chapter 3, this book).

(24)

Depths

(25) **Depth** is the vertical distance from the chart datum to the bottom. (See Chart Datum, this chapter, for further detail.) The depth of any improved channel may be provided as a controlling depth or as a project depth. Improved channels are subject to shoaling, particularly along the edges; depths may vary considerably between maintenance dredging.

(26) The **controlling depth** is the least known depth of a channel as determined by hydrographic surveys and restricts the safe use of the channel to drafts less than that depth. The **centerline controlling depth** applies only to the channel centerline or close proximity; lesser depths may exist in the remainder of the channel. The **midchannel controlling depth** is the controlling depth of only the middle half of the channel.

(27) **Project depth** (sometimes referred to as **authorized depth** or **maximum permitted draft**) is the planned dredging depth of a channel and may not reflect surveyed conditions. For this reason, project depth must not be confused with controlling depth.

(28) Most federally improved channels are maintained by the U.S. Army Corps of Engineers (USACE). The USACE dredges channels and conducts hydrographic surveys at variable frequencies. Some channels are dredged and surveyed to monitor navigation conditions as often as weekly or even daily. The latest USACE hydrographic surveys are available at: https://navigation.usace.army.mil/Survey/Hydro/ . These surveys are not intended to detect every underwater hazard. Undetected hazards to surface navigation are not expected but may exist.

(29) Depths alongside wharves usually have been reported by owners and/or operators of the waterfront facilities and have not been verified by government surveys. Since these depths may be subject to change, local authorities should be consulted for the latest controlling depths.

(30)

Under-keel clearances

(31) It is becoming increasingly evident that economic pressures are causing mariners to navigate through waters of barely adequate depth, with under-keel clearances being finely assessed from the charted depths, predicted tide levels and depths recorded by echo sounders.

(32) It cannot be too strongly emphasized that even charts based on modern surveys may not show all sea-bed obstructions or the shoalest depths, and actual tide levels may be appreciably lower than those predicted.

(33) In many ships an appreciable correction must be applied to shoal soundings recorded by echo sounders due to the horizontal distance between the transducers. This separation correction, which is the amount by which recorded depths therefore exceed true depths, increases with decreasing depths to a maximum equal to half the distance apart of the transducers; at this maximum the transducers are aground. Ships whose transducers are more than 6 feet (1.8 meters) apart should construct a table of true and recorded depths using the Traverse Tables. (Refer to the topic on echo soundings elsewhere in chapter 1.)

(34) Other appreciable corrections, which must be applied to many ships, are for settlement and squat. These corrections depend on the depth of water below the keel, the hull form and the speed of the ship.

(35) Settlement causes the water level around the ship to be lower than would otherwise be the case. It will always cause echo soundings to be less than they would otherwise be. Settlement is appreciable when the depth is less than seven times the draft of the ship and increases as the depth decreases and the speed increases.

(36) Squat denotes a change in trim of a ship underway, relative to her trim when stopped. It usually causes the stern of a vessel to sit deeper in the water. However, it is reported that in the case of mammoth ships, squat causes the bow to sit deeper. Depending on the location of the echo sounding transducers, this may cause the recorded depth to be greater or less than it ought to be. **Caution and common sense are continuing requirements for safe navigation.**

(37)

Distances

(38) These are in nautical miles unless otherwise stated. A nautical mile is one minute of latitude, or approximately 2,000 yards, and is about 1.15 statute miles.

(39) Coast Pilot 6 is in statute miles unless otherwise stated. A statute mile is 5,280 feet or about 0.87 nautical mile.

(40)

Geographic Coordinates

(41) Geographic coordinates listed in the Coast Pilot are referred to North American Datum of 1983 (NAD 83) unless otherwise noted for certain CFR extracts in chapter 2.

(42)

Heights

(43) These are in feet (meters) above the tidal datum used for that purpose on the charts, usually mean high water. However, the heights of the decks of piers and wharves are given in feet (meters) above the chart datum for depths.

(44) Coast Pilot 6 is in feet (meters) above the chart datum used for that purpose on the charts, usually Low Water Datum.

(45)

Light and Sound Signal Characteristics

(46) These are not described in the Coast Pilot. Also, light sectors and visible ranges are generally not fully described. This information can be found in U.S. Coast Guard Light Lists.

(47)

Obstructions

(48) Wrecks and other obstructions are mentioned only if they are relatively permanent and in or near normal traffic routes.

(49)

Radio Navigational Aids

(50) For detailed information on Radio Navigation Aids, including limitations on the use of radio signals as aids to marine navigation, see the **United States Coast Guard Light Lists** and the National Geospatial-Intelligence Agency's **Radio Navigational Aids, Publication 117**. Radio direction-finder bearings to commercial broadcasting stations are subject to error and should be used with caution.

(51)

Ranges

(52) These are not fully described. "**A 339°** Range" means that the rear structure bears **339°** from the front structure. (See United States Coast Guard Light Lists.)

(53)

Reported information

(54) Information received by NOAA from various sources concerning depths, dangers, currents, facilities, and other topics, which has not been verified by Government surveys or inspections, is often included in the Coast Pilot; such **unverified information** is qualified as "reported" and should be regarded with caution.

(55)

Tides

(56) Tidal information, including real-time water levels, tide predictions and tidal current predictions are available at *tidesandcurrents.noaa.gov*.

(57)

Time

(58) <Deleted Paragraph>

(58) Unless otherwise stated, all times are given in local standard time in the 24-hour system. (Noon is 1200, 2:00 p.m. is 1400 and midnight is 0000.)

(59) <Deleted Paragraph>

(59)

Winds

(60) <Deleted Paragraph>

(60) Directions are the true directions from which the winds blow; however, sometimes (rarely) compass points are used. Unless otherwise indicated, speeds are given in knots, which are nautical miles per hour.

(61) <Deleted Paragraph>

(61)

NAUTICAL CHARTS

(62) <Deleted Paragraph>

(62) NOAA produces and maintains a suite of over 1,000 nautical charts that cover the U.S. coastal waters, the Great Lakes and U.S. territories. These charts provide a graphic representation of water depths, the shoreline, prominent topographic and man-made features, aids to navigation and other navigational information useful to the mariner. NOAA's charts are available in a variety of digital formats designed to meet the specific requirements of all mariners. Paper copies may also be obtained through one of NOAA's Print-on-Demand partners.

(63)

Paper Print on Demand Nautical Charts

(63) <Deleted Paragraph>

(64) The content of Print-On-Demand (POD) charts is updated weekly by NOAA with the most current U.S. Coast Guard Local Notice to Mariners and other critical safety information. POD charts are printed under the authority of NOAA and shipped through partnerships between NOAA and commercial providers. POD information and a list of participating POD chart agents can be found at *nauticalcharts.noaa.gov/publications/print-agents.html#paper-charts-mobile*.

(65)

Portable Document Format (PDF) Nautical Charts

(66) Almost all of NOAA's nautical charts may be downloaded for free as Portable Document Format (PDF) files at *nauticalcharts.noaa.gov/charts/noaa-raster-charts.html#full-size-nautical-charts*. The PDF nautical charts are exact replicas of the images used to produce POD and Raster Navigational Charts (RNC). As such, they also have all the latest updates based on U.S. Coast Guard Local Notices to Mariners, National

Geospatial-Intelligence Agency Notices to Mariners and other critical safety information.

(67) Most PDF charts can be printed at the proper scale from any plotter accommodating a 36-inch paper width. When printed properly, PDF charts and POD charts are very similar, but PDF charts have not yet been approved to meet Federal regulations for paper chart carriage requirements as POD charts have.

(68)

BookletCharts

(69) The NOAA BookletChart™ is a product that can be printed by the users for free. They are made to help recreational boaters locate themselves on the water. BookletCharts are reduced in scale and divided into pages for convenience but otherwise contain all the information of the full-scale nautical charts and are updated weekly. For more information visit *nauticalcharts.noaa.gov/charts/noaa-raster-charts.html#booklet-charts*.

(70)

Raster Navigational Charts (NOAA RNC®)

(71) NOAA Raster Navigational Charts (NOAA RNC®) are geo-referenced digital images of NOAA's entire suite of paper charts. NOAA RNCs are official data that can be used in many types of electronic charting systems (ECS), including Raster Chart Display Systems (RCDS) and some Electronic Chart Display and Information Systems (ECDIS). Current regulations support the use of RNCs as a primary means of navigation when ENCs are not available, but they require an accompanying minimal set of up-to-date paper charts. They can integrate position information from the Global Positioning System (GPS) and other navigational sensors, such as radar and automatic identification systems (AIS) to show a vessel's track, waypoints, and planned routes. NOAA RNCs and their weekly updates are available free of charge at *nauticalcharts.noaa.gov/charts/noaa-raster-charts.html*.

(72)

Electronic Navigational Charts (NOAA ENC®)

(73) NOAA Electronic Navigational Charts (NOAA ENC®) are databases of charted objects and their attributes with standardized content, structure and format. They comply with International Hydrographic Organization (IHO) specifications stated in IHO Publication S-57. They may be used as an alternative to paper charts required on SOLAS class vessels.

(74) ENCs are intended for use in electronic charting systems (ECS) as well as Electronic Chart Display and Information Systems (ECDIS). ECDIS are programmable to show as much or as little data as the user requires. They can integrate position information from the Global Positioning System (GPS) and other navigational sensors, such as radar and automatic identification systems (AIS) to show a vessel's track, waypoints and planned routes. Using this information ECDIS can use ENCs to give warning of impending danger in relation to the vessel's position and movement. NOAA ENCs and their updates are available free of charge at *nauticalcharts.noaa.gov/charts/noaa-enc.html*.

(75)

Nautical Chart—New Editions and Corrections

(76) New editions of paper Print-on-Demand (POD) charts are available on the Monday after NOAA clears a new edition for release. Once the authorized POD chart is available, it meets federal chart carriage requirements, and should be put into service immediately. It should be updated from the *last correction and cleared through* dates shown in the lower left corner of the chart.

(77) The chart date is of vital importance to the navigator. When charted information becomes obsolete, further use of the chart for navigation is dangerous. Natural and artificial changes, many of them critical, are occurring constantly; therefore it is important that navigators use up-to-date charts. Nautical charts and publications are available for purchase from authorized POD agents and their sales outlets.

(78) NOAA's "Nautical Chart Update" website allows mariners to update their nautical charts from one database that includes information from NOAA, NGA U.S. Notice to Mariners, U.S. Coast Guard Local Notices to Mariners and the Canadian Coast Guard Notices to Mariners at: *nauticalcharts.noaa.gov/charts/chart-updates.html*.

(79)

Nautical Chart Numbering System

(80) This chart numbering system, adopted by NOAA and National Geospatial-Intelligence Agency (NGA), provides for a uniform method of identifying charts published by both agencies. Nautical charts published by NGA and by the Canadian Hydrographic Service are identified in the Coast Pilot by an asterisk preceding the chart number.

(81)

Chart Scale

(82) The scale of a chart is the ratio of a given distance on the chart to the actual distance that it represents on the earth. For example, one unit of measurement on a 1:10,000 scale chart is equal to 10,000 of the same unit on the earth's surface. Large scale charts show greater detail of a relatively small area. Small scale charts show less detail but cover a larger area. Certain hydrographic information may be omitted on smaller scale charts. **Mariners should always obtain the largest scale coverage for near shore navigation**.

(83) The scales of nautical charts range from 1:2,500 to about 1:5,000,000. Graphic scales are generally shown on charts with scales of 1:80,000 or larger, and numerical scales are given on smaller scale charts. NOAA charts are classified according to scale as follows:

(84) **Sailing charts**, scales 1:600,000 and smaller, are for use in fixing the mariner's position approaching the coast from the open ocean or for sailing between distant coastwise ports. On such charts the shoreline and topography are generalized and only offshore soundings,

principal lights, outer buoys and landmarks visible at considerable distances are shown.

(85) **General charts**, scales 1:150,000 to 1:600,000, are for coastwise navigation outside of outlying reefs and shoals.

(86) **Coast charts**, scales 1:50,000 to 1:150,000, are for inshore navigation leading to bays and harbors of considerable width and for navigating large inland waterways.

(87) **Harbor charts**, scales larger than 1:50,000, are for harbors, anchorage areas and the smaller waterways.

(88) **Special charts**, at various scales, cover the Intracoastal waterway and miscellaneous small-craft areas.

(89)

Chart Projections

(90) The **Mercator projection** used on most nautical charts has straight-line meridians and parallels that intersect at right angles. On any particular chart the distances between meridians are equal throughout, but distances between parallels increase progressively from the equator toward the poles so that a straight line between any two points is a rhumb line. This unique property of the Mercator projection is one of the main reasons why it is preferred by the mariner.

(91) The **Polyconic projection** is used on most U.S. nautical charts of the Great Lakes. On this projection, parallels of latitude appear as non-concentric circles, and meridians appear as curved lines converging toward the pole and concave to the central meridian. The scale is correct along any parallel and along the central meridian of the projection. Along other meridians the scale increases with increased difference of longitude from the central meridian.

(92)

Chart Datum, Tidal Waters

(93) Chart Datum is the particular tidal level to which soundings and depth curves on a nautical chart or bathymetric map are referred. The tidal datum of **Mean Lower Low Water** is used on all NOAA charts, except for charts in the Great Lakes and non-tidal inland waterways. For information on **Chart Datum, Great Lakes System**, see Coast Pilot 6, chapter 3.

(94)

Horizontal Datum

(95) Nautical charts are constructed based on one of a number of horizontal datums which are adopted to best represent individual regions around the world. Note that the terms horizontal datum, horizontal geodetic datum, and horizontal control datum are synonymous.

(96) The exact placement of lines of latitude and longitude on a nautical chart is dependent on the referenced horizontal datum. Charts of the United States are currently referenced primarily to the North American Datum of 1983 (NAD 83), and the World Geodetic System 1984 (WGS 84). WGS 84 is equivalent to the NAD 83 for charting purposes.

(97) NAD 83 and WGS 84 have replaced the North American Datum of 1927 and other regional datums as the primary horizontal datum to which NOAA charts are referenced. Since some geographic positions may still be referenced to the older datums, NOAA has included notes on charts which show the amount to shift those positions in latitude and longitude to fit the chart's NAD 83 or WGS 84 projection.

(98) It should be noted that the physical shift between positions on older datums and NAD 83/WGS 84 was significant. Mariners should always be certain the positions they are plotting on a nautical chart are on the same datum as the chart.

(99)

Chart Accuracy

(100) The value of a nautical chart depends upon the accuracy of the surveys on which it is based. The chart reflects what was found by field surveys and what has been reported to NOAA. It also represents general conditions at the time of surveys or reports and does not necessarily portray present conditions. Significant changes may have taken place since the date of the last survey or report.

(101) Each sounding represents an actual measure of depth and location at the time the survey was made, and each bottom characteristic represents a sampling of the surface layer of the sea bottom at the time of the sampling. Areas where sand and mud prevail, especially the entrances and approaches to bays and rivers exposed to strong tidal current and heavy seas, are subject to continual change.

(102) In coral regions and where rocks and boulders abound, it is always possible that surveys may have failed to find every obstruction. Thus, when navigating such waters, customary routes and channels should be followed, and areas where irregular and sudden changes in depth indicate conditions associated with pinnacle rocks, coral heads, or boulders should be avoided.

(103) Information charted as "reported" should be treated with caution when navigating the area, because the actual conditions have not been verified by government surveys.

(104)

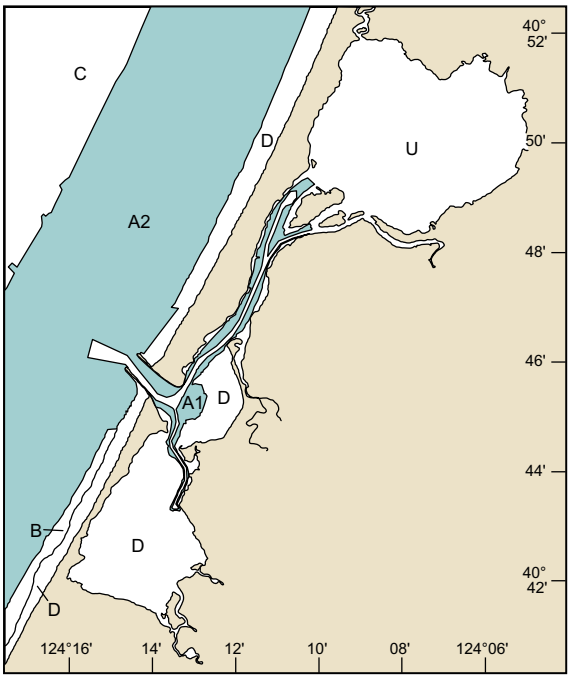
Source Diagrams and Zone of Confidence Diagrams

(105) The age and accuracy of hydrographic survey data that support nautical charts can vary. Depth information on nautical charts, paper or digital, is based on data from the latest available hydrographic survey, which in many cases may be quite old. Diagrams are provided on nautical charts to assist mariners in assessing hydrographic survey data and the associated level of risk to navigate in a particular area. There are currently two types of diagrams shown on NOAA paper and raster navigational charts (RNCs) of 1:500,000 scale and larger—**Zone of Confidence (ZOC) Diagrams** and **Source Diagrams**. ZOC information (designated CATZOC) is also found on electronic navigational charts (ENCs). This provides consistency in the display of source data between ENCs and newer paper charts.

(109)

Zone of Confidence Diagrams

ZOC CATEGORIES				
ZOC	DATE	POSITION ACCURACY	DEPTH ACCURACY	SEAFLOOR COVERAGE
A1	2008–2016	± 16.4 ft	= 1.6 feet + 1% depth	All significant seafloor features detected
A2	—	± 65.6 ft	= 3.3 feet + 2% depth	All significant seafloor features detected
B	2005	± 164.0 ft	= 3.3 feet + 2% depth	Uncharted features hazardous to surface navigation are not expected but may exist
C	—	± 1640.4 ft	= 6.6 feet + 2% depth	Depth anomalies may be expected
D	—	Worse than ZOC C	Worse than ZOC C	Large depth anomolies may be expected
U	Unassessed – The quality of the bathymetric data has yet to be assessed.			



(106) Both types of diagrams consist of a graphic representation of the extents of hydrographic surveys within the chart and accompanying table of related survey quality categories. CATZOC information on an ENC, unlike the diagrams on a paper chart or RNC, is displayed over the ENC data using symbols rather than letters. These symbols are displayed on a separate layer, which can be viewed when planning a route, then switched off until needed again at another time.

(107) On **ZOC Diagrams**, the quality of the hydrographic data is assessed according to six categories; five quality categories for assessed data (A1, A2, B, C and D) and a sixth category (U) for data that has not yet been assessed. On the ENC, the categories are shown using a rating system of stars—the higher the quality, the greater the number of stars. Assessment of hydrographic data quality and classification into zones of confidence is based on a combination of: survey date, position accuracy, depth accuracy and sea floor coverage (the survey's ability to detect objects on the seafloor.)

(108) **Source Diagrams** provide the mariner with additional information about the density and adequacy of the sounding data depicted on the chart. The adequacy with which sounding data reflects the configuration of the bottom depends on the following factors: survey technology employed (sounding and navigation equipment), survey specifications in effect (prescribed survey line spacing and sounding interval) and type of bottom (e.g., rocky with existence of submerged pinnacles, flat sandy, coastal deposits subject to frequent episodes of deposition and erosion). Source diagrams will be replaced with ZOC diagrams as new editions are created.

(111)

Chart Symbols, Abbreviations and Terms

(112) The standard symbols and abbreviations approved for use on nautical charts produced by the U.S. Government are described in **U.S. Chart No. 1: Symbols, Abbreviations and Terms used on Paper and Electronic Navigational Charts.** This reference, jointly maintained by the National Geospatial-Intelligence Agency (NGA) and NOAA, is available at *nauticalcharts.noaa.gov/publications/us-chart-1.html.*

(113) The publication **Chart 1: Symbols, Abbreviations and Terms** published by the Canadian Hydrographic Service, is available online at *charts.gc.ca/publications/chart1-carte1/index-eng.asp.*

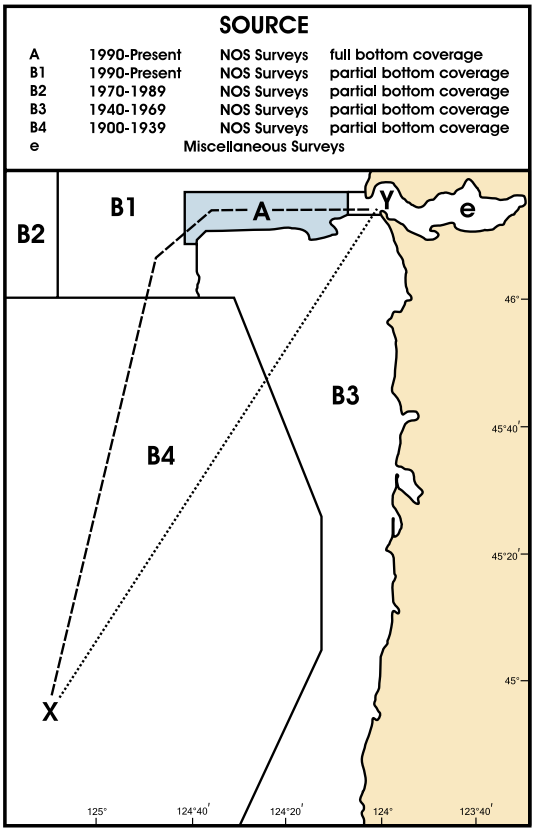
(114) Some symbols and abbreviations used on foreign charts, including reproductions of foreign charts made by NGA, are different than those used on U.S. charts. It is recommended that mariners who use foreign charts also obtain the symbol sheet or Chart No. 1 produced by the appropriate foreign agency.

(115) Mariners are warned that the buoyage systems, shapes and colors used by other countries often have a different significance than the U.S. system.

(110)

Source Diagrams

Referring to the accompanying sample Source Diagram to the right and the previous discussion of survey methods over time, transiting from Point X to Point Y, along the track indicated by the dotted line, would have the following information available about the relative quality of the depth information shown on the chart.



Point X lies in an area surveyed by NOAA between 1900-1939. The sounding data in this area would have been collected by leadline. Depths between sounding points can only be inferred, and undetected features might exist between the sounding points in areas of irregular relief — caution should be exercised.

The transit then crosses an area surveyed by NOAA between 1940-1969. The sounding data in this area would have been collected by continuous recording single beam echo sounder. It is possible that features could have been missed between sounding lines, although echo sounders record all depths along a sounding line with varying beam widths.

The transit ends in an area charted from miscellaneous surveys. These surveys may be too numerous to depict or may vary in age, reliability, origin or technology used. No inferences about the fitness of the data can be made in this area from the diagram.

Referring again to the accompanying sample Source Diagram, and the previous discussion of survey methods over time, a mariner could choose to transit from Point X to Point Y, along the track shown with a dashed line.

The transit starts again in an area surveyed by NOAA between 1900-1939. The sounding data in this area would have been collected by leadline. Depths between sounding points can only be inferred, and undetected features might still exist between the sounding points in areas of irregular relief — caution should be exercised.

The transit then crosses an area surveyed by NOAA between 1990–present, with partial bottom coverage. The data is collected in metric units and acquired by continuous recording single beam echo sounder. It is possible that features could have been missed between the sounding lines, although echo sounders record all depths along a sounding line with varying beam widths.

The transit then crosses into an area surveyed by NOAA etween 1990–present, having full bottom coverage. This area of the charted diagram is shaded with a blue screen to draw attention to the fact that full bottom coverage has been achieved. The data in this area would have been collected in metric units and acquired by side scan sonar or multibeam sonar technology. Undetected features in this area, at the time of the survey, would be unlikely.

The transit ends in an area charted from miscellaneous surveys. These surveys may be too numerous to depict or may vary in age, reliability, origin or technology used. No inferences about the fitness of the data can be made in this area from the diagram. By choosing to transit along the track shown by the dashed line, the mariner would elect to take advantage of survey information that is more recent and collected with modern technology.

(116)

Areas with Blue Tint

(117) A blue tint is shown in water areas on many charts to accentuate shoals and other areas considered dangerous for navigation when using that particular chart. Since the danger curve varies with the intended purpose of a chart a careful inspection should be made to determine the contour depth of the blue tint areas.

(118)

Bridge and Cable Clearances

(119) For bascule bridges whose spans do not open to a full vertical position, unlimited overhead clearance is not available for the entire charted horizontal clearance when the bridge is open, due to the inclination of the drawspans over the channel. In some cases, a bridge on an ENC may include a pictorial representation (PICREP). The PICREP diagram provides a simplified view that provides supplemental information, such as additional heights. Because it is not drawn to scale, feature sizes and relative positions are generalized to enhance legibility, and should not be used for navigation or spatial referencing.

(120) Clearances of overhead cables are for the lowest wires at vertical datum (usually mean high water) as authorized and permitted by the U.S. Army Corps of Engineers (USACE). Reported clearances received from sources other than the USACE are indicated as such. Conditions such as weather, ice, or the passage of time may have reduced the height from the charted value. **Because high-voltage transmission lines do not require physical contact to represent a hazard, the U.S. Coast Guard and Occupational Safety and Health Administration (OSHA) advise a safety buffer below electrical cables. Vessels with masts, stacks, booms, cranes, or antennas should allow sufficient clearance under power cables to avoid electrical arcing.** When provided, safe vertical clearances indicate the height of the highest point of a vessel that can pass under an overhead power cable without risk of electrical discharge from the cable to the vessel.

(121)

Submarine Cables and Submerged Pipelines

(122) **Submarine cables** and **submerged pipelines** cross many waterways used by both large and small vessels, but all of them may not be charted. For inshore areas, they usually are buried beneath the seabed, but for offshore areas they may lie on the ocean floor. Warning signs are often posted to warn mariners of their existence. Covered wells may be marked by lighted or unlighted buoys.

(123) The installation of submarine cables or pipelines in U.S. waters or the Continental Shelf of the United States is under the jurisdiction of one or more Federal agencies, depending on the nature of the installation. They are shown on the charts when the necessary information is reported to NOAA and they have been recommended for charting by the responsible agency. The chart symbols for submarine cable and pipeline areas are usually shown for inshore areas, whereas chart symbols for submarine cable and pipeline routes may be shown for offshore areas. Submarine cables and pipelines are not described in the Coast Pilots.

(124) In view of the serious consequences resulting from damage to submarine cables and pipelines, vessel operators should take special care when anchoring, fishing or engaging in underwater operations near areas where these cables or pipelines may exist or have been reported to exist. Mariners are also warned that the areas where cables and pipelines were originally buried may have changed and they may be exposed; extreme caution should be used when operating vessels in depths of water comparable to the vessel's draft.

(125) Certain cables carry high voltage, while many pipelines carry natural gas under high pressure or petroleum products. Electrocution, fire or explosion with injury, loss of life or a serious pollution incident could occur if they are broached.

(126) Vessels fouling a submarine cable or pipeline should attempt to clear without undue strain. Anchors or gear that cannot be cleared should be slipped, but no attempt should be made to cut a cable or a pipeline.

(127)

Artificial Obstructions to Navigation

(128) **Disposal areas** are designated by the U.S. Army Corps of Engineers for depositing dredged material where there is sufficient depth not to cause shoaling or create a danger to surface navigation. The areas are charted without blue tint, and soundings and depth curves are retained.

(129) **Disposal sites** are areas established by Federal regulation (**40 CFR 220** through **228**) in which dumping of dredged and fill material and other nonbuoyant objects is allowed with the issuance of a permit. Dumping of dredged and fill material is supervised by the U.S. Army Corps of Engineers and all other dumping by the Environmental Protection Agency (EPA). (See U.S. Army Corps of Engineers and Environmental Protection Agency, this chapter, and Appendix A for office addresses.)

(130) **Dumping grounds** are also areas that were established by Federal regulation (**33 CFR 205**). However, these regulations have been revoked and the use of the areas discontinued. These areas will continue to be shown on nautical charts until such time as they are no longer considered to be a danger to navigation.

(131) Disposal Sites and Dumping Grounds are rarely mentioned in the Coast Pilot, but are shown on nautical charts. **Mariners are advised to exercise caution in the vicinity of all dumping areas.**

(132) **Spoil areas** are for the purpose of depositing dredged material, usually near and parallel to dredged channels. Spoil areas are usually charted from survey drawings from U.S. Army Corps of Engineers after-dredging surveys, though they may originate from private or other Government agency surveys. On nautical charts, spoil areas are tinted blue, labeled and have all soundings and depth curves omitted from within their boundaries. Spoil

areas present a hazard to navigation and even the smallest craft should avoid crossing them.

(133) **Fish havens** are artificial shelters constructed of various materials including rocks, rubble, derelict barges/oil rigs and specially designed precast structures. This material is placed on the sea floor to simulate natural reefs and attract fish. Fish havens are often located near fishing ports or major coastal inlets and are usually considered hazards to shipping. Before such a reef may be built, the U.S Army Corps of Engineers must issue a permit specifying the location and depth over the reef. Constructed of rigid material and projecting above the bottom, they can impede surface navigation and therefore represent an important feature for charting. Fish havens may be periodically altered by the addition of new material, thereby possibly increasing the hazard. They are outlined and labeled on charts and show the minimum authorized depth when known. Fish havens are tinted blue if they have a minimum authorized depth of 11 fathoms or less. If the minimum authorized depth is unknown and they are in depths greater than 11 fathoms, they are considered a danger to navigation. Navigators should be cautious about passing over fish havens or anchoring in their vicinity.

(134) **Fishtrap areas** are areas established by the U.S. Army Corps of Engineers, or State or local authority, in which traps may be built and maintained according to established regulations. The fish stakes that may exist in these areas are obstructions to navigation and may be dangerous. The limits of fishtrap areas and a cautionary note are usually charted. Navigators should avoid these areas.

(135)

Local Magnetic Disturbances

(136) If measured values of magnetic variation differ from the expected (charted) values by several degrees, a magnetic disturbance note will be printed on the chart. The note will indicate the location and magnitude of the disturbance, but the indicated magnitude should not be considered as the largest possible value that may be encountered. Large disturbances are more frequently detected in the shallow waters near land masses than on the deep sea. Generally, the effect of a local magnetic disturbance diminishes rapidly with distance, but in some locations there are multiple sources of disturbances and the effects may be distributed for many miles.

(137)

Compass Roses

(138) Each compass rose shows the date, magnetic variation and the annual change in variation. Prior to the new edition of a nautical chart, the compass roses are reviewed. Corrections for annual change and other revisions may be made as a result of newer and more accurate information. On some general and sailing charts, the magnetic variation is shown by isogonic lines in addition to the compass roses.

(139)

Echo Soundings

(140) The echo sounder on a ship may indicate small variations from charted soundings; this may be due to the fact that various corrections (instrument corrections, settlement and squat, draft and velocity corrections) are made to echo soundings in surveying which are not normally made in ordinary navigation, or to observational errors in reading the echo sounder. Instrument errors vary between different equipment and must be determined by calibration aboard ship. Most types of echo sounders are factory calibrated for a velocity of sound in water of 800 fathoms per second, but the actual velocity may differ from the calibrated velocity by as much as 5 percent, depending upon the temperature and salinity of the waters in which the vessel is operating; the highest velocities are found in warm, highly saline water and the lowest in icy freshwater. Velocity corrections for these variations are determined and applied to echo soundings during hydrographic surveys. All echo soundings must be corrected for the vessel's draft, unless the draft observation has been set on the echo sounder.

(141) Observational errors include misinterpreting false echoes from schools of fish, seaweed, etc., but the most serious error that commonly occurs is where the depth is greater than the scale range of the instrument; a 400–fathom scale indicates 15 fathoms when the depth is 415 fathoms. Caution in navigation should be exercised when wide variations from charted depths are observed.

(142)

NOTICES TO MARINERS

(143) **Notices to Mariners** are published to advise operators of marine information affecting the safety of navigation. The notices include changes in aids to navigation, depths in channels, bridge and overhead cable clearances, reported dangers and other useful marine information. They should be used routinely for updating the latest editions of nautical charts and related publications.

(144) **Local Notices to Mariners** are issued by each Coast Guard District Commander for the waters under their jurisdiction. (See Appendix A for Coast Guard district(s) covered by this volume.) These notices are usually published weekly and are available at *navcen.uscg.gov*.

(145) **U.S. Notice to Mariners**, published weekly by the National Geospatial-Intelligence Agency, are prepared jointly with NOAA and the Coast Guard. These notices contain selected items from the Local Notices to Mariners and other reported marine information required by oceangoing vessels operating in both foreign and domestic waters. Special items covering a variety of subjects and generally not discussed in the Coast Pilot or shown on nautical charts are published annually in Notice to Mariners No. 1. These items are important to the mariner and should be read for future reference.

These notices are available at *msi.nga.mil/NGAPortal/MSI.portal*.

(146) **Broadcast Notices to Mariners** are made by the Coast Guard to report deficiencies and important changes in aids to navigation. (See Navigational Warnings, Information and Weather, this chapter.)

(147) The **Special Notice to Mariners** is an annual publication containing important information for mariners on a variety of subjects which supplements information not usually found on charts and in navigational publications. It includes excerpts from various Federal laws and regulations regarding marine pollution reporting, aids to navigation and Vessel Traffic Service (VTS) procedures. There are tips for trip planning, updates to the Rules of the Road and information on local hazards. Also included are points of contact, phone numbers and email addresses for various subject matter experts to assist the mariner in locating further information.

(148) Vessels operating within the limits of the Coast Guard districts can obtain information affecting NOAA charts and related publications from the Local Notices to Mariners. Small craft using the Intracoastal Waterway and other waterways and small harbors within the United States that are not normally used by oceangoing vessels will require the Local Notices to Mariners to keep charts and related publications up to date.

(149)

AIDS TO NAVIGATION

(150)

U.S. Aids to Navigation System

(151) The navigable waters of the United States are marked to assist navigation using the U.S. Aids to Navigation System, a system consistent with the International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA) Maritime Buoyage System. The **IALA Maritime Buoyage System** is followed by most of the world's maritime nations and will improve maritime safety by encouraging conformity in buoyage systems worldwide. IALA buoyage is divided into two regions made up of Region A and Region B. All navigable waters of the United States follow IALA Region B, except U.S. possessions west of the International Date Line and south of 10° north latitude, which follow IALA Region A. Lateral aids to navigation in Region A vary from those located within Region B. Nonlateral aids to navigation are the same as those used in Region B. Appropriate nautical charts and publications should be consulted to determine whether the Region A or Region B marking schemes are in effect for a given area.

(152) As standard protocol, the U.S. Coast Guard reported assigned positions of aids to navigation uses the North American Datum of 1983 (NAD 83). Due to the development of new navigational systems and the retirement of old systems, the World Geodetic System 1984 (WGS 84) has become the preferred standard. In 2020, the U.S. Coast Guard Chief of the Office of Navigation Systems (CG-NAV) announced that all geographic coordinates for aids to navigation assigned positions will be reported using WGS 84.

(153)

Reporting Defects in Aids to Navigation

(154) Promptly notify the nearest Coast Guard District Commander if an aid to navigation is observed to be missing, sunk, capsized, out of position, damaged, extinguished or showing improper characteristics.

(155) **Aids to navigation** in United States waters of the Great Lakes and their connecting waters, except for the St. Lawrence River, are maintained by the U.S. Coast Guard. Local jurisdiction for the region is assigned to the Commander, Ninth Coast Guard District. The Lake Champlain region and the Hudson River are under the jurisdiction of the Commander, First Coast Guard District. (See Appendix A for the addresses.)

(156) It is unlawful to establish or maintain any aid similar to those maintained by the U.S. Coast Guard without first obtaining permission from the Coast Guard District Commander. The licensed officer in command of a vessel which collides with any aid must report the fact promptly to the nearest U.S. Coast Guard Sector.

(157)

Lights

(158) **Nominal range** is the term for the range of visibility of lights as defined in the U.S. Coast Guard Light List and shown on nautical charts. It is the maximum distance a light can be seen in clear weather (meteorological visibility of 10 nautical miles). Nominal range is listed for all lighted aids to navigation except range lights, directional lights, and private aids to navigation.

(159) **Luminous range** is the greatest distance a light may be seen given its nominal range and the prevailing meteorological visibility. The Luminous Range Diagram, found in the U.S. Coast Guard Light List, enables the mariner to determine the approximate luminous range of a light when the nominal range and the prevailing meteorological visibility are known. The nominal range and the luminous range do not take into account elevation, observer's height of eye, or the curvature of the earth.

(160) **Geographic range** is the greatest distance the curvature of the earth permits an object, of a given height, to be seen from a particular height of eye without regard to luminous intensity or visibility conditions. To determine the actual geographic range for height of eye, the geographic range must be corrected by a distance corresponding to the height difference. The Geographic Range Table, found in the U.S. Coast Guard Light List, gives the approximate geographic range of visibility for an object which may be seen by an observer at sea level.

(161) The maximum distances at which lights can be seen may at times be increased by abnormal atmospheric refraction and may be greatly decreased by unfavorable weather conditions such as fog, rain, haze or smoke. All except the most powerful lights are easily obscured by such conditions. In some conditions of the atmosphere

white lights may have a reddish hue. During weather conditions which tend to reduce visibility, colored lights are more quickly lost to sight than white lights. Navigational lights should be used with caution because of the following conditions that may exist.

(162) A light may be extinguished and the fact not reported to the Coast Guard for correction, or a light may be located in an isolated area where it will take time to correct.

(163) In regions where ice conditions prevail the lantern panes of unattended lights may become covered with ice or snow, which will greatly reduce the visibility and may also cause colored lights to appear white.

(164) Brilliant shore lights used for advertising and other purposes, particularly those in densely populated areas, make it difficult to identify a navigational light.

(165) At short distances flashing lights may show a faint continuous light between flashes.

(166) The distance of an observer from a light cannot be estimated by its apparent intensity. The characteristics of lights in an area should always be checked in order that powerful lights visible in the distance not be mistaken for nearby lights showing similar characteristics at low intensity such as those on lighted buoys.

(167) The apparent characteristic of a complex light may change with the distance of the observer, due to color and intensity variations among the different lights of the group. The characteristic as charted and shown in the Light List may not be recognized until nearer the light.

(168) Motion of a vessel in a heavy sea may cause a light to alternately appear and disappear, and thus give a false characteristic.

(169) Where lights have different colored sectors, be guided by the correct bearing of the light; do not rely on being able to accurately observe the point at which the color changes. On either side of the line of demarcation of colored sectors there is always a small arc of uncertain color.

(170) On some bearings from the light, the range of visibility of the light may be reduced by obstructions. In such cases, the obstructed arc might differ with height of eye and distance. When a light is cut off by adjoining land and the arc of visibility is given, the bearing on which the light disappears may vary with the distance of the vessel from which observed and with the height of eye. When the light is cut off by a sloping hill or point of land, the light may be seen over a wider arc by a ship far off than by one closer.

(171) Arcs of circles drawn on charts around a light are not intended to give information as to the distance at which it can be seen, but solely to indicate, in the case of lights which do not show equally in all directions, the bearings between which the variation of visibility or obscuration of the light occurs.

(172) Lights of equal candlepower but of different colors may be seen at different distances. This fact should be considered not only in predicting the distance at which a light can be seen, but also in identifying it.

(173) Lights should not be passed close aboard, because in many cases riprap mounds are maintained to protect the structure against ice damage and scouring action.

(174) Many prominent towers, tanks, smokestacks, buildings and other similar structures, charted as landmarks, display flashing and/or fixed red aircraft obstruction lights. Lights shown from landmarks are charted only when they have distinctive characteristics to enable the mariner to positively identify the location of the charted structure.

(175)

Articulated Lights

(176) An articulated light is a vertical pipe structure supported by a submerged buoyancy chamber and attached by a universal coupling to a weighted sinker on the seafloor. The light, allowed to move about by the universal coupling, is not as precise as a fixed aid. However, it has a much smaller watch circle than a conventional buoy, because the buoyancy chamber tends to force the pipe back to a vertical position when it heels over under the effects of wind, wave or current.

(177) Articulated lights are primarily designed to mark narrow channels with greater precision than conventional buoys.

(178)

Daybeacons

(179) Daybeacons are unlighted aids affixed to stationary structures. They are marked with dayboards for daytime identification. The dayboards aid navigation by presenting one of several standard shapes and colors which have navigational significance. Dayboards are sometimes referred to as daymarks.

(180) Daybeacons are found on-shore and in shallow water. They are frequently used to mark channel edges.

(181)

Articulated Daybeacons

(182) Articulated daybeacons are similar to articulated lights, described above, except they are unlighted.

(183)

Buoys

(184) The aids to navigation depicted on charts comprise a system consisting of fixed and floating aids with varying degrees of reliability. Therefore, prudent mariners will not rely solely on any single aid to navigation, particularly a floating aid.

(185) The approximate position of a buoy is represented by the dot or circle associated with the buoy symbol. The approximate position is used because of practical limitations in positioning and maintaining buoys and their sinkers in precise geographical locations. These limitations include, but are not limited to, inherent imprecisions in position fixing methods, prevailing atmospheric and sea conditions, the slope of and the material making up the seabed, the fact that buoys are moored to sinkers by varying lengths of chain and the fact that buoy body and/or sinker positions are not under continuous surveillance, but are normally checked only

during periodic maintenance visits which often occur more than a year apart. The position of the buoy body can be expected to shift inside and outside of the charting symbol due to the forces of nature. The mariner is also cautioned that buoys are liable to be carried away, shifted, capsized, sunk, etc. Lighted buoys may be extinguished or sound signals may not function as a result of ice, running ice or other natural causes, collisions or other accidents.

(186) For the foregoing reasons, a prudent mariner must not rely completely upon the charted position or operation of floating aids to navigation but will also utilize bearings from fixed objects and aids to navigation on shore. Further, a vessel attempting to pass close aboard always risks collision with a yawing buoy or with the obstruction the buoy marks.

(187) Buoys may not always properly mark shoals or other obstructions due to shifting of the shoals or of the buoys. Buoys marking wrecks or other obstructions are usually placed on the seaward or channelward side and not directly over a wreck. Since buoys may be located some distance from a wreck they are intended to mark, and since sunken wrecks are not always static, extreme caution should be exercised when operating in the vicinity of such buoys.

(188)

Automatic Identification System (AIS) Aids to Navigation

(189) AIS is an automatic communication and identification system intended to improve the safety of navigation by assisting the efficient operation of a Vessel Traffic Services (VTS), ship reporting, ship-to-ship and ship-to-shore operations. AIS is increasingly being used as an aid to navigation. An AIS-equipped aid to navigation may provide a positive identification of the aid. It may also have the capability to transmit an accurate position and provide additional information such as actual tide height and/or weather information.

(190) The AIS message may represent an aid to navigation that physically exists (physical AIS Aid to Navigation) or the message, transmitted from a remote location, may represent an aid to navigation that does not physically exist (virtual AIS Aid to Navigation). A virtual aid to navigation is a digital information object promulgated by an authorized service provider that can be presented on navigational systems.

(191) Physical AIS aids to navigation are charted with the symbol for the physical aid (such as a buoy or light) with a magenta circle surrounding the symbol and labeled AIS. Virtual aids to navigation are charted with a small central dot with a topmark symbol indicating the purpose of the aid, surrounded by a magenta circle and labeled V-AIS.

(192)

Examples of Charted AIS Aids to Navigation



Temporary AIS aids to navigation and stations remotely transmitting an AIS signal are not charted. See U.S. Chart No. 1, Section S, for additional information and examples.

(193)

Bridge Lights and Clearance Gages

(194) The Coast Guard regulates marine obstruction lights and clearance gages on bridges across navigable waters. Where installed, clearance gages are generally vertical numerical scales, reading from top to bottom, and show the actual vertical clearance between the existing water level and the lowest point of the bridge over the channel; the gages are normally on the right-hand pier or abutment of the bridge, on both the upstream and downstream sides.

(195) Bridge lights are fixed red or green and are privately maintained; they are generally not charted or described in the text of the Coast Pilot. All bridge piers (and their protective fenders) and abutments that are in or adjacent to a navigation channel are marked on all channel sides by red lights. On each channel span of a fixed bridge, there is a range of two green lights marking the center of the channel and a red light marking both edges of the channel, except that when the margins of the channel are confined by bridge piers, the red lights on the span are omitted, since the pier lights then mark the channel edges. For multiplespan fixed bridges, the main-channel span may also be marked by three white lights in a vertical line above the green range lights.

(196) On all types of drawbridges, one or more red lights are shown from the drawspan (higher than the pier lights) when the span is closed; when the span is open, the higher red lights are obscured and one or two green lights are shown from the drawspan, higher than the pier lights. The number and location of the red and green lights depend upon the type of drawbridge.

(197) Bridges and their lighting, construction and maintenance are set forth in **33 CFR 114**, **115**, **116**, and **118** (not carried in this Coast Pilot). Aircraft obstruction lights prescribed by the Federal Aviation Administration may operate at certain bridges.

(198)

Sound Signals

(199) Caution should be exercised in the use of sound signals for navigation purposes. They should be considered solely as warning devices.

(200) Sound travels through the air in a variable manner, even without the effects of wind, and, therefore the hearing of sound signals cannot be implicitly relied upon.

(201) Experience indicates that distances must not be judged only by the intensity of the sound; that occasionally there may be areas close to a sound signal in which it is not heard; and that fog may exist not far from a station, yet not be seen from it, so the signal may not be operating. It is not always possible to start a sound signal immediately when fog is observed.

(202)

Channel Markers

(203) Lights, daybeacons, and buoys along dredged channels do not always mark the bottom edges. Due to local conditions, aids may be located inside or outside the channel limits shown by dashed lines on a chart. The Light List tabulates the offset distances for these aids in many instances.

(204) Aids may be moved, discontinued or replaced by other types to facilitate dredging operations. Mariners should exercise caution when navigating areas where dredges with auxiliary equipment are working.

(205) Temporary changes in aids are not included on the charts.

(206)

Light Lists

(207) The Coast Guard Light Lists are a means for communicating aids to navigation information to the maritime public. They are updated weekly and available for download on the United States Coast Guard Navigation Center's website at *www.navcen.uscg.gov*. Mariners should refer to these lists for detailed information regarding the characteristics and visibility of lights, and the description of light structures, buoys, sound signals and electronic aids.

(208)

ELECTRONIC POSITIONING SYSTEMS

(209) **Global Positioning System (GPS)**permits land, sea, and airborne users to determine their three-dimensional position, velocity and time 24 hours a day, in all weather, anywhere in the world. The basic system is defined as a constellation of satellites, the navigation payloads which produce the GPS signals, ground stations, data links and associated command and control facilities, that are operated and maintained by the Department of Defense. Please report GPS problems or anomalies at *navcen.uscg.gov* or contact the USCG Navigation Information Service at 703–313–5900.

(210)

LORAN-C

(211) LORAN, an acronym for LOng RAnge Navigation, was an electronic aid to navigation consisting of shore-based radio transmitters. In accordance with the Department of Homeland Security Appropriations Act, the U.S. Coast Guard terminated the transmission of all LORAN-C signals as of August 2010, rendering them unusable and permanently discontinued. For more details, visit *navcen.uscg.gov*. The Coast Guard strongly urges mariners accustomed to using LORAN-C for navigation to shift to a GPS navigation system and become familiar with its operation. NOAA is removing LORAN-C lines of position from all of its charts as new editions are published.

(212) <Deleted Paragraph>

(212)

SEARCH AND RESCUE

(213)

Coast Guard Search and Rescue

(214) The Coast Guard conducts and/or coordinates search and rescue operations for surface vessels or aircraft that are in distress or overdue. Search and rescue vessels and aircraft have special markings, including a wide slash of red-orange and a small slash of blue on the forward portion of the hull or fuselage. Other parts of aircraft, normally painted white, may have other areas painted red to facilitate observation. The cooperation of vessel operators with Coast Guard helicopters, fixed-wing aircraft, and vessels may mean the difference between life and death for some seaman or aviator; such cooperation is greatly facilitated by the prior knowledge on the part of vessel operators of the operational requirements of Coast Guard equipment and personnel, of the international distress signals and procedures and of good seamanship.

(215)

Search and Rescue Great Lakes

(216) The United States Coast Guard has established a toll-free search and rescue telephone number for the Great Lakes. The number is intended for use when the telephone number of the nearest Coast Guard station is unknown or when that station cannot be contacted. The toll-free number should not be used without first attempting to contact the nearest Coast Guard station. In all Great Lakes States the telephone number is 800-321-4400. This number is to be used for public reports of distress incidents, suspicious sightings, pollution or other maritime concerns.

(217)

Radiotelephone Distress Message

(218) Distress calls indicate a vessel or aircraft is threatened by grave and imminent danger and requests immediate assistance. They have absolute priority over all other transmissions. All stations which hear a distress call must immediately cease any transmission capable of interfering with the distress traffic and continue to listen on the frequency used for the emission of the distress call. This call should not be addressed to a particular station, and acknowledgment of receipt should not be given before the distress message which follows it is sent.

(219) Distress calls are made on VHF-FM channel 16 (MAYDAY). For less serious situations than warrant the distress procedure, the radiotelephone urgency signal consisting of three repetitions of the word PAN-PAN (pronounced PAWN-PAWN), or the safety signal SECURITE (pronounced SECURITAY) spoken three times, are used as appropriate. For complete information on emergency radio procedures, see **47 CFR 80** or **Radio Navigational Aids, Pub. 117**.

(220)

Global Maritime Distress and Safety System (GMDSS)

(221) This international system, developed by the International Maritime Organization (IMO), is based on a combination of satellite and terrestrial radio services and has changed international distress communications from being primarily ship-to-ship based to primarily ship-to-shore (Rescue Coordination Center) based. Prior to the GMDSS, the number and types of radio safety equipment required to be carried by vessels depended upon the tonnage. Under GMDSS, the number and type of radio safety equipment vessels are required to carry depend on the areas in which they travel; GMDSS sea areas are defined by governments. All GMDSS-regulated ships must carry a satellite Emergency Position Indicating Radio Beacon (EPIRB), a NAVTEX receiver (if they travel in any areas served by NAVTEX), an Inmarsat-C SafetyNET receiver (if they travel in any areas not served by NAVTEX), a DSC-equipped VHF radiotelephone, two or more VHF handhelds and a search and rescue radar transponder (SART).

(222)

Automated Mutual Assistance Vessel Rescue System (AMVER)

(223) AMVER is a worldwide voluntary ship reporting system operated by the United States Coast Guard to promote safety of life and property at sea. AMVER's mission is to quickly provide search and rescue (SAR) authorities, on demand, accurate information on the positions and characteristics of vessels near a reported distress. Any merchant vessel anywhere on the globe, on a voyage of greater than 24 hours duration, is welcome in the AMVER system and family. International participation is voluntary regardless of the vessel's flag of registry, the nationality of the owner or company or ports of call.

(224) According to U.S. Maritime Administration (MARAD) regulations, U.S. flag merchant vessels of 1,000 gross tons or more operating in foreign commerce and foreign flag vessels of 1,000 gross tons or more for which an Interim War Risk Insurance Binder has been issued under the provisions of Title XII, Merchant Marine Act, 1936, must report and regularly update their voyages and positions to AMVER in accordance with instructions set forth in the AMVER Ship Reporting System Manual. For more information contact AMVER Maritime Relations U.S. Coast Guard, 1 South Street Battery Park Building, New York, NY 10004; Phone: 212–668–7764, Fax: 212-668-7684, Telex: 127594-AMVER NYK, or go to *amver.com*.

(225)

COSPAS-SARSAT

(226) COSPAS: Space System for Search of Distress Vessels - SARSAT: Search and Rescue Satellite-Aided Tracking. COSPAS-SARSAT is an international satellite system designed to provide distress alert and location data to assist search and rescue operations using satellites and ground facilities to detect and locate the signals of distress beacons operating on 406 MHz. For more information on the Cospas-Sarsat System go to *cospas-sarsat.int*.

(227)

Digital Selective Calling (DSC)

(228) The U.S. Coast Guard offers VHF and MF/HF radiotelephone service to mariners as part of the Global Maritime Distress and Safety System. This service, called digital selective calling (DSC), allows mariners to instantly send an automatically formatted distress alert to the Coast Guard or other rescue authority anywhere in the world. Digital selective calling also allows mariners to initiate or receive distress, urgency, safety and routine radiotelephone calls to or from any similarly equipped vessel or shore station, without requiring either party to be near a radio loudspeaker. Each ship or shore station equipped with a DSC terminal has a unique Maritime Mobile Station Identity (MMSI). This is a nine-digit number that specifically identifies a ship, coast station, or group of stations. The DSC system alerts an operator when a distress call is received. It will provide the operator with a pre-formatted message that can include the distressed vessel's nine-digit MMSI, location, nature of distress, desired mode of communication and preferred working frequency.

(229)

Emergency Position Indicating Radiobeacons (EPIRB)

(229) <229-230 Deleted>

(230) EPIRBs emit a radio signal that can be used to locate mariners in distress. SARSAT satellites can locate the position of a 406 MHz EPIRB which greatly increases a mariner's chances of survival. While orbiting the earth, the satellites continuously monitor EPIRB frequencies. When SARSAT receives an EPIRB signal, it determines the beacon's position that is ultimately relayed to the nearest Coast Guard Rescue Coordination Center where rescue units are dispatched to the scene.

(231) Mariners should ensure that their EPIRB is in working condition and stowed properly at all times to avoid non-distress emissions. Mariners are required to register their 406 MHz EPIRBs for improved search and rescue response and keep the registration current at all times. Registration can be accomplished online at *beaconregistration.noaa.gov*.

(232)

EPIRB Types

Type	Frequency	Description
Cat I	406 MHz	Float-free, automatically activated EPIRB. Detectable by satellite anywhere in the world. Recognized by the Global Maritime and Distress Safety System (GMDSS).
Cat II	406 MHz	Similar to Category I, except is manually activated. Some models are also water activated.

(244)

U.S. VHF Channel Information

New Channel	Old Channel	Ship Frequency (MHz)		Channel Usage
		Transmit	Receive	
1001	01A	156.050	156.050	Port Operations and Commercial, VTS. Available only in New Orleans / Lower Mississippi area.
1005	05A	156.250	156.250	Port Operations or VTS in the Houston, New Orleans and Seattle areas
06	06	156.300	156.300	Intership Safety
1007	07A	156.350	156.350	Commercial. VDSMS
08	08	156.400	156.400	Commercial (Intership only) VDSMS
09	09	156.450	156.450	Boater Calling; Commercial and Non-commercial. VDSMS
10	10	156.500	156.500	Commercial. VDSMS
11	11	156.550	156.550	Commercial; VTS in selected areas. VDSMS
12	12	156.600	156.600	Port Operations; VTS in selected areas
13	13	156.650	156.650	Intership Navigation Safety (Bridge-to-Bridge). Ships greater than 20m maintain a listening watch on this channel in U.S. waters.
14	14	156.700	156.700	Port Operations; VTS in selected areas
15	15	- -	156.750	Environmental (Receive only) Used by Class C EPIRBs
16	16	156.800	156.800	International Distress, Safety and Calling. Ships required to carry radio, USCG, and most coast stations maintain a listening watch on this channel. *(Refer to: Radio Watchkeeping Regulations).*
17	17	156.850	156.850	State and local government maritime control
1018	18A	156.900	156.900	Commercial. VDSMS
1019	19A	156.950	156.950	Commercial. VDSMS
20	20	157.000	161.600	Port Operations (duplex)
1020	20A	157.000	157.000	Port Operations
1021	21A	157.050	157.050	U.S. Coast Guard only
1022	22A	157.100	157.100	Coast Guard Liaison and Maritime Safety Information Broadcasts. *(Broadcasts announced on Channel 16)*
1023	23A	157.150	157.150	U.S. Coast Guard only
24	24	157.200	161.800	Public Correspondence (Marine Operator). VDSMS
25	25	157.250	161.850	Public Correspondence (Marine Operator). VDSMS
26	26	157.300	161.900	Public Correspondence (Marine Operator). VDSMS
27	27	157.350	161.950	Public Correspondence (Marine Operator). VDSMS
28	28	157.400	162.000	Public Correspondence (Marine Operator). VDSMS
1063	63A	156.175	156.175	Port Operations and Commercial, VTS. Available only in New Orleans / Lower Mississippi area.
1065	65A	156.275	156.275	Port Operations
1066	66A	156.325	156.325	Port Operations
67	67	156.375	156.375	Commercial. Used for Bridge-to-Bridge communications in lower Mississippi River. (Intership only.)
68	68	156.425	156.425	Non-Commercial. VDSMS
69	69	156.475	156.475	Non-Commercial. VDSMS
70	70	156.525	156.525	Digital Selective Calling (voice communications not allowed)
71	71	156.575	156.575	Non-Commercial. VDSMS
72	72	156.625	156.625	Non-Commercial (Intership only). VDSMS
73	73	156.675	156.675	Port Operations
74	74	156.725	156.725	Port Operations
77	77	156.875	156.875	Port Operations (Intership only)
1078	78A	156.925	156.925	Non-Commercial. VDSMS
1079	79A	156.975	156.975	Commercial. Non-commercial in Great Lakes only. VDSMS
1080	80A	157.025	157.025	Commercial. Non-commercial in Great Lakes only. VDSMS
1081	81A	157.075	157.075	U.S. Government only - Environmental protection operations.
1082	82A	157.125	157.125	U.S. Government only
1083	83A	157.175	157.175	U.S. Coast Guard only
84	84	157.225	161.825	Public Correspondence (Marine Operator). VDSMS
85	85	157.275	161.875	Public Correspondence (Marine Operator). VDSMS
86	86	157.325	161.925	Public Correspondence (Marine Operator). VDSMS
87	87	157.375	157.375	Public Correspondence (Marine Operator). VDSMS
88	88A	157.425	157.425	Commercial (Intership only). VDSMS
AIS 1	AIS 1	161.975	161.975	Automatic Identification System (AIS)
AIS 2	AIS 2	162.025	162.025	Automatic Identification System (AIS)

Boaters should normally use channels listed as Non-Commercial. Channel 16 is used for calling other stations or for distress alerting. Channel 13 should be used to contact a ship when there is danger of collision. All ships of length 20m or greater are required to guard VHF channel 13, in addition to VHF channel 16, when operating within U.S. territorial waters. Users may be fined by the FCC for improper use of these channels. Frequencies are in megahertz (MHz). Modulation is 16KF3E or 16KG3E. VDSMS (VHF Digital Small Message Services). Transmissions of short digital messages in accordance with RTCM Standard 12301.1 is allowed. Four-digit VHF maritime channel numbers: US channel 05A is now designated and recognized internationally by the channel 1005, and the U.S. Coast Guard channel 22A is now designated and recognized internationally by the channel “1022”. These new channel number designations are being displayed on new models of VHF marine radios.

Further information can be obtained by visiting the following:

U.S. VHF Channel Information - *https://www.navcen.uscg.gov/us-vhf-channel-information*
Radio Watchkeeping Regulations - *https://www.navcen.uscg.gov/radio-watchkeeping-regulations*
International Telecommunications Union (ITU) Radio Regulations Appendix 18 - *https://navcen.uscg.gov/international-vhf-marine-radio-channels-freq*

(233)

Medical Advice

(234) Ships at sea with no medical personnel embarked and experiencing a medical emergency onboard can receive medical advice via radiotelex, radiotelephony or Inmarsat. Messages are generally addressed RADIOMEDICAL followed by the name of the coast station to which the message is sent. The priority of the message should depend on the severity of the ailment. In extreme emergency, the urgency signal (PAN-PAN) should precede the address. Messages are sent using distress and safety frequencies.

(235)

Vessel Identification

(236) Coast Guard search and rescue aircraft and surface craft use radar to assist in locating disabled vessels. Wooden and fiberglass vessels are often poor radar targets. Operators of disabled craft that are the object of a search are requested to hoist, as high above the waterline as possible, a radar-reflecting device. If no special radar-reflecting device is aboard, an improvised device can be used. This should consist of metallic objects of irregular shape. The more irregular the shape, the better will be the radar-reflective quality. For quick identification at night, shine spotlights straight up. If aircraft are involved, once you are identified, turn lights away so as not to blind aircraft crew.

(237)

Float Plan

(238) Small craft operators should prepare a float plan before starting a trip and leave it ashore with a yacht club, marina, friend or relative. It is advisable to regularly use a checking-in procedure by radio or telephone for each point specified in the float plan. A float plan is vital for determining if a boat is overdue and will assist in locating a missing vessel in the event search and rescue operations become necessary.

(239)

NAVIGATIONAL WARNINGS, INFORMATION AND WEATHER

(240) Marine radio warnings and weather are disseminated by many sources and through several types of transmissions. For complete information on radio warnings and weather, see **Radio Navigational Aids, Pub. 117** and the National Weather Service (NWS) publication **Worldwide Marine Radiofacsimile Broadcast Schedules**.

(241) Radio navigational warning broadcasts are designed to provide the mariner with up-to-date marine information vital to safe navigation. There are three types of broadcasts: coastal and local, long range and worldwide.

(242) Coastal and local warnings are generally restricted to ports, harbors and coastal waters and involve items of local interest. Usually, local or short-range warnings are broadcast from a single coastal station, frequently by voice and also radiotelegraph, to assist small craft operators in the area. The information is often quite detailed. Foreign area broadcasts are frequently in English as well as the native language. In the United States, short-range radio navigational warnings are broadcast by the U.S. Coast Guard Districts via NAVTEX and subordinate coastal radio stations.

(243) Long range warnings are intended primarily to assist mariners on the high seas by promulgating navigational safety information concerning port and harbor approaches, coastlines and major ocean areas. Long-range radio navigational warnings are usually broadcast by means of radiotelegraphy and in many instances by radio-teletypewriter. A NAVAREA system of navigational warning areas has been developed providing worldwide coverage using standard format and procedures. The U.S. participates as Area Coordinator for both NAVAREA IV (Western North Atlantic) and NAVAREA XII (Eastern North Pacific).

(245) The United States also maintains worldwide coverage using the HYDROLANT/HYDROPAC Navigational Warning System outside of NAVAREAs IV and XII.

(246)

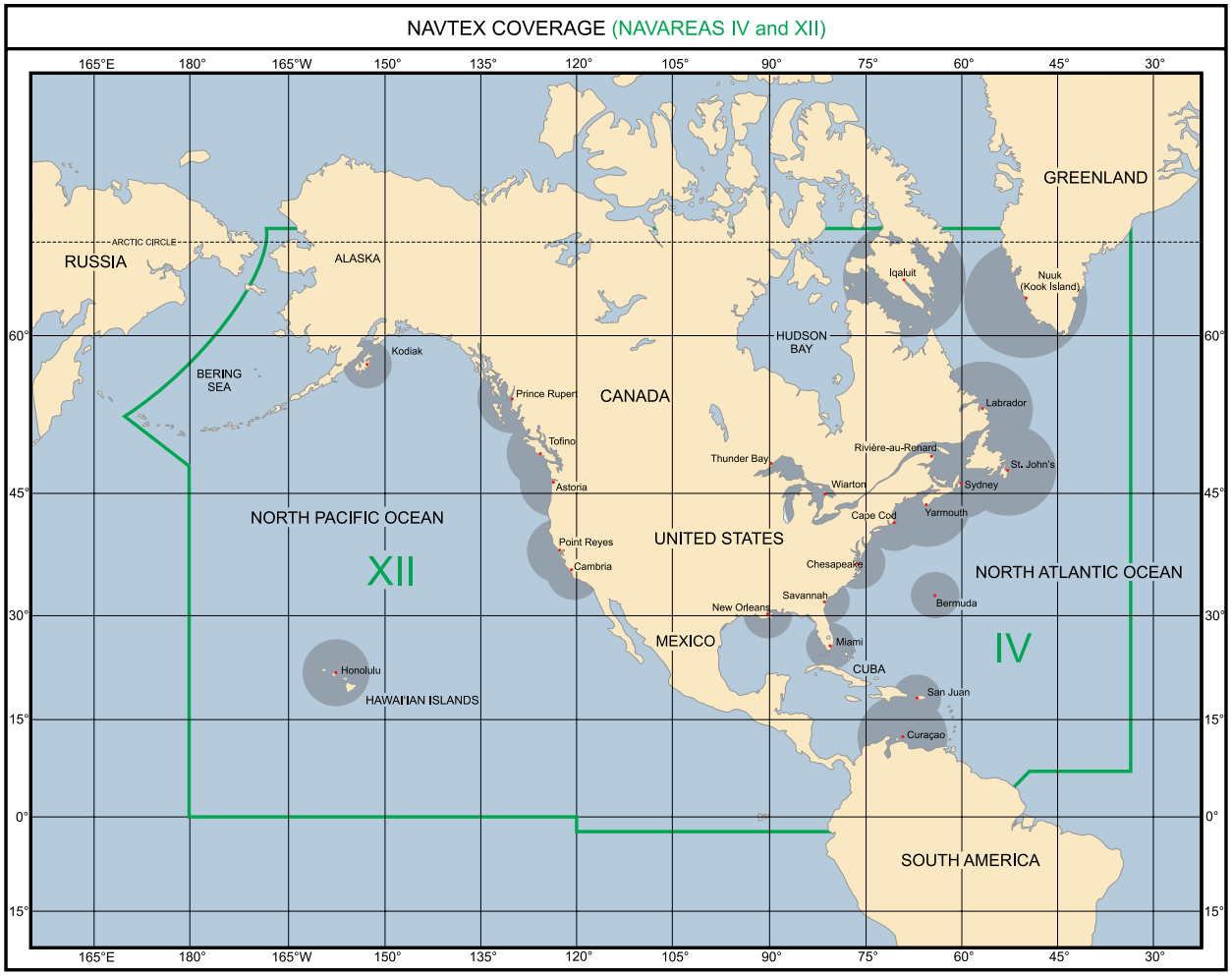
NAVTEX

(247) NAVTEX is a standard international method of broadcasting notices to mariners and marine weather forecasts using small, low cost receivers designed to be installed in the pilothouse of a vessel. NAVTEX receivers screen incoming messages, inhibiting those which had been previously received or are of a category not of interest to the user, and print the rest on adding machine-size paper. NAVTEX not only provides marine information previously available only to those knowledgeable in Morse code but also allows any mariner who cannot man a radio full time to receive safety information at any hour. All NAVTEX transmissions are made on 518 kHz. Mariners who do not have NAVTEX receivers but have Simplex Teletype Over Radio (SITOR) radio equipment can also receive these broadcasts by operating it in the Forward Error Correction (FEC) mode and tuning to 518 kHz.

(248) Information broadcast over NAVTEX includes offshore weather forecasts, offshore marine advisory warnings, search and rescue information and navigational information that applies to waters from the line of demarcation (separating Inland Rules from COLREG Rule waters) to 200 miles offshore. Navigational information that affects the safety of navigation of deep draft (15 feet or more) vessels within the U.S. Inland Rules waters will also be included. Gulf Stream location is also included from Miami and Portsmouth. Coastal and high seas weather forecasts are not being broadcast over NAVTEX. The Safety of Life at Sea Convention, as amended in 1988, requires vessels regulated by that convention to carry NAVTEX receivers.

(249) See Appendix A, U.S. NAVTEX Transmitting Stations, for a list of NAVTEX broadcast stations and

(250)



message content covered by this Coast Pilot.

(251)

Broadcast Notice to Mariners

(252) The U.S. Coast Guard transmits **Urgent Marine Information Broadcast** (UMIB) safety warnings and communicates with mariners on VHF channel 1022 (previously channel 22A). These safety broadcasts contain information such as notices to mariners, storm warnings, distress warnings and other pertinent information that is vital for safe navigation. Following a preliminary call on VHF-FM channel 16 (156.800 MHz), mariners are instructed to shift to VHF-FM channel 1022 (157.100 MHz). A shipboard radio tuned to channel 1022 (U.S. mode) both transmits and listens on 157.100 MHz, and can receive UMIBs transmitted by the U.S Coast Guard. A shipboard radio tuned to channel 22 (international mode) transmits on 157.100 MHz and listens on 161.700 MHz, and cannot receive these safety warnings. In accordance with **33 CFR 26.03(d)**, "The radiotelephone required by (this Bridge-to-bridge radiotelephone regulation) must be capable of transmitting and receiving on VHF FM channel 22A (157.100 MHz)." This regulation applies to foreign ships in U.S. waters as well as to U.S. ships.

(253)

NOAA Weather Radio Broadcasts

(254) NOAA Weather Radio provides continuous broadcasts of the latest weather information directly from (NWS) offices. In addition to general weather information, marine weather is provided by stations along the sea coasts and the Great Lakes. During severe weather, NWS forecasters can interrupt the regular broadcasts and substitute special warning messages. The stations operate 24 hours daily, and messages are repeated every 4 to 6 minutes and are routinely revised every 1 to 3 hours or more frequently if necessary. The broadcasts are made on seven VHF-FM frequencies, 162.40 to 162.55 MHz. The 162.475 MHz frequency is only used in special cases where needed to avoid channel interference. They can usually be heard as far as 40 miles from the antenna site, sometimes more. The effective range depends on many factors, including the height of the broadcast antenna, terrain, quality of the receiver and the type of receiving antenna. As a general rule, listeners close to or perhaps beyond the 40 mile range should have a good quality receiver system to get reliable reception. (See Appendix A for a list of these stations in the area covered by this Coast Pilot.)

(261)

Standard Abbreviations Used in Broadcasts

Aids to Navigation

AERO RBN — Aeronautical Radiobeacon
ART DBN — Articulated Daybeacon
ART LT — Articulated Light
DESTR — Destroyed
DISCONTD — Discontinued
ESTAB — Established
ELB — Exposed Location Buoy
FOG SIG — Fog Signal Station
LNB — Large Navigation Buoy
LT — Light
LLNR — Light List Number
LBB — Lighted Bell Buoy
LB — Lighted Buoy
LGB — Lighted Gong Buoy
LHB — Lighted Horn Buoy
LWB — Lighted Whistle Buoy
ODAS — Ocean Data Acquisition System
PRIV MAINTD — Privately Maintained
RACON — Radar Beacon
RA REF — Radar Reflector
TRUB — Temporarily Replaced by Unlighted Buoy
TRLB — Temporarily Replaced by Lighted Buoy
WHIS — Whistle

Light Characteristics

AL — Alternating
CHAR — Characteristic
FL(2+1) — Composite Group-Flashing
OC(2+1) — Composite Group-Occulting
Q — Continuous Quick-Flashing
FFL — Fixed and Flashing
F — Fixed
FL(3) — Group-Flashing
OC(2) — Group-Occulting
IQ — Interrupted Quick-Flashing
ISO — Isophase
MO(A) — Morse Code
OC — Occulting
FL — Single-Flashing

Colors (Color refers to light characteristics of Aids to Navigation only)

B — Black
BU — Blue
G — Green
OR — Orange
R — Red
W — White
Y — Yellow

Organizations

CCGD(#) — Commander, Coast Guard District (#)
CG — Coast Guard
COE — Corps of Engineers
NGA — National Geospatial-Intelligence Agency
NOS — National Ocean Service
NWS — National Weather Service

Vessels

A/C — Aircraft
F/V — Fishing Vessel
LNG — Liquified Natural Gas Carrier
M/V — Motor Vessel*
P/C — Pleasure Craft
R/V — Research Vessel
S/V — Sailing Vessel

* M/V includes: Steam Ship, Container Vessel, Cargo Vessel, etc.

Compass Directions

N — North
S — South
E — East
W — West
NE — Northeast
NW — Northwest
SE — Southeast
SW — Southwest

Various

ANCH — Anchorage
ANCH PROHIB — Anchorage Prohibited
APPROX — Approximate
ATLC — Atlantic
AUTH — Authorized
AVG — Average
BRG — Bearing
BKW — Breakwater
BNM — Broadcast Notice to Mariners
CHAN — Channel
CFR — Code of Federal Regulations
CONT — Continue
DEG — Degrees (temp, geo-position)
DIA — Diameter
ED — Edition
EFF — Effect/Effective
ENTR — Entrance
EXPLOS ANCH — Explosive Anchorage
FM(S) — Fathoms
FT — Foot/Feet
HBR — Harbor
HT — Height
HZ — Hertz
HOR CL — Horizontal Clearance
HR — Hour
COLREGS — International Regulations for Preventing Collisions at Sea
KHZ — Kilohertz
KM — Kilometer
KT(S) — Knot(s)
LAT — Latitude
LNM — Local Notice to Mariners
LONG — Longitude
MAINTD — Maintained
MAX — Maximum
MHZ — Megahertz
MB — Millibar
MM — Millimeter
MIN — Minute (time, geo position)
MOD — Moderate
MT —Mountain, Mount
NM — Nautical Mile(s)
NTM — Notice to Mariners
OBSTR — Obstruction
OCCASION — Occasion/Occasionally
OPAREA — Operating Area
PAC — Pacific
PT(S) — Point(s)
POS — Position
PA —Position Approximate
PRES — Pressure
PRIV — Private/Privately
PROHIB — Prohibited
PUB — Publication
RGE — Range
REP — Reported
RESTR — Restricted
RK — Rock
ST — Saint
SEC — Second (time, geo position)
SIG STA — Signal Station
STA — Station
SM — Statute Mile(s)
S SIG STA — Storm Signal Station
TEMP — Temporary
TSTORM — Thunderstorm
THRU — Through
T — True
UNCOV — Uncovers
UTC — Universal Coordinate Time
UMIB — Urgent Marine Information Broadcast
VEL — Velocity
VERT CL — Vertical Clearance
VIS — Visibility
YD — Yard(s)
WARN — Warning
WX — Weather
WK — Wreck

(255)

Commercial Maritime Coast Stations and Weather Nets

(256) Commercial maritime coast stations, which provide communications services, broadcast weather information to ships at sea as a public service, or make forecast information available on demand, either free or for a nominal fee. These transmissions are most commonly performed using HF SITOR and Pactor/E-Mail; however, several of these stations also offer services via Inmarsat satellite and other means.

(257) There are also a number of maritime weather *nets* operating on commercial marine VHF, MF and HF, where weather information is exchanged. These *nets* are extremely popular in areas of the world that have a large yachting population and where weather is dynamic, such as in the Caribbean, and typically incorporate volunteers ashore.

(258) Information on commercial maritime coast stations, including schedules and frequencies, is available in the **Radio Navigational Aids, Pub. 117**.

(259)

Standard Abbreviations for Broadcasts

(260) A listing of Standard Abbreviations for Textual Maritime Safety Broadcasts can be found in this chapter. These abbreviations were jointly approved by the U.S. Coast Guard, National Weather Service, National Geospatial-Intelligence Agency and the Radio Technical Commission for Maritime Services. In addition to appearing in radio broadcasts of the U.S. Coast Guard and National Weather Service, they appear in Notices to Mariners of the U.S. Coast Guard and National Geospatial-Intelligence Agency and in NAVTEX.

(262)

Voluntary Observing Ship Program (VOS)

(263) The Voluntary Observing Ship program is organized for the purpose of obtaining weather and oceanographic observations from moving ships. An international program under World Meteorological Organization auspices, the VOS has over 5000 vessels participating from 23 countries. Any vessel willing to take and transmit observations in marine areas can join the program. Weather observations are essential to meteorologists preparing weather forecasts for coastal, offshore and high seas areas. For more information on the VOS, including a comprehensive observing handbook, visit *vos.noaa.gov*.

(264)

National Institute of Standards and Technology (NIST)

(265) The National Institute of Standards and Technology maintains the standards for time and frequency for most users in the United States. NIST provides a variety of services designed to deliver time and frequency signals to the people who need them. The signals are broadcast via several mediums, including high and low frequency radio, the Internet and telephone lines. Broadcasts of time and frequency signals are made by stations operating in the part of the radio spectrum that is properly known as high frequency (HF) but is commonly called shortwave. Station WWV is located just north of Fort Collins, Colorado, and station WWVH is located on the island of Kaua‘i, Hawaii. Both stations broadcast continuous time and frequency signals on 2.5, 5, 10 and 15 MHz; WWV also broadcasts on 20 MHz.

(266) **NIST Time and Frequency Services, Special Publication 432** gives a detailed description of the signals and services offered by NIST, how they work and how you can use them. The publication is available for download at *nist.gov/pml/div688/generalpubs.cfm*.

(267)

CAUTIONARY INFORMATION

(268)

Hurricanes and Tropical Storms

(269) Hurricanes, tropical storms and other major storms may cause considerable damage to marine structures, aids to navigation and moored vessels, resulting in submerged debris in unknown locations. Fixed aids to navigation may have been damaged or destroyed. Buoys may have been moved from charted positions, damaged, sunk, extinguished or otherwise made inoperative. Mariners should not rely upon the position or operation of an aid to navigation. Charted soundings, channel depths and shoreline may not reflect actual conditions following these storms. Wrecks and submerged obstructions may have been displaced from charted locations. Pipelines may have become uncovered or moved. Mariners are urged to exercise extreme caution and are requested to report aids to navigation discrepancies and hazards to navigation to the U.S. Coast Guard.

(270)

Destructive Waves

(271) Unusual sudden changes in water level can be caused by tsunamis or violent storms. These two types of destructive waves have become commonly known as **tidal waves,** a name which is technically incorrect as they are not the result of tide-producing forces.

(272) **Tsunamis** (seismic sea waves) are ocean waves generated by any rapid large-scale disturbance of the sea water. Most tsunamis are generated by earthquakes, but they may also be caused by volcanic eruptions, landslides, undersea slumps or meteor impacts.

(273) The waves radiate outward in all directions from the disturbance and can propagate across entire ocean basins. Tsunami waves are distinguished from ordinary ocean waves by their great length between peaks, often exceeding 100 miles in the deep ocean, and by the long interval of time between these peaks, ranging from five minutes to an hour. The speed at which tsunamis travel depends on the ocean depth. A tsunami can exceed 500 knots in the deep ocean but slows to 20 or 30 knots in the shallow water near land. In less than 24 hours, a tsunami can cross the entire Pacific Ocean.

(274) In the deep ocean, a tsunami is barely noticeable and will only cause a small and slow rising and falling of the sea surface as it passes. Only as it approaches land does a tsunami become a hazard. As the tsunami approaches land and shallow water, the waves slow down and become compressed, causing them to grow in height. In the best of cases, the tsunami comes onshore like a quickly rising tide and causes a gentle flooding of low-lying coastal areas. In the worst of cases, a bore will form.

(274) <Deleted Paragraph>

(275) A bore is a wall of turbulent water that can exceed several yards in height and can rush onshore with great destructive power. Behind the bore is a deep and fast-moving flood that can pick up and sweep away almost anything in its path. Minutes later, the water will drain away as the trough of the tsunami wave arrives, sometimes exposing great patches of the sea floor, then the water will rush in again as before, causing additional damage. This destructive cycle may repeat many times before the hazard finally passes. Sometimes the first noticeable part of the wave is the trough, which causes a recession of the water from shore, and people who have gone out to investigate this unusual exposure of the beach have been engulfed by the oncoming crest. Such an unexplained withdrawal of the sea should be considered as nature's warning of an approaching wave.

(276) Tsunamis do not have a season and do not occur regularly or frequently. Yet they pose a major threat to the coastal populations of the Pacific and other world oceans and seas. Nothing can be done to prevent them, but their adverse impact can be reduced with proper planning. The loss of life and property can be lessened if shipmasters and others acquaint themselves with the behavior of these waves so that intelligent action can be taken when they become imminent.

(277) NOAA oversees the U.S. Tsunami Program with its mission to provide a 24-hour detection and warning system and increase public awareness about the threat of tsunamis. The NOAA National Weather Service operates two tsunami warning centers The West Coast/Alaska Tsunami Warning Center in Palmer, Alaska, and the Richard H. Hagemeyer Pacific Tsunami Warning Center in 'Ewa Beach, Hawaii: *www.tsunami.gov*. These centers continuously monitor data from seismological and tidal stations, evaluate earthquakes that have the potential to generate tsunamis and disseminate tsunami information and warning bulletins to government authorities and the public.

(277) <Deleted Paragraph>

(278) A tsunami warning is issued when a potential tsunami with significant inundation is imminent or expected. Warnings alert the public that widespread, dangerous coastal flooding accompanied by powerful currents is possible and may continue for several hours after arrival of the initial wave. Warnings also alert emergency management officials to take action for the entire tsunami hazard zone. When a tsunami warning has been issued, use a NOAA Weather Radio or stay tuned to a Coast Guard emergency frequency station or a local radio or television station for updated emergency information.

(279)

Storm Surge

(279) <Deleted Paragraph>

(280) A considerable rise or fall in the level of the sea along a particular coast may result from strong winds and sharp change in barometric pressure. In cases where the water level is raised, higher waves can form with greater depth, and the combination can be destructive to low regions, particularly at high stages of tide. Extreme low levels can result in depths which are considerably less than those shown on nautical charts. This type of wave occurs especially in coastal regions bordering on shallow waters which are subject to tropical storms.

(280) <Deleted Paragraph>

(281) **Seiche** is a stationary vertical wave oscillation with a period varying from a few minutes to an hour or more but somewhat less than the tidal periods. It is usually attributed to external forces such as strong winds, changes in barometric pressure, swells or tsunamis disturbing the equilibrium of the water surface. Seiche is found both in enclosed bodies of water and superimposed upon the tides of the open ocean. When the external forces cause a short-period horizontal oscillation on the water, it is called **surge**.

(282) The combined effect of seiche and surge sometimes makes it difficult to maintain a ship in its position alongside a pier even though the water may appear to be completely undisturbed, and heavy mooring lines have been parted repeatedly under such conditions. Pilots advise taut lines to reduce the effect of the surge.

(283)

Immersion Hypothermia

(284) Immersion hypothermia is the loss of heat when a body is immersed in water. With few exceptions, humans die if their core temperature of approximately 99.7° F drops below 78.6° F. Cardiac arrest is the most common direct cause of death. During prolonged immersion, the main threat to life is cold or cold and drowning combined.

(285)

SURVIVAL TIME VERSUS WATER TEMPERATURE

Water Temperature (°F)	Exhaustion or Unconsciousness	Expected Time of Survival
32	15 minutes	15 to 45 minutes
32 to 41	15-30 minutes	30 to 90 minutes
41 to 50	30-60 minutes	1 to 3 hours
50 to 59	1-2 hours	1 to 6 hours
59 to 68	2-7 hours	2 to 40 hours
68 to 77	3-12 hours	3 hours to indefinite
77 and above	indefinite	indefinite

(286) The length of time that a human survives in water depends on the water temperature and to a lesser extent on the person's behavior and body type. The table shows approximate human survival time in the sea. Body type can

cause deviations, as small people become hypothermic more rapidly than large people. The cooling rate can be slowed by the person's behavior and insulated gear. The Heat Escape Lessening Posture (HELP) was developed for those in the water alone and the huddle for small groups. Both require a PFD (personal flotation device), or life preserver. HELP involves holding the arms close to the body, keeping the thighs together, and raising the knees to protect the groin area. In the huddle, people face each other and keep their bodies as close together as possible. These positions improve survival time to approximately two times that of a swimmer and one and a half times that of a person in the passive position.

(287) Near-drowning victims in cold water (less than 70° F) are revivable for much longer periods than usual. Keys to a successful revival are immediate cardiopulmonary resuscitation (CPR) and administration of pure oxygen. Total re-warming is not necessary at first. The whole revival process may take hours and require medical help.

(288)

Wind Chill and Frostbite

(289) When the body is warmer than its surroundings, it begins to lose heat. The rate of loss depends on barriers such as clothing and insulation, the speed of air movement and air temperature. Heat loss increases dramatically in moving air that is colder than skin temperature (91.4° F). Even a light wind increases heat loss, and a strong wind can lower the body temperature if the rate of loss is greater than the body's heat replacement rate.

(290) <Deleted Paragraph>

(290) When skin temperature drops below 50° F, there is a marked constriction of blood vessels, leading to vascular stagnation, oxygen want and cellular damage. The first indication that something is wrong is a painful tingling. Swelling of varying extent follows, provided freezing has not occurred. Excruciating pain may be felt if the skin temperature is lowered rapidly, but freezing of localized portions of the skin may be painless when the rate of change is slow. Possible effects of cold include cold allergy (welts), chilblains, which appear as reddened, warm, itching, swollen patches on the fingers and toes, and trench foot and immersion foot, which present essentially the same picture. Both result from exposure to cold and lack of circulation. Wetness can add to the problem as water and wind soften the tissues and accelerate heat loss.

(291) Frostbite usually begins when the skin temperature falls within the range of 14° to 4° F. Ice crystals form in the tissues and small blood vessels. The rate of heat loss determines the rate of freezing, which is accelerated by wind, wetness, extreme cold and poor blood circulation. Parts of the body susceptible to freezing are those with surfaces large in relation to their volume, such as toes, fingers, ears, nose, chin and cheeks.

(291) <Deleted Paragraph>

(292) Injuries from the cold may, to a large extent, be prevented by maintaining natural warmth through the use of proper footgear and adequate, dry clothing, by avoiding cramped positions and constricting clothing and by active exercise of the hands, legs and feet.

(293)

MARINE POLLUTION

(293) <Deleted Paragraph>

(294)

The Federal Water Pollution Control Act (Clean Water Act)

(295) The Federal Water Pollution Control Act (FWPCA) or Clean Water Act (CWA) was passed to restore and maintain the chemical, physical and biological integrity of the waters within the United States.

(296)

No-Discharge Zones

(297) Section 312 of the FWPCA gives the Environmental Protection Agency (EPA) and States the authority to designate certain areas as No-Discharge Zones (NDZ) for vessel sewage. Freshwater lakes, freshwater reservoirs or other freshwater impoundments whose entrances and exits prohibit traffic by regulated vessels (vessels with installed toilets) are, by regulation, NDZs. Rivers that do not support interstate navigation vessel traffic are also NDZs by regulation. Water bodies that can be designated as NDZs by States and EPA include the Great Lakes and their connecting waterways, freshwater lakes and impoundments accessible through locks and other flowing waters that support interstate navigation by vessels subject to regulation.

(298) Inside NDZ waters, discharge of any sewage, whether treated or untreated, is completely prohibited.

(299) Discharge of sewage in waters not designated as NDZs is regulated by the Marine Sanitation Device Standard (see **40 CFR 140** in chapter 2.)

(300) Additional information concerning the regulations may be obtained from *water.epa.gov*.

(301)

Oil Spill Reporting

(302) Reporting requirements for any oil discharge, noxious liquid substance or harmful substance occurring in waters under U.S. jurisdiction are found in **33 CFR 153**, subpart B (not in this Coast Pilot.) Any person in charge of a vessel or an onshore/offshore facility must, as soon as they have knowledge of any discharge of oil or a hazardous substance, immediately notify the National Response Center (NRC) at 800-424-8802 or NRC@uscg.mil.

(303)

Ocean Dumping

(304) The Marine Protection Research and Sanctuaries Act of 1972, as amended (33 USC 1401 et seq.), regulates the dumping of all material, except fish waste, into ocean waters. Radiological, chemical and biological warfare agents and other high level radioactive wastes are expressly banned from ocean disposal. The USACE issues permits for the disposal of dredged spoils; the

EPA is authorized to issue permits for all other dumping activities. Surveillance and enforcement to prevent unlawful transportation of material for dumping or unlawful dumping under the Act has been assigned to the U.S. Coast Guard. The Act provides civil penalties of up to $50,000 and criminal penalties of up to $50,000 and/or one year imprisonment.

(305)

SELECT NAVIGATION RULES

(306) <Deleted Paragraph>

(306)

Improper use of searchlights

(307) <Deleted Paragraph>

(307) No person shall flash or cause to be flashed the rays of a searchlight or other blinding light onto the bridge or into the pilothouse of any vessel underway. The International Code Signal “PG2” may be made by a vessel inconvenienced by the glare of a searchlight in order to apprise the offending vessel of the fact.

(308) <Deleted Paragraph>

(308)

Use of Radar

(309) Navigation Rules, International-Inland, Rule 7, states, in part, that every vessel shall use all available means appropriate to the prevailing circumstances and conditions to determine if risk of collision exists. If there is any doubt such risk shall be deemed to exist. Proper use shall be made of radar equipment if fitted and operational, including long-range scanning to obtain early warning of risk of collision and radar plotting or equivalent systematic observation of detected objects.

(310) This rule places an additional responsibility on vessels that are equipped and manned to use radar to do so while underway during periods of reduced visibility without in any way relieving commanding officers of the responsibility of carrying out normal precautionary measures.

(311) Navigation Rules, International-Inland, Rules 6, 7, 8, and 19 apply to the use of radar.

(312)

Danger signal

(313) Navigation Rules, International-Inland, Rule 34(d), states that when vessels in sight of one another are approaching each other and from any cause either vessel fails to understand the intentions or actions of the other or is in doubt whether sufficient action is being taken by the other to avoid collision, the vessel in doubt shall immediately indicate such doubt by giving at least five short and rapid blasts on the whistle. Such signal may be supplemented by a light signal of at least five short and rapid flashes.

(314)

Narrow channels

(315) Navigation Rules, International-Inland, Rule 9(b) states that a vessel of less than 20 meters in length or a sailing vessel shall not impede the passage of a vessel that can safely navigate only within a narrow channel or fairway.

(316)

Small craft

(317) Small craft should stay clear of large commercial and government vessels even if small craft have the right-of-way. Large vessels may appear to move slowly due to their large size but actually transit at speeds in excess of 12 knots, requiring a great distance in which to maneuver or stop. A large vessel's superstructure may block the wind with the result that sailboats and sailboards may unexpectedly find themselves unable to maneuver. Bow and stern waves can be hazardous to small vessels. Large vessels may not be able to see small craft close to their bows.

(318) All craft should avoid areas where the divers' flag, a red square with a diagonal white stripe, is displayed.

(319)

REGULATED WATERS

(320)

Traffic Separation Schemes (Traffic Lanes)

(321) To increase the safety of navigation, particularly in converging areas of high traffic density, routes incorporating traffic separation have been adopted by the IMO in certain areas of the world. In the interest of safe navigation, it is recommended that through traffic use these schemes, as far as circumstances permit, by day and by night and in all weather conditions. When approved or established, traffic separation scheme details are announced in Notice to Mariners and later depicted on appropriate charts and included in the U.S. Coast Pilot. See **33 CFR 167**, chapter 2, for regulations.

(322) The IMO is recognized as the only international body responsible for establishing and recommending measures on an international level concerning ships’ routing. In deciding whether or not to adopt or amend a traffic separation scheme, IMO will consider whether the scheme complies with the design criteria for traffic separation schemes and with the established methods of routing. IMO also considers whether the aids to navigation proposed will enable mariners to determine their position with sufficient accuracy to navigate the scheme in accordance with Rule 10 of the International Regulations for Preventing Collisions at Sea (72 COLREGS).

(323) The IMO approved routing measures which affect shipping in or near U.S. waters are:

(324)

IMO-Approved Traffic Separation Routes
Portland, Maine (approaches to)
Boston, Massachusetts (approaches to)
Narragansett Bay, Rhode Island (approaches to)
Buzzards Bay, Massachusetts (approaches to)
New York, New York
Delaware Bay

Chesapeake Bay (approaches to)
Cape Fear River (approaches to)
Galveston Bay (approaches to)
Off San Francisco, California
Los Angeles/Long Beach, California (approaches to)
Strait of Juan de Fuca (approaches to and in)
Puget Sound (approaches to and in)
Haro Strait, Boundary Pass and the Strait of Georgia
Prince William Sound, Alaska

(325)

MARITIME ZONES AND BOUNDARIES

(326) The maritime zones recognized under international law include internal waters, the territorial sea, the contiguous zone, the exclusive economic zone (EEZ), the continental shelf, the high seas, and the Area (see Figure 1). The breadth of the territorial sea, contiguous zone, and EEZ (and in some cases the continental shelf) is measured from the baseline determined in accordance with customary international law as reflected in the 1982 Law of the Sea Convention.

(327) The limits of these zones are officially depicted on NOAA nautical charts. The limits shown on the most recent chart edition takes precedence. The boundaries of maritime zones between coastal States are established through international agreements entered into by those nations. For the official description of the U.S. maritime boundaries with other nations, contact the U.S. Department of State. For more information on NOAA's U.S. Maritime Limits & Boundaries visit: *https://www.noaa.gov/maritime-zones-and-boundaries*

(328)

Baseline

(329) Generally speaking, the normal baseline is the low-water line along the coast as marked on large-scale charts officially recognized by the coastal State. (LOSC art. 5). Special rules for determining the baseline apply in a variety of circumstances, such as with bays, ports, mouths of rivers, deeply indented coastlines, fringing reefs, and roadsteads. (LOSC arts. 6-15). Consistent with these rules, the U.S. baselines are the mean of the lower low tides as depicted on the largest-scale NOAA nautical charts. The U.S. normal baselines are ambulatory and subject to changes as the coastline accretes and erodes. NOAA's nautical charts depict the baselines from which the seaward limits of the U.S. territorial sea, contiguous zone, and exclusive economic zone are measured as well as the seaward boundary of the Three Nautical Mile Line and the Natural Resources Boundary, as described below.

(331)

Internal Waters

(332) Internal waters are the waters on the landward side of the baselines from which the breadth of the territorial sea is measured. (LOSC art. 8). The United States has full sovereignty over its internal waters as if they were part of its land territory and may exclude foreign flag vessels from its internal waters subject to the right of entry of vessels in distress. The right of innocent passage does not apply in internal waters. Ships and aircraft may not enter or overfly internal waters without permission of the coastal State. Examples of internal waters include rivers, harbors, lagoons, some bays and canals, and lakes, including the Great Lakes.

(330)

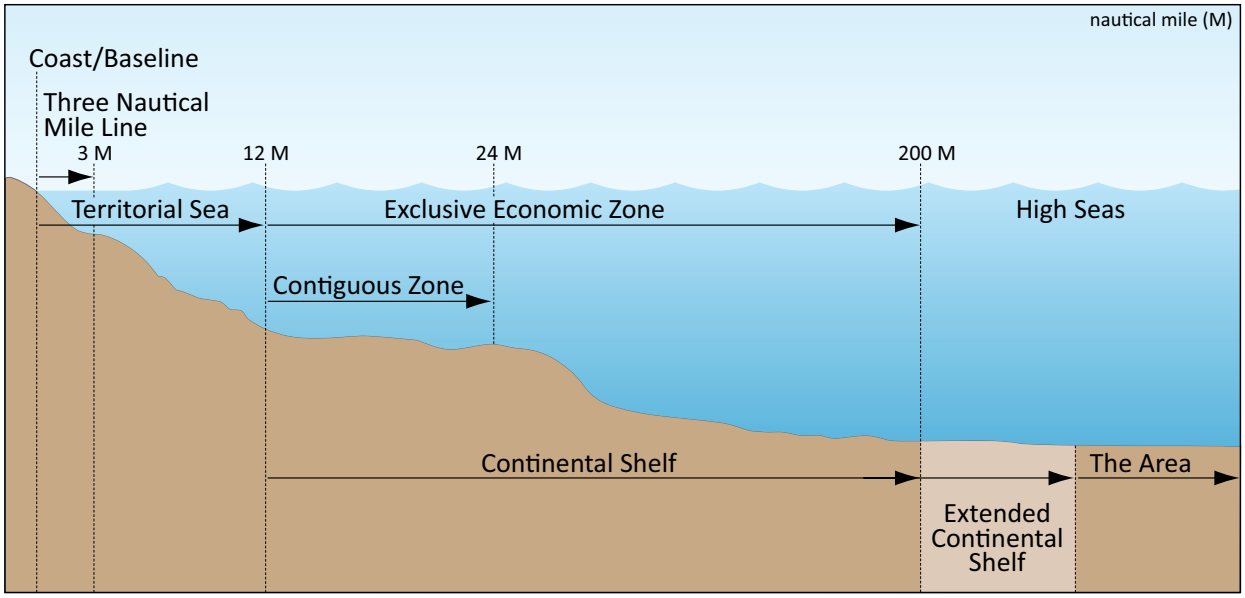


Figure 1: Offshore extent of maritime zones beyond internal waters
https://www.noaa.gov/maritime-zones-and-boundaries

(333)

Territorial Sea

(334) Each coastal State may claim a territorial sea that extends seaward up to 12 nautical miles (nm) from its baselines. (LOSC arts. 3, 4). The coastal State exercises sovereignty over its territorial sea, the airspace above it, and the seabed and subsoil beneath it. (LOSC art. 2). Foreign flagged ships enjoy the right of innocent passage while transiting the territorial sea subject to laws and regulations adopted by the coastal State that are in conformity with the **Law of the Sea Convention** (LOSC arts. 17-26) and other rules of international law relating to such passage.

(335) In 1988, the United States claimed a 12 nm territorial sea. The extension of the territorial sea of the United States includes the belt of seas around the Commonwealth of Puerto Rico, Guam, American Samoa, the U.S. Virgin Islands, the Commonwealth of the Northern Mariana Islands and any other territory or possession over which the United States exercises sovereignty. (Presidential Proclamation No. 5928 of December 27, 1988, 54 Fed. Reg. 777 (Dec. 27, 1988)). The territorial sea of the United States extends seaward to 12 nm from the baselines, which is determined in accordance with the Law of the Sea Convention except as otherwise established in a maritime boundary treaty of the United States. Vessels of all States navigating through the territorial sea enjoy the right of innocent passage. (LOSC art. 17). However, as a coastal State, the United States may adopt certain laws and regulations relating to innocent passage so long as they are in conformity with the provisions of LOSC and other rules of international law. (LOSC art. 21(1)).

(336)

Contiguous Zone

(337) Each coastal State may claim a contiguous zone adjacent to and beyond its territorial sea that extends seaward up to 24 nm from its baselines. (LOSC art. 33(1) & (2)). In its contiguous zone, a coastal State may exercise the control necessary to prevent the infringement of its customs, fiscal, immigration, or sanitary laws and regulations within its territory or territorial sea, and punish infringement of those laws and regulations committed within its territory or territorial sea. (LOSC art. 33(1) (a) & (b)). In addition, in order to control traffic in archeological and historical objects, a coastal State may presume that the removal of archeological and historical objects (e.g., underwater cultural heritage) found at sea within its contiguous zone without its approval would result in an infringement of its laws and regulations. (LOSC art. 303).

(338) The contiguous zone of the United States includes the waters off of all U.S. coastal states, the Commonwealth of Puerto Rico, Guam, American Samoa, the U.S. Virgin Islands, the Commonwealth of the Northern Mariana Islands and any other territory or possession over which the United States exercises sovereignty. In 1999, the United States claimed a contiguous zone extending from 12 to 24 nm offshore. (Presidential Proclamation No. 7219 of August 2, 1999, Contiguous Zone of the United States, 64 Fed. Reg. 48,701 (Aug. 8, 1999)).

(339)

Exclusive Economic Zone

(340) Each coastal State may claim an exclusive economic zone (EEZ) beyond and adjacent to its territorial sea that extends seaward up to 200 nm from its baselines (or out to a maritime boundary with another coastal State). (LOSC art. 55). Within its EEZ, a coastal State has: (a) sovereign rights for the purpose of exploring, exploiting, conserving, and managing natural resources, whether living or nonliving, of the seabed and subsoil and the superjacent waters and with regard to other activities for the economic exploitation and exploration of the zone, such as the production of energy from the water, currents, and winds; (b) jurisdiction as provided for in the relevant provisions of the LOSC with regard to the establishment and use of artificial islands, installations, and structures, marine scientific research, and the protection and preservation of the marine environment; and (c) other rights and duties provided for in the LOSC. (LOSC art. 56).

(341) The United States claimed a 200 nm EEZ in 1983. The U.S. EEZ extends no more than 200 nm from the territorial sea baselines and is adjacent to the 12 nm territorial sea of the United States, including the Commonwealth of Puerto Rico, Guam, American Samoa, the U.S. Virgin Islands, the Commonwealth of the Northern Mariana Islands and any other territory or possession over which the United States exercises sovereignty. (Presidential Proclamation No. 5030 of March 10, 1983; Exclusive Economic Zone and Maritime Boundaries; Notice of Limits; 60 Fed. Reg. 43,825 (Aug. 23, 1995)). As such, the exclusive economic zone overlaps the 12 nm-24 nm contiguous zone. In December 2023, the U.S. Department of State released the geographic coordinates defining the outer limits of the U.S. extended continental shelf. (U.S. Dep't of State, Announcement of U.S. Extended Continental Shelf Outer Limits (Dec. 19, 2023); see also Continental Shelf and Maritime Boundaries; Notice of Limits; 88 Fed. Reg. 88,470 (Dec. 21, 2023)). In addition, the U.S. Department of State also updated information pertaining to the geographic coordinates defining the outer limits of the U.S. EEZ. (Exclusive Economic Zone and Maritime Boundaries; Notice of Limits; 88 Fed. Reg. 88,477 (Dec. 21, 2023)).

(342) Note: Under certain U.S. fisheries laws, such as the Magnuson-Stevens Fishery Conservation and Management Act, the term EEZ is defined as having an inner boundary that is coterminous with the seaward (or outer) boundary of each of the individual coastal states of the U.S. See 16 U.S.C. § 1802(11). Under the Submerged Lands Act, the seaward boundary of each of the individual coastal states is generally three nautical (or geographic) miles from the coast line. The seaward boundaries of Florida (Gulf of America coast only), Texas, and Puerto

Rico extend nine nautical miles from the coast line. In the Great Lakes, each U.S. state's seaward boundary may extend to the international maritime boundary with Canada. See 43 U.S.C. § 1312. Under the Submerged Lands Act, a coastal state's seaward boundary may be fixed by Supreme Court decree. (See below for further information on the Three Nautical Mile Line and the Natural Resources Boundary).

(343)

Continental Shelf

(344) The continental shelf of a coastal State is comprised of the seabed and subsoil of the submarine areas that extend beyond its territorial sea throughout the natural prolongation of its land territory to the outer edge of the continental margin, or to a distance of 200 nm from its baselines where the outer edge of the continental margin does not extend up to that distance. (LOSC art. 76(1)). The extent of the continental shelf can also be limited by a maritime boundary with another coastal State. (LOSC art. 76(10)).

(345) Where the outer edge of a coastal State's continental margin extends beyond 200 nm from its baselines, the outer limits of its continental shelf are determined in accordance with Article 76 paragraphs 2-7 of the **Law of the Sea Convention.** (LOSC art. 76 (2-7)). The portion of a coastal State's continental shelf that lies beyond the 200 nm limit is often called the extended continental shelf (ECS).

(346) A coastal State exercises sovereign rights and exclusive jurisdiction over its continental shelf for the purpose of exploring it and exploiting its natural resources, as well as for other purposes specified in the Law of the Sea Convention. The natural resources of the continental shelf consist of the mineral and other non-living resources of the seabed and subsoil together with living organisms belonging to sedentary species, that is to say, organisms which, at the harvestable stage, either are immobile on or under the seabed or are unable to move except in constant physical contact with the seabed or subsoil. (LOSC art. 77).

(347) In 1945, the United States proclaimed jurisdiction and control over its continental shelf (Presidential Proclamation No. 2667 of Sept. 28, 1945; 10 Fed. Reg. 12,303 (Oct. 2, 1945)). Consistent with international law, the United States exercises its continental shelf rights out to a distance of at least 200 nautical miles from the baselines through several domestic laws. The U.S. Extended Continental Shelf Project, led by the U.S. Department of State, NOAA, and the U.S. Geological Survey, determines the outer limits of the U.S. continental shelf beyond 200 nautical miles (i.e., extended continental shelf). In December 2023, the U.S. Department of State released the geographic coordinates defining the outer limits of the U.S. extended continental shelf. (U.S. Dep't of State, Announcement of U.S.Extended Continental Shelf Outer Limits (Dec. 19, 2023); see also Continental Shelf and Maritime Boundaries; Notice of Limits; 88 Fed. Reg. 88,470 (Dec. 21, 2023)).

(348)

High Seas

(349) The high seas comprise all parts of the sea that are not included in the exclusive economic zone, the territorial sea or the internal waters of a State, or in the archipelagic waters of an archipelagic State. (LOSC art. 86).

(350)

Area

(351) The Area is comprised of the seabed and ocean floor and subsoil thereof beyond the limits of national jurisdiction. (LOSC art. 1(1)). It does not include superjacent waters (i.e., the water column) or the air space above those waters. (LOSC arts. 1(1), 135). No State may claim or exercise sovereignty or sovereign rights over any part of the Area or its resources. (LOSC art. 137(1)). The term "resources" means all solid, liquid or gaseous mineral resources in situ in the Area at or beneath the seabed, including polymetallic nodules. (LOSC art. 133(a)).

(352)

Straits Used for International Navigation

(353) "Straits used for international navigation" are those that are used or are capable of use for international navigation between one area of the high seas or exclusive economic zone ("EEZ") and another area of the high seas or EEZ. (LOSC art. 37). Part III of the Law of the Sea Convention (LOSC arts. 34-45) describes the regime of transit passage through such straits and the rights, jurisdiction, and duties of the States bordering such straits. Transit passage means the exercise in accordance with Part III of the Law of the Sea Convention of the freedom of navigation and overflight solely for the purpose of continuous and expeditious transit of the strait. (LOSC arts. 37, 38). The right of transit passage applies throughout straits used or capable of use for international navigation, including to all normally used approaches to and from such straits. Ships and aircraft in transit passage must comply with the duties outlined in LOSC article 39, which include proceeding without delay and refraining from any activities other than those incident to their normal modes of continuous and expeditious transit. Ships in transit passage may not carry out any research or survey activities without the prior authorization of the States bordering the strait. (LOSC art. 40). States bordering straits used for international navigation may designate sea lanes and prescribe traffic separation schemes for navigation in accordance with Part III where necessary to promote safe passage of ships. (LOSC art. 41). They may also adopt laws and regulations relating to transit passage in respect of certain activities, such as fishing. (LOSC art. 42). States bordering straits used for international navigation may not hamper transit passage. (LOSC art. 44). The transit passage regime does not otherwise affect the legal status of the waters forming an international strait or the exercise of sovereignty or

jurisdiction by the bordering States over the waters, air space, seabed, and subsoil of the strait. (LOSC art. 34).

(354)

Three Nautical Mile Line

(355) The Three Nautical Mile Line, as measured from the territorial sea baselines and previously identified as the outer limit of the U.S. territorial sea, is retained on NOAA charts because it continues to be used in certain federal laws.

(356) Note: Since the "coast line," a term used in the Submerged Lands Act (43 USC Section 1301 et seq.), and the baselines are determined using the same criteria under international law, the Three Nautical Mile Line is generally the same as the seaward boundaries of individual U.S. coastal states under the Submerged Lands Act. There are exceptions; therefore, the Three Nautical Mile Line does not necessarily depict the seaward boundaries of all U.S. coastal states in all circumstances under the Submerged Lands Act.

(357)

Natural Resources Boundary

(358) The nine (9) nm Natural Resources Boundary is the seaward boundary of the submerged lands of Puerto Rico, Texas and the Gulf coast of Florida. It coincides with the inner limit of the U.S. outer continental shelf under the Outer Continental Shelf Lands Act (43 U.S.C. Section 1331 et seq.).

(359)

SUPPLEMENTAL INFORMATION

(360)

Notification of Arrival and Vessel Response Plans

(361) A **Notification of Arrival (NOA)** must be submitted by all U.S. and foreign vessels bound for or departing from ports or places in the United States. (See **33 CFR 160 – Subpart C**, chapter 2). Additionally, tank vessels and non-tank vessels are required to submit an oil spill response plan. (See **33 CFR 155**– Subparts D and J, not contained in this Coast Pilot.)

(362)

Marine Protected Area (MPA)

(363) Marine Protected Areas (MPAs) are particular places in ocean, coastal and estuarine ecosystems where vital natural and cultural resources are given greater protection than in surrounding waters. MPAs have been established in the U.S. for more than a century. Currently, there are over 1,700 MPAs in U.S. marine waters and the Great Lakes, with levels of protection ranging from a few "no-take" areas that prohibit all extractive uses to the more common multiple use areas that allow vessel access, anchoring, fishing and non-consumptive activities. MPAs are managed by dozens of Federal, state, tribal and local authorities. For detailed information on MPA locations, types, interactive map, purposes and legal restrictions, visit *marineprotectedareas.noaa.gov.*

(363) <Deleted Paragraph>

(364)

Archaeological Resource Preservation

(365) Under Federal and state laws it is illegal to destroy, deface, collect, transport, sell or trade archaeological, cultural, submerged and historic resources without authorization. Applicable laws include, but are not limited to, the Historic Sites Act, the Archaeological Resource Protection Act, the National Historic Preservation Act the Abandoned Shipwreck Act, and the Sunken Military Craft Act. These laws protect archaeological resources on lands administered by the National Park Service, U.S. Fish and Wildlife Service, Bureau of Land Management, and National Marine Sanctuaries as well as state, private and Native lands.

(366)

DEPARTMENT OF AGRICULTURE

(367)

Animal and Plant Health Inspection Service

(368) The Animal and Plant Health Inspection Service is responsible for protecting the Nation's animal population, food and fiber crops and forests from invasion by foreign pests. They administer agricultural quarantine and restrictive orders issued under authority provided in various acts of Congress. The regulations prohibit or restrict the importation or interstate movement of live animals, meats, animal products, plants, plant products, soil, injurious insects, and associated items that may introduce or spread plant pests and animal diseases which may be new to or not widely distributed within the United States or its territories. Inspectors examine imports at ports of entry as well as the vessel, its stores and crew or passenger baggage.

(369) The Service also provides an inspection and certification service for exporters to assist them in meeting the quarantine requirements of foreign countries. (See **Appendix A** for a list of ports where agricultural inspectors are located and inspections conducted.)

(370)

DEPARTMENT OF COMMERCE

(371)

National Oceanic and Atmospheric Administration (NOAA)

(372) The National Oceanic and Atmospheric Administration (NOAA) conducts research and gathers data about the global oceans, atmosphere, space and sun, and applies this knowledge to improve our understanding and stewardship of the environment.

(373) NOAA provides services to the nation and the public through five major organizations: the National Ocean Service; the National Weather Service; the National Marine Fisheries Service; the National Environmental Satellite, Data and Information Service (NESDIS); and NOAA Research; and numerous special program units. In addition, NOAA research and operational activities are

supported by the Nation's seventh uniformed service, the NOAA Corps, a commissioned officer corps of men and women who operate NOAA ships and aircraft and serve in scientific and administrative positions.

(374)

National Ocean Service (NOS)

(375) The National Ocean Service's primary concern is the health and safety of our Nation's coastal and oceanic environment. Within NOS, the **Office of Coast Survey** is responsible for producing and maintaining the suite of over 1000 nautical charts and the Coast Pilots that cover the coastal waters of the U.S. and its territories. Nautical charts are published primarily for the use of the mariner but serve the public interest in many other ways. Cartographers in Coast Survey receive and compile information from a variety of government and non-governmental sources for portrayal on nautical charts and the Coast Pilots. In addition, Coast Survey hydrographers, as well as private contractors, conduct new surveys that are used to update these products. The principal facilities of Coast Survey are located at NOAA headquarters in Silver Spring, MD; Norfolk, VA (Marine Operations Center Atlantic); and Seattle, WA (Western Regional Center).

(376) The **Center for Operational Oceanographic Products and Services (CO-OPS)** collects and distributes observations and predictions of water levels and currents to ensure safe, efficient and environmentally sound maritime commerce. Users can find a variety of information, including observed water level and currents data, tide and current predictions, sea level trends and coastal inundation information. Tides and Currents information is available at *tidesandcurrents.noaa.gov.*

(377) **PORTS® (Physical Oceanographic Real-Time System)** is a decision support tool that improves the safety and efficiency of maritime commerce and coastal resource management. Data from PORTS® supports navigation safety, improves the efficiency of U.S. ports and harbors, and ensures the protection of coastal marine resources. PORTS® collects and disseminates observations of water levels, currents, salinity, bridge air gap and meteorological parameters (e.g., winds, atmospheric pressure, air and water temperatures) that mariners need to navigate safely and allows seaport and terminal facilities to make good decisions. PORTS® data and information is provided via the internet at *tidesandcurrents.noaa.gov/ports_info.html* and, in some areas, via telephone voice response.

(378)

NOAA Tide Predictions and Tidal Current Predictions

(379) NOAA discontinued the annual printed Tide Tables and Tidal Current Tables in 2020, and has transitioned to providing this information digitally online. The online prediction service equals or exceeds the accuracy of the historically printed publications. Tide and tidal current predictions needed for navigation can be generated in real-time for any time period required by the mariner, for as short as one day, or as long as an entire year. All predictions for U.S. waters are available at *tidesandcurrents.noaa.gov*.

(380) U.S. Coast Guard regulations do not consider access to NOAA's online prediction service "while navigating" as meeting carriage requirements. In order to use predictions from these services, the predictions must be generated in advance and either be stored on the user's device as an electronic file (PDF, screen image, data table, etc.), or as a printed page.

(381) **NOAA Tide Predictions** - *tidesandcurrents.noaa.gov/tide_predictions.html* - allows the generation of predicted tides for more than 3000 locations along the U.S. coastline. Tide predictions may be generated as times and heights of high and low tides for all locations, or as interval predictions (hourly, 15-minute, 6-minute, etc.) for many locations. Tide predictions may be generated for past, present, or future dates; with lengths of 1 day to 1 month, or the full calendar year. The Users Guide - *tidesandcurrents.noaa.gov/PageHelp.html* - describes the displays, formats, additional capabilities, and uses of this online service.

(382) **Caution** –When using Tide Predictions, slack water should not be confused with high or low water. For ocean stations there is often little difference between the time of high or low water and the start of flood/ebb currents; but for places in narrow channels, landlocked harbors or on tidal rivers, the time of slack current may differ by several hours from the time of high or low water. The relationship of the times of high or low water to the flood and ebb of the current depends upon a number of factors unique to each location; no simple general rule can be given which applies to every location. For navigation or other activities which depend on slack water, tidal current predictions should be used to provide times of slack water.

(383) <Deleted Paragraph>

(383) **NOAA Tidal Current Predictions** –*https://tidesandcurrents.noaa.gov/* - allows the generation of predicted currents for more than 2500 locations along the U.S. coastline. Tidal current predictions may be generated as times and speeds of flood/ebb currents and times of slack water for all locations; or as interval predictions of speed (hourly, 30-minute, 6-minute) for many locations. Tidal current predictions may be generated for past, present or future dates; with length of 1 day to 2 weeks, or the full calendar year. The Users Guide - *https://tidesandcurrents.noaa.gov/PageHelp.html* - describes the displays, formats, additional capabilities, and uses of this online service.

(384)

National Weather Service (NWS)

(385)

National Data Buoy Center Meteorological Buoys

(386) The National Data Buoy Center (NDBC) deploys moored meteorological buoys that provide weather data directly to the mariner as well as to marine forecasters.

(387) These buoys have a watch circle radius (WCR) of 2,000 to 4,000 yards from assigned position (AP). In addition, any mooring in waters deeper than 1,000 feet will have a floating "loop" or catenary that may be as little as 500 feet below the surface. This catenary could be anywhere within the buoy's WCR. Any underwater activity within this radius may contact the mooring, causing a failure.

(388) To avoid cutting or damaging a mooring, mariners are urged to exercise extreme caution when navigating in the vicinity of meteorological buoys and to remain well clear of the watch circle. If a mooring is accidentally contacted or cut, please notify NDBC at 228-688-2835 or 228-688-2436.

(389) For further information relating to these buoys visit *ndbc.noaa.gov*.

(390)

Marine Weather Forecasts

(391) The NWS provides marine weather forecasts and warnings for the U.S. coastal waters, the Great Lakes, offshore waters and high seas areas. Scheduled marine forecasts are issued four times daily from **National Weather Service Offices** with local areas of responsibility around the United States, Guam, American Samoa and Puerto Rico. (See Appendix A for NWS Offices located in the area covered by this Coast Pilot.)

(392) Typically, marine forecasts contain information on wind speed and direction, wave heights, visibility, weather and a general synopsis of weather patterns affecting the region. The forecasts are supplemented with special marine warnings and statements, radar summaries, marine observations, small-craft advisories, gale warnings, storm warnings and various categories of tropical cyclone warnings, e.g., tropical depression, tropical storm and hurricane warnings. Specialized products such as coastal flood, seiche, and tsunami warnings, heavy surf advisories, low water statements, ice forecasts and outlooks and lake shore warnings and statements are issued as necessary. For further information, visit: *https://www.weather.gov/marine/* .

(393) The principal means of disseminating marine weather services and products in coastal areas is **NOAA Weather Radio**. This network of more than 900 transmitters, covering all 50 states, adjacent coastal waters, Puerto Rico, the U.S. Virgin Islands and the U.S. Pacific Territories, is operated by the NWS and provides continuous broadcasts of weather information for the general public. These broadcasts repeat recorded messages every 4 to 6 minutes. Messages are updated periodically, usually every 2-3 hours and amended as required to include the latest information. When severe weather threatens, routine transmissions are interrupted and the broadcast is devoted to emergency warnings. (See Appendix A for NOAA Weather Radio Stations covered by this Coast Pilot.)

(394) In coastal areas, the programming is tailored to the needs of the marine community. Each coastal marine forecast covers a specific area. For example, "Cape Henlopen to Virginia Beach, out 20 miles." The broadcast range is about 40 miles from the transmitting antenna site, depending on terrain and quality of the receiver used. When transmitting antennas are on high ground, the range is somewhat greater, reaching 60 miles or more. Some receivers are equipped with a warning alert device that can be turned on by means of a tone signal controlled by the NWS office concerned. This signal is transmitted for 13 seconds preceding an announcement of a severe weather warning.

(395) Marine weather warnings are displayed to small-craft operators and others within sight of the shore by the flags, pennants and lights of the **Coastal Warning Display** program. These displays are meant to warn the public of approaching storm conditions and visually communicate that citizens should take personal responsibility for individual safety in the face of an approaching storm. Anyone observing the signals displayed by the program is urged to tune to the NWS radio broadcasts for the latest information. (See **National Weather Service Coastal Warning Displays** illustration for additional information.)

(397) NWS marine weather products are also disseminated to marine users through the broadcast facilities of the Coast Guard, Navy and commercial marine radio stations. Details on these broadcasts including times, frequencies and broadcast content are listed on the NWS internet site, **Marine Product Dissemination Information**, *https://www.weather.gov/marine/nws_dissemination* .

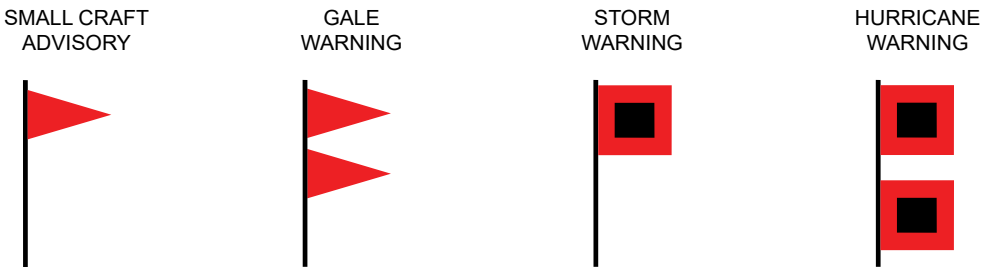
(398) Ships of all nations share equally in the effort to report weather observations. These reports enable meteorologists to create a detailed picture of wind, wave and weather patterns over the open waters that no other data source can provide and upon which marine forecasts are based. The effectiveness and reliability of these forecasts and warnings plus other services to the marine community are strongly linked to the observations received from mariners. There is an especially urgent need for ship observations in the coastal waters, and the NWS asks that these be made and transmitted whenever possible. Many storms originate and intensify in coastal areas. There may be a great difference in both wind direction and speed between the open sea, the offshore waters and on the coast itself.

(399) Information on how ships, commercial fishermen, offshore industries and others in the coastal zone may participate in the marine observation program is available from **National Weather Service Port Meteorological Officers (PMOs)**. PMOs are located in major U.S. port cities where they visit ships in port to assist masters and mates with the weather observation program, provide instruction on the interpretation of weather charts, calibrate barometers and other meteorological instruments and discuss marine weather communications and marine weather requirements affecting the ships' operations. (For further information on the Voluntary Observing Ship Program and PMOs, go to *vos.noaa.gov*.)

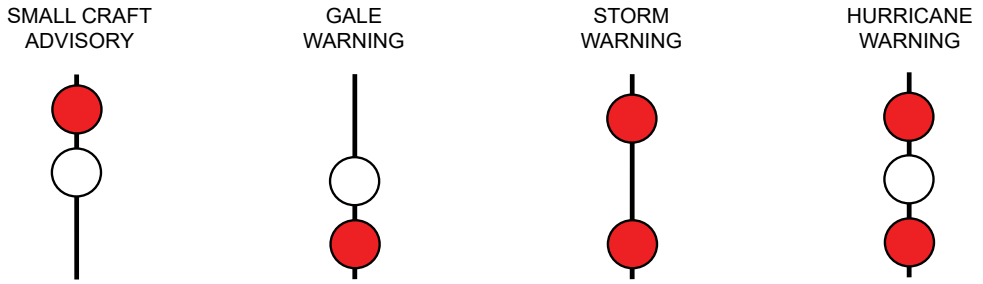
(396)

NATIONAL WEATHER SERVICE COASTAL WARNING DISPLAYS

DAYTIME SIGNALS



NIGHT (LIGHT) SIGNALS



SMALL CRAFT ADVISORY: An advisory issued by coastal and Great Lakes Weather Forecast Offices (WFO) for areas included in the Coastal Waters Forecast or Nearshore Marine Forecast (NSH) products. Thresholds governing the issuance of small craft advisories are specific to geographic areas. A Small Craft Advisory may also be issued when sea or lake ice exists that could be hazardous to small boats. There is no precise definition of a small craft. Any vessel that may be adversely affected by Small Craft Advisory criteria should be considered a small craft. Other considerations include the experience of the vessel operator, and the type, overall size, and sea worthiness of the vessel. There is no legal definition of "small craft". The Small Craft Advisory is an advisory in Coastal Waters and Nearshore forecasts for sustained winds, frequent gusts, or sea/wave conditions, exceeding defined thresholds specific to geographic areas. A Small Craft Advisory may also be issued when sea or lake ice exists that could be hazardous to small boats.

Eastern (ME to SC, Lake Erie, Lake Ontario) – Sustained winds or frequent gusts ranging between 25 and 33 knots (except 20 to 25 knots, lower threshold area dependent, to 33 knots for harbors, bays, etc.) and/or seas or waves 5 to 7 feet and greater, area dependent.

Central (MN to OH) – Sustained winds or frequent gusts (on the Great Lakes) between 22 and 33 knots inclusive, and/or seas or waves greater than 4 feet.

Southern (GA to TX and Caribbean) – Sustained winds of 20 to 33 knots, and/or forecast seas 7 feet or greater that are expected for more than 2 hours.

Western (WA..CA) - Sustained winds of 21 to 33 knots, potentially in combination with wave heights exceeding 10 feet (or wave steepness values exceeding local thresholds).

Alaska (AK) – Sustained winds or frequent gusts of 23 to 33 knots. A small craft advisory for rough seas may be issued for sea/wave conditions deemed locally significant, based on user needs, and should be no lower than 8 feet.

Hawaii (HI), Samoa – Sustained winds 25 knots or greater and seas 10 feet or greater.

Guam and the Northern Mariana Islands – Sustained winds 22 to 33 knots and/or combined seas of 10 feet or more. "Frequent gusts"are typically long duration conditions (greater than 2 hours).

For a list of NWS Weather Offices by Region, refer to the following website: http://www.nws.noaa.gov/organization.php

GALE WARNING: To indicate winds within the range 34 to 47 knots are forecast for the area.

STORM WARNING: To indicate winds 48 knots and above, no matter how high the speed, are forecast for the area. However, if the winds are associated with a tropical cyclone (hurricane), the STORM WARNING indicates that winds within the range 48-63 knots are forecast.

HURRICANE WARNING: Issued only in connection with a tropical cyclone (hurricane) to indicate that winds 64 knots and above are forecast for the area.

NOTE: A "HURRICANE WATCH" is an announcement issued by the National Weather Service via press and television broadcasts whenever a tropical storm or hurricane becomes a threat to a coastal area. The "Hurricane Watch" announcement is not a warning, rather it indicates that the hurricane is near enough that everyone in the area covered by the "Watch" should listen to their radios for subsequent advisories and be ready to take precautionary action in case hurricane warnings are issued.

NOTE: A SPECIAL MARINE WARNING is issued whenever a severe local storm or strong wind of brief duration is imminent and is not covered by existing warnings or advisories. No visual displays will be used in connection with the Special Marine Warning Bulletin; boaters will be able to receive thesespecial warnings by keeping tuned to a NOAA Weather Radio station or to Coast Guard and commercial radio stations that transmit marine weather information.

(400)

Space Weather Prediction Center (SWPC)

(401) The Space Weather Prediction Center provides real-time monitoring and forecasting of solar and geophysical events that impact satellites, power grids, communications, navigation and many other technological systems. (See Space Weather Prediction Center in Appendix A.)

(402)

National Environmental Satellite, Data, and Information Service (NESDIS)

(403) Among its functions, NESDIS archives, processes and disseminates the non-real-time meteorological and oceanographic data collected by government agencies and private institutions. Marine weather observations are collected from ships at sea on a voluntary basis. About one million observations are received annually at NESDIS's National Climatic Center. They come from vessels representing every maritime nation. These observations, along with land data, are returned to the mariners in the form of climatological summaries and atlases for coastal and ocean areas. They are available in such NOAA publications as the **U.S. Coast Pilot, Mariners Weather Log** and **Local Climatological Data, Annual Summary**. They also appear in the National Geospatial-Intelligence Agency's **Pilot Chart Atlases** and **Sailing Directions Planning Guides**.

(404)

DEPARTMENT OF DEFENSE

(405)

National Geospatial-Intelligence Agency (NGA)

(406) The National Geospatial-Intelligence Agency provides hydrographic, navigational, topographic, and geodetic data, charts, maps and related products and services to the Armed Forces, other Federal Agencies, the Merchant Marine and mariners in general. Publications include Sailing Directions, List of Lights, Distances Between Ports, Radio Navigational Aids, International Code of Signals, American Practical Navigator (Bowditch) and Notice to Mariners. (See NGA Procurement Information in Appendix A.)

(407)

Army Corps of Engineers

(408) The U.S. Army Corps of Engineers has charge of the improvement of the rivers and harbors of the United States and of miscellaneous other civil works, which include the administration of certain Federal laws enacted for the protection and preservation of navigable waters of the United States; the establishment of regulations for the use, administration, and navigation of navigable waters; the establishment of harbor lines; the removal of sunken vessels obstructing or endangering navigation; and the granting of permits for structures or operations in navigable waters and for discharges and deposits of dredged and fill materials in these waters.

(409) **Restricted areas** in most places are defined and regulations governing them are established by the USACE. The regulations are enforced by the authority designated in the regulations, and the areas are shown on the large-scale charts of the National Ocean Service. Copies of the regulations may be obtained at the District offices of the USACE. The regulations also are included in the appropriate Coast Pilot.

(410) Information concerning the various ports, improvements, channel depths, navigable waters and the condition of the Intracoastal Waterways in the areas under their jurisdiction may be obtained direct from the District Engineer Offices. (See Appendix A for addresses.)

(411) The USACE has general supervision of location, construction and manner of maintenance of all **fishtraps,** weirs, pounds or other fishing structures in the navigable waters of the United States. Where state and/or local controls are sufficient to regulate these structures, including that they do not interfere with navigation, the USACE leaves such regulation to the state or local authority. (See **33 CFR 330** (not carried in this Pilot) for applicable Federal regulations.) Construction permits issued by the Engineers specify the lights and signals required for the safety of navigation.

(412) **Fish havens**, artificial reefs constructed to attract fish, can be established in U.S. coastal waters only as authorized by a USACE permit; the permit specifies the location, extent and depth over these mounds of rubble.

(413)

Naval Observatory

(414) The United States Naval Observatory (USNO) provides a wide range of astronomical data and products and serves as the official source of time for the U.S. Department of Defense and a standard of time for the entire United States. The USNO provides earth orientation products such as the latest 24-hour and 48-hour sets of GPS satellite orbits, the latest determinations and predictions for polar motion and information for GPS users. The USNO also maintains a reference for precise time (USNO Master Clock) and monitors the GPS constellation. For extensive information on the USNO products available, visit: *https://www.cnmoc.usff.navy.mil/usno/* or contact by telephone at 202-762-1467.

(415)

DEPARTMENT OF HEALTH AND HUMAN SERVICES

(416)

Food and Drug Administration (FDA)

(417) Under the provisions of the Control of Communicable Diseases Regulations (**21 CFR 1240**) and Interstate Conveyance Sanitation Regulations (**21 CFR 1250**), vessel companies operating in interstate traffic must obtain potable water for drinking and culinary purposes only at watering points found acceptable to the FDA. Water supplies used in watering point operations must also be inspected to determine compliance with applicable

Interstate Quarantine Regulations (**42 CFR 72**). These regulations are based on authority contained in the Public Health Service Act (PL 78–410). Penalties for violation of any regulation prescribed under authority of the Act are provided for under Section 368 (42 USC 271) of the Act.

(418)

Public Health Service

(419) The Public Health Service administers foreign quarantine procedures at U.S. ports of entry.

(420) All vessels arriving in the United States are subject to public health inspection. Vessels subject to routine boarding for quarantine inspection are only those which have had on board during the 15 days preceding the date of expected arrival or during the period since departure (whichever period of time is shorter) the occurrence of any death or ill person among passengers or crew (including those who have disembarked or have been removed). The master of a vessel must report such occurrences immediately by radio to the quarantine station at or nearest the port at which the vessel will arrive.

(421) In addition, the master of a vessel carrying 13 or more passengers must report by radio 24 hours before arrival the number of cases (including zero) of diarrhea in passengers and crew recorded in the ship's medical log during the current cruise. All cases that occur after the 24 hour report must also be reported not less than 4 hours before arrival.

(422) *Ill person* means a person who:

(423) 1. Has a temperature of 100°F (or 38°C) or greater, accompanied by a rash, glandular swelling or jaundice, or which has persisted for more than 48 hours; or

(424) 2. Has diarrhea, defined as the occurrence in a 24 hour period of three or more loose stools or of a greater than normal (for the person) amount of loose stools.

(425) Vessels arriving at ports under control of the United States are subject to sanitary inspection to determine whether measures should be applied to prevent the introduction, transmission or spread of communicable disease.

(426) Specific public health laws, regulations, policies and procedures may be obtained by contacting U.S. Quarantine Stations, U.S. Consulates or the Chief Program Operations, Division of Quarantine, Centers for Disease Control, Atlanta, GA 30333. (See Appendix A for addresses of U.S. Public Health Service Quarantine Stations.)

(427)

DEPARTMENT OF HOMELAND SECURITY

(428)

Citizenship and Immigration Services

(429) The **U.S. Citizenship and Immigration Service** (USCIS) is the federal agency that oversees lawful immigration to the United States. the Service enhances security and improves the efficiency of national immigration services by exclusively focusing on the administration of benefit applications. No person may enter the United States until they have been inspected by an immigration officer. A list of the offices covered by this Coast Pilot is given in Appendix A.

(430)

U.S. Coast Guard

(431) The U.S. Coast Guard has among its duties the enforcement of the laws of the United States on the high seas and in coastal and inland waters of the U.S. and its possessions; enforcement of navigation and neutrality laws and regulations; establishment and enforcement of navigational regulations upon the Inland Waters of the United States, including the establishment of a demarcation line separating the high seas from waters upon which U.S. navigational rules apply; administration of the Oil Pollution Act of 1990, as amended; establishment and administration of vessel anchorages; approval of bridge locations and clearances over navigable waters; administration of the alteration of obstructive bridges; regulation of drawbridge operations; inspection of vessels of the Merchant Marine; admeasurement of vessels; documentation of vessels; preparation and publication of merchant vessel registers; registration of stack insignia; port security; issuance of Merchant Marine licenses and documents; search and rescue operations; investigation of marine casualties and accidents and suspension and revocation proceedings; destruction of derelicts; operation of aids to navigation; maintenance and issuance of Light Lists and Local Notices to Mariners; and operation of ice-breaking facilities.

(432) Issuance of certificates of registry (more commonly referred to as Certificates of Documentation) with endorsements indicating eligibility of vessels that measure at least 5 net tons to engage in various trades for commercial vessels and certain recreational vessels that are numbered either by the Coast Guard or by a state having an approved numbering system (the latter is the most common) and the administration of the various laws pertaining thereto are functions of the Coast Guard and specifically the National Vessel Documentation Center. Owners of vessels may obtain the necessary information from the National Vessel Documentation Center either by mail to the National Vessel Documentation Center, 792 T.J. Jackson Drive, Falling Waters, WV 25419-9502; via toll free number: 800-799-8362; or via online at: *dco.uscg.mil/Our-Organization/Deputy-for-Operations-Policy-and-Capabilities-DCO-D/National-Vessel-Documentation-Center/.*

(433)

U.S. Customs and Border Protection

(434) The U.S. Customs and Border Protection administers certain laws relating to:

(435) – entry and clearance of vessels and permits for certain vessel movements between points in the United States

(436) – prohibitions against coastwise transportation of passengers and merchandise

(437) – salvage

(438) – dredging and towing by foreign vessels

(439) – certain activities of vessels in the fishing trade

(440) – regular and special tonnage taxes on vessels

(441) – landing and delivery of foreign merchandise (including unlading, appraisement, lighterage, drayage, warehousing and shipment in bond)

(442) – collection of customs duties, including duty on imported pleasure boats and yachts and 50% duty on foreign repairs to American vessels engaged in trade

(443) – customs treatment of sea and ship's stores while in port and the baggage of crewmen and passengers

(444) – illegally imported merchandise

(445) – remission of penalties or forfeiture if customs or navigation laws have been violated.

(446) Customs and Border Protection also cooperates with many other Federal agencies in the enforcement of statutes for which they are responsible for. Customs districts and ports of entry are listed in Appendix A.

(447) The Customs and Border Protection office may issue, without charge, a **cruising license**, normally valid for one year, to a yacht of a foreign country that has a reciprocal agreement with the United States. A foreign yacht holding a cruising license is exempt from having to undergo formal entry and clearance procedures such as filing manifests and obtaining permits to proceed as well as from payment of tonnage tax and entry and clearance fees at all but the first port of entry. These vessels must not engage in trade, violate the laws of the United States or visit a vessel not yet inspected by a Customs Agent and does, within 24 hours of arrival at each port or place in the United States, report the fact of arrival to the nearest customhouse. Countries that have reciprocal agreements granting these privileges to U.S. yachts are:

(448)

Countries with U.S. Cruising License Reciprocity	
Argentina	Honduras
Australia	Ireland
Austria	Italy
Bahama Islands	Jamaica
Belguim	Liberia
Bermuda	Marshall Islands
Canada	Netherlands
Denmark	New Zealand
Finland	Norway
France	Sweden
Germany	Switzerland
Great Britain	Turkey
Greece	

(449) Further information concerning cruising licenses may be obtained from the headquarters port for the customs district in which the license is desired or at *cbp.gov*. U.S. yacht owners planning cruises to foreign ports may contact the nearest customs district headquarters as to customs requirements.

(450)

ENVIRONMENTAL PROTECTION AGENCY (EPA)

(451) The U.S. EPA provides coordinated governmental action to ensure the protection of the environment by abating and controlling pollution on a systematic basis. The ocean dumping permit program of the EPA provides that except when authorized by permit, the dumping of any material into the ocean is prohibited by the "Marine Protection, Research, and Sanctuaries Act of 1972, Public Law 92–532," as amended (33 USC 1401 et seq.).

(452) <Deleted Paragraph>

(452) Permits for the **dumping of dredged material** into waters of the United States, including the territorial sea, and into ocean waters are issued by the U.S. Army Corps of Engineers. Permits for the dumping of fill material into waters of the United States, including the territorial sea, are also issued by the U.S. Army Corps of Engineers. Permits for the dumping of other material in the territorial sea and ocean waters are issued by the EPA.

(453) U.S. Army Corps of Engineers regulations relating to the above are contained in **33 CFR 323** and **324**; EPA regulations are in **40 CFR 220** though **228**. (See Disposal Sites, this chapter.)

(454) <Deleted Paragraph>

(454) Persons or organizations who want to file for an application for an ocean dumping permit should write the EPA Regional Office for the region in which the port of departure is located. (See Appendix A for addresses of regional offices and States in the EPA coastal regions.)

(455) The letter should contain the name and address of the applicant, name and address of person or firm, the name and usual location of the conveyance to be used in the transportation and dumping of the material involved, a physical description where appropriate, and the quantity to be dumped and proposed dumping site.

(456) Everyone who writes EPA will be sent information about a final application for a permit as soon as possible. This final application is expected to include questions about the description of the process or activity giving rise to the production of the dumping material, information on past activities of applicant or others with respect to the disposal of the type of material involved, and a description about available alternative means of disposal of the material with explanations about why an alternative is thought by the applicant to be inappropriate.

(456) <Deleted Paragraph>

(457)

FEDERAL AVIATION ADMINISTRATION (FAA)

(458)

Obstruction Evaluation/Airport Airspace Analysis (OE/AAA)

(459) The **Federal Aviation Administration (FAA)** has established comprehensive policies and procedures to evaluate potential hazards to air navigation posed by construction or alteration projects. These assessments are

critical to maintaining the safety and efficiency of the National Airspace System (NAS). To support this effort, the FAA's Air Traffic Organization (ATO) developed the Obstruction Evaluation and Airport Airspace Analysis (OE/AAA) System, a web-based platform that enables public submission and FAA processing of proposed construction or alteration notices. The collection and processing of this information are authorized under **49 U.S.C. § 44718** and **14 CFR Part 77**, which pertains to the notice and study of proposed construction or alteration near navigable airspace.

(460) Maritime vessels are required to comply with the provisions of **14 CFR Part 77 Subpart B**. In consideration of procedures and for potential conflict between aircraft and maritime vessels, waterways of the United States with vessel height greater than 200 feet (Air Draft) above the waterline, must be assessed by the FAA. Due to airport, airspace, and waterway proximity, lesser heights may also require assessment. Owners, operators, agents, voyage planners, and masters may consult the **Obstruction Evaluation/Airport Airspace Analysis (OE/AAA) Pre-Screening Tool** at *https://oeaaa.faa.gov/oeaaa/oe3a/main/#/home* to assess applicability for lesser (Air Draft) heights.

(461)

FEDERAL COMMUNICATIONS COMMISSION (FCC)

(462) The Federal Communications Commission controls non-government radio communications in the United States, Guam, Puerto Rico and the Virgin Islands. Commission inspectors have authority to board ships to determine whether their radio stations comply with international treaties, Federal laws and Commission regulations. The commission has field offices in the principal U.S. ports. (See Appendix A for addresses.) Information concerning ship radio regulations and service documents may be obtained from the Federal Communications Commission, Washington, DC 20554, or from any of the field offices.

(463)

Measurements and Equivalencies

nautical mile — 1,852 meters / 6,076.12 feet
statute mile — 5,280 feet / 1,609.3 meters / 1.6093 kilometers
cable — 0.1 nautical mile (CN) / 720 feet (US)
fathom — 6 feet / 1.8288 meters
foot — 0.3048 meter
inch — 2.54 centimeters
pound (avoirdupois) — 453.59 gram
kilometer — 1,000 meters
knot — 1.6877 feet per second / 0.5144 meters per second
miles/hour (statute) — 1.466 feet per second / 0.44704 meters per second
acre — 43,560 square feet / 4,046.82 square meters
gram — 0.0022046 pound (avoirdupois) / 0.035274 ounce
meter — 39.37 inches / 3.281 feet / 1.0936 yards
short ton — 2,000 pounds
long ton — 2,240 pounds
metric ton — 2,204.6 pounds
kilogram — 2.2 pounds
liter — 1.0567 quarts
barrel (petroleum) — 42 gallons (US)

Conversion Factors

Linear

inches — muiltiply by 25.40 — millimeters
inches — multiply by 2.540 — centimeters
centimeters — multiply by 0.032808 — feet
feet — multiply by 30.48 — centimeters
feet — multiply by 0.3048 — meters
feet — multiply by 0.00016458 — nautical miles
yard — multiply by 0.9144 — meters
meters — multiply by 3.2808 — feet
meters — multiply by 1.094 — yards
meters — multiply by 0.0005399 — nautical miles
statute miles — multiply by 0.86897 — nautical miles
statute miles — multiply by 1.6093 — kilometers
statute miles — multiply by 1,609.3 — meters
nautical miles — multiply by 1.151 — statute miles

Area

acres — multiply by 4,046.9 — square meters
acres — multiply by 43,560 — square feet
acres — multiply by 0.404685 — hectare
hectare — multiply by 2.471054 — acres
hectare — multiply by 10,000 — square meters
hectare — multiply by 1.07639×10^5 — square feet
square feet — multiply by 0.0929 — square meters
square feet — multiply by 0.00002296 — acres
square meters — multiply by 10.764 — square feet
square meters — multiply by 0.0002471 — acres

Depths

fathoms — multiply by 1.8288 — meters
feet — multiply by 0.3048 — meters
meters — multiply by 0.54681 — fathoms
meters — multiply by 3.2808 — feet

Rate

feet/second — multiply by 0.5925 — knots
feet/second — multiply by 0.6818 — miles/hour
feet/second — multiply by 30.48 — centimeters/second
statute miles/hour — multiply by 0.8689 — knots
statute miles/hour — multiply by 1.467 — feet/second
statute miles/hour — multiply by 0.447 — meters/second
knots — multiply by 1.151 — miles/hour
knots — multiply by 0.5144 — meters/second
knots — multiply by 1.6878 — feet/second
centimeters/second — multiply by 0.01944 — miles/hour
centimeters/second — multiply by 0.02237 — miles/hour
centimeters/second — multiply by 0.032808 — feet/second

Mass

grams — multiply by 0.035275 — ounces
grams — multiply by 0.002205 — pounds
ounces — multiply by 28.349 — grams
pounds — multiply by 0.45359 — kilograms
short tons — multiply by 2,000 — pounds
short tons — multiply by 0.89286 — long tons
short tons — multiply by 0.9072 — metric tons
long tons — multiply by 2,240 — pounds
long tons — multiply by 1.12 — short tons
long tons — multiply by 1.016 — metric tons
metric tons — multiply by 1,000 — kilograms
metric tons — multiply by 0.9842 — long tons
metric tons — multiply by 1.1023 — short tons
metric tons — multiply by 2,204.6 — pounds

Volume

barrels (petroleum) — multiply by 42 — gallons (US)
barrels (petroleum) — multiply by 158.99 — liters
barrels (liquid, US) — multiply by 31.5 — gallons (US)
barrels (liquid, US) — multiply by 26.229 — gallons (British)
barrels (liquid, US) — multiply by 119.24 — liters
gallons (US) — multiply by 0.02381 — barrels (petroleum)
gallons (US) — multiply by 3.7854 — liters
liters — multiply by 0.26417 — gallons (US)

(464)

Tips for BOATING CLEAN AND GREEN



Practice preventative engine maintenance
Keep your engine well tuned and practice preventative engine maintenance by regularly checking hoses and lines for chaffing or deterioration.



Use oil absorbants
Place and secure an oil absorbent under the engine and in the bilge. Avoid using bilge cleaners as they may get discharged overboard. It is illegal to use soap to disperse fuel and oil spills. Report oil and chemical spills by calling the EPA National Response Center at 800–424–8802.



Spill-proof your fueling practices
Use a spill proof system like a portable oil change pump to change your oil. Use oil absorbents when fueling and changing the oil. Do not top-off your fuel tank; leave it 10 percent empty to allow fuel to expand as it warms.



Reduce greywater discharges
Use shore-side facilities for laundry, showers, and dish washing whenever possible. Use only phosphate-free and biodegradable soaps. The legality of discharging greywater into a marina or within three miles off the coast varies from place to place. In some areas, there are local ordinances and codes that allow harbor patrol to issue citations for any discharge that is not "clean and clear." To avoid any potential fines and to protect the aquatic environment, do not discharge greywater overboard.



Dispose of hazardous waste properly
Recycle and properly dispose of absorbents, used oil, oil filters, paint, and batteries at your local household hazardous waste collection site.



Minimize boat cleaning and maintenance conducted on the water
- Use more elbow grease.
- Use products that are water-based, biodegradable, phosphate-free, and labeled as less toxic.
- Check out less toxic cleaning alternatives for all types of uses. Visit http://dbw.parks.ca.gov/?page_id=29184.
- Buy only the amount that you need and use products for spot cleaning only.
- Properly handle and store materials. Dispose of hazardous waste legally and safely.



Reduce discharges from bottom paints
- Consider alternative, non-biocide hull coatings.
- Clean the bottom with a soft, non-abrasive sponge.
- Use hull cleaning companies who use green management practices such as monitoring their divers and using non-abrasive scrubbing agents that do not release paint into the water. For more information visit https://www3.epa.gov/npdes/pubs/vgp_hull_husbandry.pdf.

Stow it, don't throw it
Keep your trash on-board. Recycle plastic, glass, metal, and paper. Avoid excess packaging.



Dump at the pump!
It is illegal to discharge untreated sewage anywhere within the three-mile territorial limit including lakes, rivers, reservoirs or coastal waters. Never discharge treated sewage into "restricted waters" such as a marina, swimming/wading areas, a sanctuary, poorly flushed areas, lakes, reservoirs, or freshwater impoundments and federal No Discharge Zones. Use sewage pumpouts, dump stations, or mobile-pumpout services.



Prevent the spread of aquatic invasive species
Before leaving any body of water, examine your boat and equipment and remove any visible mud, plants, or animals before transporting equipment. Never release plants or animals into a body of water or storm drains unless they came out of that body of water. Use cleaning procedures for anything that contacts the water. Visit https://invasivemusselcollaborative.net/wp-content/uploads/2018/11/NOAA-Decon-Watercraft.pdf.

For hazardous waste recycling or collection centers call 800–CLEAN–UP or visit http://www.earth911.com

Navigation Regulations

(1) This chapter contains sections from **Code of Federal Regulations (CFR)** that are of importance to mariners in the area covered by this Coast Pilot. Sections of little value to the mariner are sometimes omitted. Omitted sections are signified by the following [...]

(2) Extracts from the following titles are contained in this chapter.

(3)

Title 33: Navigation and Navigable Waters
- Part 26—Vessel Bridge-to-Bridge Radiotelephone Regulations
- Part 67—Aids to Navigation on Artificial Islands and Fixed Structures (in part)
- Part 80—COLREGS Demarcation Lines
- Part 81—72 COLREGS: Implementing Rules
- Part 82—72 COLREGS: Interpretive Rules
- Part 88—Annex V: Pilot Rules
- Part 89—Inland Navigation Rules: Implementing Rules
- Part 90—Inland Rules: Interpretative Rules
- Part 110—Anchorage Regulations
- Part 157—Rules for the Protection of the Marine Environment Relating to Tank Vessels Carrying Oil in Bulk
- Part 160—Ports and Waterways Safety-General
- Part 161—Vessel Traffic Management
- Part 162—Inland Waterways Navigation Regulations
- Part 164—Navigation Safety Regulations (in part)
- Part 165—Regulated Navigation Areas and Limited Access Areas
- Part 166—Shipping Safety Fairways
- Part 167—Offshore Traffic Separation Schemes
- Part 168—Escort Requirements for Certain Tankers
- Part 169—Ship Reporting Systems
- Part 207—Navigation Regulations
- Part 334—Danger Zones and Restricted Area Regulations

Title 40: Protection of Environment
- Part 140—Marine Sanitation Device Standard

Title 50: Wildlife and Fisheries
- Part 216—Regulations Governing the Taking and Importing of Marine Mammals
- Part 224—Endangered Marine and Anadromous Species
- Part 226—Designated Critical Habitat

(4) These regulations can only be amended by the enforcing agency or other authority cited in the regulations. Accordingly, requests for changes to these regulations should be directed to the appropriate agency for action. In those regulations where the enforcing agency is not cited or is unclear, recommendations for changes should be directed to the following Federal agencies for action:

(5) **National Oceanic and Atmospheric Administration**—50 CFR 216, 224 and 226

(6) **United States Coast Guard**—33 CFR 26, 67, 80, 81, 82, 88, 89, 90, 110, 157, 160, 161, 162, 164, 165, 166, 167 and 168

(7) **United States Army Corps of Engineers**—33 CFR 207 and 334

(8)

TITLE 33–NAVIGATION AND NAVIGABLE WATERS

(9)

Part 26–Vessel Bridge-to-Bridge Radiotelephone Regulations

(10)

§26.01 Purpose.

(11) (a) The purpose of this part is to implement the provisions of the Vessel Bridge-to-Bridge Radiotelephone Act. This part–

(12) (1) Requires the use of the vessel bridge-to-bridge radiotelephone;

(13) (2) Provides the Coast Guard's interpretation of the meaning of important terms in the Act;

(14) (3) Prescribes the procedures for applying for an exemption from the Act and the regulations issued under the Act and a listing of exemptions.

(15) (b) Nothing in this part relieves any person from the obligation of complying with the rules of the road and the applicable pilot rules.

(16)

§26.02 Definitions.

(17) For the purpose of this part and interpreting the Act–

(18) *Act* means the "Vessel Bridge-to-Bridge Radiotelephone Act," 33 U.S.C. sections 1201-1208;

(19) *Length* is measured from end to end over the deck excluding sheer;

(20) *Power-driven vessel* means any vessel propelled by machinery; and

(21) *Secretary* means the Secretary of the Department in which the Coast Guard is operating;

(22) *Territorial sea* means all waters as defined in §2.22(a)(1) of this chapter.

(23) *Towing vessel* means any commercial vessel engaged in towing another vessel astern, alongside, or by pushing ahead.

(24) *Vessel Traffic Services (VTS)* means a service implemented under Part 161 of this chapter by the United States Coast Guard designed to improve the safety and efficiency of vessel traffic and to protect the environment.

The VTS has the capability to interact with marine traffic and respond to traffic situations developing in the VTS area.

(25) *Vessel Traffic Service Area or VTS Area* means the geographical area encompassing a specific VTS area of service as described in Part 161 of this chapter. This area of service may be subdivided into sectors for the purpose of allocating responsibility to individual Vessel Traffic Centers or to identify different operating requirements.

(26) **Note:** Although regulatory jurisdiction is limited to the navigable waters of the United States, certain vessels will be encouraged or may be required, as a condition of port entry to report beyond this area to facilitate traffic management within the VTS area.

(27)

§26.03 Radiotelephone required.

(28) (a) Unless an exemption is granted under §26.09 and except as provided in paragraph (a)(4) of this section, this part applies to:

(29) (1) Every power-driven vessel of 20 meters or over in length while navigating;

(30) (2) Every vessel of 100 gross tons and upward carrying one or more passengers for hire while navigating;

(31) (3) Every towing vessel of 26 feet or over in length while navigating; and

(32) (4) Every dredge and floating plant engaged in or near a channel or fairway in operations likely to restrict or affect navigation of other vessels except for an unmanned or intermittently manned floating plant under the control of a dredge.

(33) (b) Every vessel, dredge, or floating plant described in paragraph (a) of this section must have a radiotelephone on board capable of operation from its navigational bridge, or in the case of a dredge, from its main control station, and capable of transmitting and receiving on the frequency or frequencies within the 156-162 Mega-Hertz band using the classes of emissions designated by the Federal Communications Commission for the exchange of navigational information.

(34) (c) The radiotelephone required by paragraph (b) of this section must be carried on board the described vessels, dredges, and floating plants upon the navigable waters of the United States.

(35) (d) The radiotelephone required by paragraph (b) of this section must be capable of transmitting and receiving on VHF-FM channel 1022 (157.1 MHz).

(36) (e) While transiting any of the following waters, each vessel described in paragraph (a) of this section also must have on board a radiotelephone capable of transmitting and receiving on VHF-FM channel 67 (156.375 MHz):

(37) (1) The lower Mississippi River from the territorial sea boundary, and within either the Southwest Pass safety fairway or the South Pass safety fairway specified in 33 CFR 166.200, to mile 242.4 AHP (Above Head of Passes) near Baton Rouge;

(38) (2) The Mississippi River-Gulf Outlet from the territorial sea boundary, and within the Mississippi River-Gulf outlet Safety Fairway specified in 33 CFR 166.200, to that channel's junction with the Inner Harbor Navigation Canal; and

(39) (3) The full length of the Inner Harbor Navigation Canal from its junction with the Mississippi River to that canal's entry to Lake Pontchartrain at the New Seabrook vehicular bridge.

(40) (f) In addition to the radiotelephone required by paragraph (b) of this section, each vessel described in paragraph (a) of this section while transiting any waters within a Vessel Traffic Service Area, must have on board a radiotelephone capable of transmitting and receiving on the VTS designated frequency in Table 161.12(c) (VTS and VMRS Centers, Call Signs/MMSI, Designated Frequencies, and Monitoring Areas).

(41) **Note:** A single VHF-FM radio capable of scanning or sequential monitoring (often referred to as "dual watch" capability) will not meet the requirements for two radios.

(42)

§26.04 Use of the designated frequency.

(43) (a) No person may use the frequency designated by the Federal Communications Commission under section 8 of the Act, 33 U.S.C. 1207(a), to transmit any information other than information necessary for the safe navigation of vessels or necessary tests.

(44) (b) Each person who is required to maintain a listening watch under section 5 of the Act shall, when necessary, transmit and confirm, on the designated frequency, the intentions of his vessel and any other information necessary for the safe navigation of vessels.

(45) (c) Nothing in these regulations may be construed as prohibiting the use of the designated frequency to communicate with shore stations to obtain or furnish information necessary for the safe navigation of vessels.

(46) (d) On the navigable waters of the United States, channel 13 (156.65 MHz) is the designated frequency required to be monitored in accordance with §26.05(a) except that in the area prescribed in §26.03(e), channel 67 (156.375 MHz) is the designated frequency.

(47) (e) On those navigable waters of the United States within a VTS area, the designated VTS frequency is an additional designated frequency required to be monitored in accordance with §26.05.

(48)

§26.05 Use of radiotelephone.

(49) Section 5 of the Act states that the radiotelephone required by this Act is for the exclusive use of the master or person in charge of the vessel, or the person designated by the master or person in charge to pilot or direct the movement of the vessel, who shall maintain a listening watch on the designated frequency. Nothing herein shall be interpreted as precluding the use of portable radiotelephone equipment to satisfy the requirements of this act.

(50)

§26.06 Maintenance of radiotelephone; failure of radiotelephone.

(51) Section 6 of the Act states:

(52) (a) Whenever radiotelephone capability is required by this Act, a vessel's radiotelephone equipment shall be maintained in effective operating condition. If the radiotelephone equipment carried aboard a vessel ceases to operate, the master shall exercise due diligence to restore it or cause it to be restored to effective operating condition at the earliest practicable time. The failure of a vessel's radiotelephone equipment shall not, in itself, constitute a violation of this Act, nor shall it obligate the master of any vessel to moor or anchor his vessel; however, the loss of radiotelephone capability shall be given consideration in the navigation of the vessel.

(53)

§26.07 Communications.

(54) No person may use the services of, and no person may serve as, a person required to maintain a listening watch under section 5 of the Act, 33 U.S.C. 1204, unless the person can communicate in the English language.

(55)

§26.08 Exemption procedures.

(56) (a) The Commandant has redelegated to the Assistant Commandant for Prevention Policy, U.S. Coast Guard Headquarters, with the reservation that this authority shall not be further redelegated, the authority to grant exemptions from provisions of the Vessel Bridge-to-Bridge Radiotelephone Act and this part.

(57) (b) Any person may petition for an exemption from any provision of the Act or this part;

(58) (c) Each petition must be submitted in writing to Commandant (CG–DCO–D), Attn: Deputy for Operations Policy and Capabilities, U.S. Coast Guard Stop 7318, 2703 Martin Luther King Jr. Avenue SE., Washington, DC 20593–7318, and must state:

(59) (1) The provisions of the Act or this part from which an exemption is requested; and

(60) (2) The reasons why marine navigation will not be adversely affected if the exemption is granted and if the exemption relates to a local communication system how that system would fully comply with the intent of the concept of the Act but would not conform in detail if the exemption is granted.

(61)

§26.09 List of exemptions.

(62) (a) All vessels navigating on those waters governed by the navigation rules for Great Lakes and their connecting and tributary waters (33 U.S.C. 241 et seq.) are exempt from the requirements of the Vessel Bridge-to-Bridge Radiotelephone Act and this part until May 6, 1975.

(63) (b) Each vessel navigating on the Great Lakes as defined in the Inland Navigational Rules Act of 1980 (33 U.S.C. 2001 et seq.) and to which the Vessel Bridge-to-Bridge Radiotelephone Act (33 U.S.C. 1201-1208) applies is exempt from the requirements in 33 U.S.C. 1203, 1204, and 1205 and the regulations under §§26.03, 26.04, 26.05, 26.06, and 26.07. Each of these vessels and each person to whom 33 U.S.C. 1208(a) applies must comply with Articles VII, X, XI, XII, XIII, XV, and XVI and Technical Regulations 1-9 of "The Agreement Between the United States of America and Canada for Promotion of Safety on the Great Lakes by Means of Radio, 1973."

(64)

Part 67–Aids to Navigation on Artificial Islands and Fixed Structures (in part)

(65)

Subpart 67.01–General Requirements

(66)

§67.01–1 Scope.

(67) (a) The regulations in this part prescribe the obstruction lights and sound signals to be operated as privately maintained maritime aids to navigation on the artificial islands and structures which are erected on or over the seabed and subsoil of the Outer Continental Shelf and in the waters under the jurisdiction of the United States, for the purpose of exploring for, developing, removing and transporting resource therefrom.

(68) (b) Subpart 66.01 in Part 66 of this subchapter shall be applicable to all private aids to navigation erected on or over the Outer Continental Shelf in the same manner and to the same extent as they are applicable to private aids to navigation established, erected, or maintained in the waters under the jurisdiction of the United States.

(69)

§67.01–5 Definitions.

(70) (a) *Structures*. The term "structures" as used in this part shall include all fixed structures, temporary or permanent, for which a Corps of Engineers' permit is issued. It shall include, but is not necessarily limited to, all drilling platforms, production platforms, Mobile Offshore Drilling Units (MODUs) when attached to the bottom, quarters platforms, pipe line riser platforms, manifold platforms, loading platforms, boat landings, caissons, well protective structures, tank battery barges submerged on station, drilling barges submerged on location, breakwater barges submerged on location, artificial islands and all other piles, pile clusters, pipes, or structures erected in the waters.

(71) (b) *Class "A", "B", or "C" structures*. The term "Class A, B, or C structures" refers to the classification assigned to structures erected in areas in which corresponding requirements for marking are prescribed.

(72) (c) *Line of demarcation*. The term "line of demarcation" means the dividing line used administratively to distinguish between the areas in which structures shall conform to Class "A" and Class "B" or "C" requirements.

(73) (d) *Outer Continental Shelf*. The term "Outer Continental Shelf" means all submerged lands lying seaward and outside the area of lands beneath navigable waters as defined in the Submerged Lands Act (sec. 2, 67 Stat. 29, 43 U. S. C. 1301), and of which the subsoil and seabed appertain to the United States and are subject to its jurisdiction and control.

(74) (e) *Reliable operation*. The term "reliable" as used in this part shall mean that dependability which will insure to the highest degree reasonably possible the uninterrupted operation of lights and sound signals as private aids to navigation for safety of marine commerce.

(75) (f) *Sound signal*. The term "sound signal" as used in this shall mean the audible sound signal, authorized as a private aid to navigation, to mark a structure for the safety of marine commerce whenever the visibility has been reduced by fog, mist, rain, falling snow, smoke, dust, or other phenomena.

(76)

§67.01–10 Delegation of functions.

(77) The Coast Guard District Commander may delegate the authority for performing inspections, enforcement, and administration of regulations to any civilian or military position in the Coast Guard.

(78)

§67.01–15 Classification of structures.

(79) (a) *When will structures be assigned to a Class?* The District Commander will assign structures to Class A, B, or C as part of processing an application for a permit to establish and operate lights and sound signals.

(80) (b) *In general, where will the different classes of structures be located?* Specific criteria in paragraph (c) of this section may create exceptions, but, in general, structures the farthest from shore are likely to be assigned to Class A and required to have obstruction lights and sound signals that can be detected from the farthest distance. Structures closest to shore are likely to be assigned to Class C and, while subject to requirements to ensure that they are also detectable from a safe distance away, will be required to have the least powerful obstruction lights or sound signals. The location and standards for Class B structures will generally be in between Class A and C structures.

(81) (c) *What criteria will be used to classify structures?* When assigning a structure to a class, the District Commander will take into consideration whether a line of demarcation has been prescribed, and matters concerning, but not necessarily limited to, the dimensions of the structure and the depth of water in which it is located, the proximity of the structure to vessel routes, the nature and amount of vessel traffic, and the effect of background lighting.

(82) (1) If a line of demarcation has been prescribed, the District Commander will assign those structures seaward of the line of demarcation to Class A. He or she will assign all structures shoreward of the line of demarcation to either Class B or Class C, unless the District Commander determines under §67.05-25 that the structure should be assigned to Class A because of the structure's proximity to a navigable channel, fairway or line of demarcation.

(83) (2) If a line of demarcation has not been prescribed, the District Commander will assign a structure to Class A, B, or C as he or she deems appropriate.

(84)

§67.01–20 Prescribing lines of demarcation.

(85) The District Commander sends recommendations for establishing or changing lines of demarcation to the Commandant. For the purposes of this part, when the Commandant approves of additions to or changes in prescribed lines of demarcation, such additions or changes will be published in the FEDERAL REGISTER and will become effective on the date specified in that publication.

(86)

§67.01–30 Equivalents.

(87) The use of alternate equipment, apparatus, or installation arrangements specified in this part may be permitted by the District Commander to such extent and under such conditions as will result in achieving a degree of safety or compliance with these regulations equivalent to or above the minimum requirements set forth in this part.

(88)

Subpart 67.05–General Requirements for Lights

(89)

§67.05–1 Arrangement of obstruction lights.

(90) (a) Structures having a maximum horizontal dimension of 30 feet or less on any one side, or in diameter, shall be required to have one obstruction light visible for 360°.

(91) (b) Structures having a maximum horizontal dimension of over 30 feet, but not in excess of 50 feet, on any one side, or in diameter, shall be required to have two obstruction lights installed on diagonally opposite corners, 180° apart, or as prescribed by the District Commander, each light to have a 360° lens.

(92) (c) Structures having a horizontal dimension of over 50 feet on any one side, or in diameter, shall be required to have an obstruction light on each corner, or 90° apart in the case of circular structures, or as prescribed by the District Commander, each light to have a 360° lens.

(93) (d) Where the overall dimensions of a structure require the installation of two or more obstruction lights, the lights shall all be mounted on the same horizontal plane within the limitations of height specified in §67.20–5, §67.25–5, or §67.30–5, as applicable.

(94) (e) Lesser structures and piles, pile clusters or flare templates, etc., will not normally be required to be marked by obstruction lights, when they are located within 100 yards of a Class "A", "B" or "C" structure marked by established obstruction lights, but they shall be marked

with red or white retro-reflective material, installed as prescribed by the District Commander.

(95) (f) All obstruction lights shall be installed in a manner which will permit at least one of them to be carried in sight of the mariner, regardless of the angle of approach, until he is within 50 feet of the structure visibility permitting.

(96)

§67.05–5 Multiple obstruction lights.

(97) When more than one obstruction light is required by this part to mark a structure, all such lights shall be operated to flash in unison.

(98)

§67.05–10 Characteristics of obstruction lights.

(99) All obstruction lights required by this part shall be powered from a reliable power source, including auxiliary power sources as necessary. They shall display a quick-flash characteristic of approximately 60 flashes per minute, unless prescribed otherwise in the permit issued by the District Commander. Their color shall be white when marking Class "A" and "B" structures, and either white or red, as prescribed by the District Commander, when marking Class "C" structures. In determining whether white or red lights shall be authorized, the District Commander shall take into consideration matters concerning, but not necessarily limited to, the dimensions of the structure and the depth of water in which it is located; the proximity of the structure to vessel routes; the nature and amount of vessel traffic; and the effect of background lighting.

(100)

§67.05–15 Operating periods of obstruction lights.

(101) Obstruction lights shall be displayed at all times between the hours of sunset and sunrise, local time, commencing at the time the construction of a structure is begun. During construction and until such time as a platform capable of supporting the obstruction lights is completed, the fixed lights on an attending vessel shall be used. In addition, when lights are in use for general illumination to facilitate the construction or operation of a structure, and can be seen from any angle of approach at a distance equal to that prescribed for the obstruction lights for the class of structure, the actual operation of obstruction lights also will not be required.

(102)

§67.05–20 Minimum lighting requirements.

(103) The obstruction lighting requirements prescribed in this part are the minimum requirements only and shall not preclude the maintainer from making application for authorization to establish more lights, or lights of greater intensity than required to be visible at the distances prescribed: *Provided,* that the prescribed characteristics of color and flash duration are adhered to.

(104)

§67.05–25 Special lighting requirements.

(105) Whenever a structure is erected in a position on or adjacent to the edges of navigable channels and fairways, or lines of demarcation, the District Commander is authorized to require the structure to be marked by the lights which in his judgment are necessary for the safety of marine commerce, and without regard to the fact that the structure may be located in an area in which either Class "B" or Class "C" requirements are otherwise applicable. The requirements for the lights in any of these cases, shall not exceed those established for structures in the Class "A" areas.

(106)

Subpart 67.10–General Requirements for Sound Signals

(107)

§67.10–1 Apparatus requirements.

(108) The sound signal required by §§67.20–10, 67.25–10, and 67.30–10 must:

(109) (a) Have its maximum intensity at a frequency between 100 and 1,100 Hertz;

(110) (b) Sound a 2-second blast every 20 seconds (2 seconds sound, 18 seconds silence) unless otherwise authorized by the District Commander;

(111) (c) Have the rated range required by §67.20–10, §67.25–10, or §67.30–10;

(112) (d) Have a height not exceeding 25 feet;

(113) (e) Have not more than eight sound sources;

(114) (f) Be approved by the Coast Guard under §67.10–15; and

(115) (g) Be permanently marked with:

(116) (l) The date of Coast Guard approval;

(117) (2) The manufacturer and date of manufacture;

(118) (3) A model designation;

(119) (4) The approved range; and

(120) (5) The power necessary to comply with the provisions of paragraph (c) of this section.

(121)

§67.10–5 Location requirements.

(122) The sound signal required by §§67.20–10, 67.25–10, and 67.30–10 must:

(123) (a) Be located on the structure so that the sound signal produced is audible over 360° in a horizontal plane at all ranges up to and including the required range; and

(124) (b) Be located at least 10 feet but not more than 150 feet above mean high water.

(125)

§67.10–10 Operating requirements.

(126) (a) Sound signals required by §§67.20–10, 67.25–10 and 67.30–10 must be operated continuously, regardless of visibility, unless the sound signal is controlled:

(127) (1) By an attendant on the structure;

(128) (2) Remotely by an attendant on a nearby structure; or

(129) (3) By a fog detection device capable of activating the sound signal when the visibility in any direction is reduced to the rated range at which sound signal operation is required by this part.

(130) (b) During construction and until such time as a sound signal is installed and operating on a platform, the whistle of an attending vessel moored alongside the platform may be used to sound the signal required for the structure by this part.

(131)

§67.10–15 Approval of sound signals.

(132) (a) The Coast Guard approves a sound signal if:

(133) (1) It meets the requirements for sound signals in §67.10–1(a), (b), (c), (d), and (e) when tested under §67.10–20; or

(134) (2) It is similar to a sound signal which was tested and approved under the provisions of this section and the Coast Guard has approved all variations in design, construction, production, and manufacture from the sound signal tested.

(135) (b) A sound signal that is an identical production model of a sound signal which has been approved under paragraph (a) of this section is a Coast Guard approved sound signal.

(136)

Part 80–COLREGS Demarcation Lines

(137)

§80.01 General basis and purpose of demarcation lines.

(138) (a) The regulations in this part establish the lines of demarcation delineating those waters upon which mariners shall comply with the International Regulations for Preventing Collisions at Sea, 1972 (72 COLREGS) and those waters upon which mariners shall comply with the Inland Navigation Rules.

(139) (b) The waters inside of the lines are Inland Rules waters. The waters outside the lines are COLREGS waters.

(140) (c) Geographic coordinates expressed in terms of latitude or longitude, or both, are not intended for plotting on maps or charts whose referenced horizontal datum is the North American Datum of 1983 (NAD 83), unless such geographic coordinates are expressly labeled NAD 83. Geographic coordinates without the NAD 83 reference may be plotted on maps or charts referenced to NAD 83 only after application of the appropriate corrections that are published on the particular map or chart being used.

(141)

§80.1705 Alaska.

(142) The 72 COLREGS shall apply on all the sounds, bays, harbors, and inlets of Alaska.

(143)

Part 81–72 COLREGS: IMPLEMENTING RULES

(144)

§81.1 Definitions.

(145) As used in this part:

(146) *72 COLREGS* refers to the International Regulations for Preventing Collisions at Sea, 1972, done at London, October 20, 1972, as rectified by the Proces-Verbal of December 1, 1973, as amended.

(147) *A vessel of special construction or purpose* means a vessel designed or modified to perform a special function and whose arrangement is thereby made relatively inflexible.

(148) *Interference with the special function of the vessel* occurs when installation or use of lights, shapes, or sound-signaling appliances under 72 COLREGS prevents or significantly hinders the operation in which the vessel is usually engaged.

(149)

§81.3 General.

(150) Vessels of special construction or purpose which cannot fully comply with the light, shape, and sound signal provisions of 72 COLREGS without interfering with their special function may instead meet alternative requirements. The Chief of the Prevention Division in each Coast Guard District Office makes this determination and requires that alternative compliance be as close as possible with the 72 COLREGS. These regulations set out the procedure by which a vessel may be certified for alternative compliance. The information collection and recordkeeping requirements in §§81.5 and 81.18 have been approved by the Office of Management and Budget under OMB control No. 1625-0019.

(151)

Alternative Compliance

(152)

§81.5 Application for a Certificate of Alternative Compliance.

(153) (a) The owner, builder, operator, or agent of a vessel of special construction or purpose who believes the vessel cannot fully comply with the 72 COLREGS light, shape, or sound signal provisions without interference with its special function may apply for a determination that alternative compliance is justified. The application must be in writing, submitted to the Chief of the Prevention Division of the Coast Guard District in which the vessel is being built or operated, and include the following information:

(154) (1) The name, address, and telephone number of the applicant.

(155) (2) The identification of the vessel by its:

(156) (i) Official number;

(157) (ii) Shipyard hull number;

(158) (iii) Hull identification number; or

(159) (iv) State number, if the vessel does not have an official number or hull identification number.

(160) (3) Vessel name and home port, if known.

(161) (4) A description of the vessel's area of operation.

(162) (5) A description of the provision for which the Certificate of Alternative Compliance is sought, including:

(163) (i) The 72 COLREGS Rule or Annex section number for which the Certificate of Alternative Compliance is sought;

(164) (ii) A description of the special function of the vessel that would be interfered with by full compliance with the provision of that Rule or Annex section; and

(165) (iii) A statement of how full compliance would interfere with the special function of the vessel.

(166) (6) A description of the alternative installation that is in closest possible compliance with the applicable 72 COLREGS Rule or Annex section.

(167) (7) A copy of the vessel's plans or an accurate scale drawing that clearly shows:

(168) (i) The required installation of the equipment under the 72 COLREGS,

(169) (ii) The proposed installation of the equipment for which certification is being sought, and

(170) (iii) Any obstructions that may interfere with the equipment when installed in:

(171) (A) The required location; and

(172) (B) The proposed location.

(173) (b) The Coast Guard may request from the applicant additional information concerning the application.

(174)

§81.9 Certificate of Alternative Compliance: Contents.

(175) The Chief of the Prevention Division issues the Certificate of Alternative Compliance to the vessel based on a determination that it cannot comply fully with 72 COLREGS light, shape, and sound signal provisions without interference with its special function. This Certificate includes—

(176) (a) Identification of the vessel as supplied in the application under §81.5(a)(2);

(177) (b) The provision of the 72 COLREGS for which the Certificate authorizes alternative compliance;

(178) (c) A certification that the vessel is unable to comply fully with the 72 COLREGS lights, shape, and sound signal requirements without interference with its special function;

(179) (d) A statement of why full compliance would interfere with the special function of the vessel;

(180) (e) The required alternative installation;

(181) (f) A statement that the required alternative installation is in the closest possible compliance with the 72 COLREGS without interfering with the special function of the vessel;

(182) (g) The date of issuance;

(183) (h) A statement that the Certificate of Alternative Compliance terminates when the vessel ceases to be usually engaged in the operation for which the certificate is issued.

(184)

§81.17 Certificate of Alternative Compliance: Termination.

(185) The Certificate of Alternative Compliance terminates if the information supplied under §81.5(a) or the Certificate issued under §81.9 is no longer applicable to the vessel.

(186)

§81.18 Notice and record of certification of vessels of special construction or purpose.

(187) (a) In accordance with 33 U.S.C. 1605(c), a notice is published in the **Federal Register** of the following:

(188) (1) Each Certificate of Alternative Compliance issued under §81.9; and

(189) (2) Each Coast Guard vessel determined by the Commandant to be a vessel of special construction or purpose.

(190) (b) Copies of Certificate of Alternative Compliance and documentation concerning Coast Guard vessels are available for inspection at Marine Transportation Systems Directorate, U.S. Coast Guard Headquarters, (CG-5PW), Stop 7509, 2703 Martin Luther King Avenue SE., Washington, DC 20593-7509.

(191) (c) The owner or operator of a vessel issued a Certificate shall ensure that the vessel does not operate unless the Certificate of Alternative Compliance or a certified copy of that Certificate is on board the vessel and available for inspection by Coast Guard personnel.

(192)

Exemptions

(193)

§81.20 Lights and sound signal appliances.

(194) Each vessel under the 72 COLREGS, except the vessels of the Navy, is exempt from the requirements of the 72 COLREGS to the limitation for the period of time stated in Rule 38 (a), (b), (c), (d), (e), (f), and (g) if:

(195) (a) Her keel is laid or is at a corresponding stage of construction before July 15, 1977; and

(196) (b) She meets the International Regulations for Preventing Collisions at Sea, 1960 (77 Stat. 194, 33 U.S.C. 1051-1094).

(197)

Part 82–72 COLREGS: INTERPRETATIVE RULES

(198)

§82.1 Purpose.

(199) This part contains the interpretative rules concerning the 72 COLREGS that are adopted by the Coast Guard for the guidance of the public.

(200)

§82.3 Pushing vessel and vessel being pushed: Composite unit.

(201) Rule 24(b) of the 72 COLREGS states that when a pushing vessel and a vessel being pushed ahead are

rigidly connected in a composite unit, they are regarded as a power-driven vessel and must exhibit the lights under Rule 23. A "composite unit" is interpreted to be a pushing vessel that is rigidly connected by mechanical means to a vessel being pushed so they react to sea and swell as one vessel. "Mechanical means" does not include the following:

(202) (a) Lines.

(203) (b) Hawsers.

(204) (c) Wires.

(205) (d) Chains.

(206)

§82.5 Lights for moored vessels.

(207) For the purposes of Rule 30 of the 72 COLREGS, a *vessel at anchor* includes a barge made fast to one or more mooring buoys or other similar device attached to the sea or river floor. Such a barge may be lighted as a vessel at anchor in accordance with Rule 30, or may be lighted on the corners in accordance with 33 CFR 83.30(h) through (l).

(208)

§82.7 Sidelights for unmanned barges.

(209) An unmanned barge being towed may use the exception of COLREGS Rule 24(h). However, this exception only applies to the vertical sector requirements.

(210)

Part 88—ANNEX V: PILOT RULES

(211)

§88.01 Purpose and applicability.

(212) This part applies to all vessels operating on United States inland waters and to United States vessels operating on the Canadian waters of the Great Lakes to the extent there is no conflict with Canadian law.

(213)

§88.03 Definitions.

(214) The terms used in this part have the same meaning as the terms defined in part 83 of this subchapter.

(215)

§88.05 Law enforcement vessels.

(216) (a) Law enforcement vessels may display a flashing blue light when engaged in direct law enforcement or public safety activities. This light must be located so that it does not interfere with the visibility of the vessel's navigation lights.

(217) (b) The blue light described in this section may be displayed by law enforcement vessels of the United States and the States and their political subdivisions.

(218)

§88.07 Public safety activities.

(219) (a) Vessels engaged in government sanctioned public safety activities, and commercial vessels performing similar functions, may display an alternately flashing red and yellow light signal. This identification light signal must be located so that it does not interfere with the visibility of the vessel's navigation lights. The identification light signal may be used only as an identification signal and conveys no special privilege. Vessels using the identification light signal during public safety activities must abide by the Inland Navigation Rules, and must not presume that the light or the exigency gives them precedence or right of way.

(220) (b) Public safety activities include but are not limited to patrolling marine parades, regattas, or special water celebrations; traffic control; salvage; firefighting; medical assistance; assisting disabled vessels; and search and rescue.

(221)

Part 89—INLAND NAVIGATION RULES: IMPLEMENTING RULES

(222)

Subpart A—Certificate of Alternative Compliance

(223)

§89.1 Definitions.

(224) As used in this subpart:

(225) *Inland Rules* refers to the Inland Navigation Rules contained in the Inland Navigational Rules Act of 1980 (Pub. L. 96-591) and the technical annexes established under that act.

(226) *A vessel of special construction or purpose* means a vessel designed or modified to perform a special function and whose arrangement is thereby made relatively inflexible.

(227) *Interference with the special function of the vessel* occurs when installation or use of lights, shapes, or sound-signaling appliances under the Inland Rules prevents or significantly hinders the operation in which the vessel is usually engaged.

(228)

§89.3 General.

(229) Vessels of special construction or purpose which cannot fully comply with the light, shape, and sound signal provisions of the Inland Rules without interfering with their special function may instead meet alternative requirements. The Chief of the Prevention Division in each Coast Guard District Office makes this determination and requires that alternative compliance be as close as possible with the Inland Rules. These regulations set out the procedure by which a vessel may be certified for alternative compliance. The information collection and recordkeeping requirements in §§89.5 and 89.18 have been approved by the Office of Management and Budget under OMB control No. 1625-0019.

(230)

§89.5 Application for a Certificate of Alternative Compliance.

(231) (a) The owner, builder, operator, or agent of a vessel of special construction or purpose who believes the vessel cannot fully comply with the Inland Rules light, shape, or sound signal provisions without interference with its special function may apply for a determination that

alternative compliance is justified. The application must be in writing, submitted to the Chief of the Prevention Division of the Coast Guard District in which the vessel is being built or operated, and include the following information:

(232) (1) The name, address, and telephone number of the applicant.

(233) (2) The identification of the vessel by its:

(234) (i) Official number;

(235) (ii) Shipyard hull number;

(236) (iii) Hull identification number; or

(237) (iv) State number, if the vessel does not have an official number or hull identification number.

(238) (3) Vessel name and home port, if known.

(239) (4) A description of the vessel's area of operation.

(240) (5) A description of the provision for which the Certificate of Alternative Compliance is sought, including:

(241) (i) The Inland Rules Rule or Annex section number for which the Certificate of Alternative Compliance is sought;

(242) (ii) A description of the special function of the vessel that would be interfered with by full compliance with the provision of that Rule or Annex section; and

(243) (iii) A statement of how full compliance would interfere with the special function of the vessel.

(244) (6) A description of the alternative installation that is in closest possible compliance with the applicable Inland Navigation Rules Rule or Annex section.

(245) (7) A copy of the vessel's plans or an accurate scale drawing that clearly shows:

(246) (i) The required installation of the equipment under the Inland Rules,

(247) (ii) The proposed installation of the equipment for which certification is being sought, and

(248) (iii) Any obstructions that may interfere with the equipment when installed in:

(249) (A) The required location; and

(250) (B) The proposed location.

(251) (b) The Coast Guard may request from the applicant additional information concerning the application.

(252)

§89.9 Certificate of Alternative Compliance: Contents.

(253) The Chief of the Prevention Division issues the Certificate of Alternative Compliance to the vessel based on a determination that it cannot comply fully with Inland Rules light, shape, and sound signal provisions without interference with its special function. This Certificate includes:

(254) (a) Identification of the vessel as supplied in the application under §89.5(a)(2);

(255) (b) The provision of the Inland Rules for which the Certificate authorizes alternative compliance;

(256) (c) A certification that the vessel is unable to comply fully with the Inland Rules light, shape, and sound signal requirements without interference with its special function;

(257) (d) A statement of why full compliance would interfere with the special function of the vessel;

(258) (e) The required alternative installation;

(259) (f) A statement that the required alternative installation is in the closest possible compliance with the Inland Rules without interfering with the special function of the vessel;

(260) (g) The date of issuance;

(261) (h) A statement that the Certificate of Alternative Compliance terminates when the vessel ceases to be usually engaged in the operation for which the certificate is issued.

(262)

§89.17 Certificate of Alternative Compliance: Termination.

(263) The Certificate of Alternative Compliance terminates if the information supplied under §89.5(a) or the Certificate issued under §89.9 is no longer applicable to the vessel.

(264)

§89.18 Record of certification of vessels of special construction or purpose.

(265) (a) Copies of Certificates of Alternative Compliance and documentation concerning Coast Guard vessels are available for inspection at the offices of the Marine Transportation Systems Directorate, U.S. Coast Guard Headquarters (CG-5PW), Stop 7509, 2703 Martin Luther King Avenue SE., Washington, DC 20593-7509.

(266) (b) The owner or operator of a vessel issued a Certificate shall ensure that the vessel does not operate unless the Certificate of Alternative Compliance or a certified copy of that Certificate is on board the vessel and available for inspection by Coast Guard personnel.

(267)

Subpart B—Waters Upon Which Certain Inland Navigation Rules Apply

(268)

§89.21 Purpose.

(269) Inland Navigation Rules 9(a)(ii), 14(d), and 15(b) apply to the Great Lakes, and along with 24(i), apply on the "Western Rivers" as defined in Rule 3(1), and to additional specifically designated waters. The purpose of this Subpart is to specify those additional waters upon which Inland Navigation Rules 9(a)(ii), 14(d), 15(b), and 24(i) apply.

(270)

§89.23 Definitions.

(271) As used in this subpart:

(272) *Inland Rules* refers to the Inland Navigation Rules contained in the Inland Navigational Rules Act of 1980 (Pub. L. 96-591, 33 U.S.C. 2001 et. seq.) and the technical annexes established under that Act.

(273)

§89.25 Waters upon which Inland Rules 9(a)(ii), 14(d), and 15(b) apply.

(274) Inland Rules 9(a)(ii), 14(d), and 15(b) apply on the Great Lakes, the Western Rivers, and the following specified waters:

(275) (a) Tennessee-Tombigbee Waterway.

(276) (b) Tombigbee River.

(277) (c) Black Warrior River.

(278) (d) Alabama River.

(279) (e) Coosa River.

(280) (f) Mobile River above the Cochrane Bridge at St. Louis Point.

(281) (g) Flint River.

(282) (h) Chattahoochee River.

(283) (i) The Apalachicola River above its confluence with the Jackson River.

(284)

§89.27 Waters upon which Inland Rule 24(j) applies.

(285) (a) Inland Rule 24(j) applies on the Western Rivers and the specified waters listed in §89.25 (a) through (i).

(286) (b) Inland Rule 24(j) applies on the Gulf Intracoastal Waterway from St. Marks, Florida, to the Rio Grande, Texas, including the Morgan City-Port Allen Alternate Route and the Galveston-Freeport Cutoff, except that a power-driven vessel pushing ahead or towing alongside shall exhibit the lights required by Inland Rule 24(c), while transiting within the following areas:

(287) (1) St. Andrews Bay from the Hathaway Fixed Bridge at Mile 284.6 East of Harvey Locks (EHL) to the DuPont Fixed Bridge at Mile 295.4 EHL.

(288) (2) Pensacola Bay, Santa Rosa Sound and Big Lagoon from the Light "10" off of Trout Point at Mile 176.9 EHL to the Pensacola Fixed Bridge at Mile 189.1 EHL.

(289) (3) Mobile Bay and Bon Secour Bay from the Dauphin Island Causeway Fixed Bridge at Mile 127.7 EHL to Little Point Clear at Mile 140 EHL.

(290) (4) Mississippi Sound from Grand Island Waterway Light "1" at Mile 53.8 EHL to Light "40" off the West Point of Dauphin Island at Mile 118.7 EHL.

(291) (5) The Mississippi River at New Orleans, Mississippi River-Gulf Outlet Canal and the Inner Harbor Navigation Canal from the junction of the Harvey Canal and the Algiers Alternate Route at Mile 6.5 West of Harvey Locks (WHL) to the Michoud Canal at Mile 18 EHL.

(292) (6) The Calcasieu River from the Calcasieu Lock at Mile 238.6 WHL to the Ellender Lift Bridge at Mile 243.6 WHL.

(293) (7) The Sabine Neches Canal from mile 262.5 WHL to mile 291.5 WHL.

(294) (8) Bolivar Roads from the Bolivar Assembling Basin at Mile 346 WHL to the Galveston Causeway Bridge at Mile 357.3 WHL.

(295) (9) Freeport Harbor from Surfside Beach Fixed Bridge at Mile 393.8 WHL to the Bryan Beach Pontoon Bridge at Mile 397.6 WHL.

(296) (10) Matagorda Ship Channel area of Matagorda Bay from Range "K" Front Light at Mile 468.7 WHL to the Port O'Connor Jetty at Mile 472.2 WHL.

(297) (11) Corpus Christi Bay from Redfish Bay Day Beacon "55" at Mile 537.4 WHL when in the Gulf Intracoastal Waterway main route or from the north end of Lydia Ann Island Mile 531.1A when in the Gulf Intracoastal Waterway Alternate Route to Corpus Christi Bay LT 76 at Mile 543.7 WHL.

(298) (12) Port Isabel and Brownsville Ship Channel south of the Padre Island Causeway Fixed Bridge at Mile 665.1 WHL.

(299)

Part 90—INLAND RULES: INTERPRETATIVE RULES

(300)

§90.1 Purpose.

(301) This part contains the interpretative rules for the Inland Rules. These interpretative rules are intended as a guide to assist the public and promote compliance with the Inland Rules.

(302)

§90.3 Pushing vessel and vessel being pushed: Composite unit.

(303) Rule 24(b) of the Inland Rules states that when a pushing vessel and a vessel being pushed ahead are rigidly connected in a composite unit, they are regarded as a power-driven vessel and must exhibit the lights prescribed in Rule 23. A "composite unit" is interpreted to be the combination of a pushing vessel and a vessel being push ahead that are rigidly connected by mechanical means so they react to sea and swell as one vessel. Mechanical means does not include lines, wires, hawsers, or chains.

(304)

§90.5 Lights for moored vessels.

(305) A *vessel at anchor* includes a vessel made fast to one or more mooring buoys or other similar device attached to the ocean floor. Such vessels may be lighted as a vessel at anchor in accordance with Rule 30, or may be lighted on the corners in accordance with 33 CFR 88.30(h) through (l).

(306)

§90.7 Sidelights for unmanned barges.

(307) An unmanned barge being towed may use the exception of COLREGS Rule 24(h). However, this exception only applies to the vertical sector requirements for sidelights.

(308)

Part 110–Anchorage Regulations

(309)

§110.1 General.

(310) (a) The areas described in subpart A of this part are designated as special anchorage areas for the purposes of rule 30 (**33 CFR 83.30**) and rule 35 (**33 CFR 83.35**) of the Inland Navigation Rules, 33 CFR chapter I, subchapter E. Vessels of less than 20 meters in length; and barges, canal boats, scows, or other nondescript craft, are not required to sound signals required by rule 35 of the Inland Navigation Rules. Vessels of less than 20 meters are not required to exhibit anchor lights or shapes required by rule 30 of the Inland Navigation Rules.

(311) (b) The anchorage grounds for vessels described in Subpart B of this part are established, and the rules and regulations in relation thereto adopted, pursuant to the authority contained in section 7 of the act of March 4, 1915, as amended (38 Stat. 1053; 33 U.S.C. 471).

(312) (c) All bearings in this part are referred to true meridian.

(313) (d) Geographic coordinates expressed in terms of latitude or longitude, or both, are not intended for plotting on maps or charts whose referenced horizontal datum is the North American Datum of 1983 (NAD 83), unless such geographic coordinates are expressly labeled NAD 83. Geographic coordinates without the NAD 83 reference may be plotted on maps or charts referenced to NAD 83 only after application of the appropriate corrections that are published on the particular map or chart being used.

(314)

Subpart B–Anchorage Grounds

(315)

§110.233 Prince William Sound, Alaska.

(316) (a) *The anchorage grounds*. In Prince William Sound, Alaska, beginning at a point at

(317) 60°40'00"N., 146°40'00"W.; thence south to

(318) 60°38'00"N., 146°40'00"W.; thence east to

(319) 60°38'00"N., 146°30'00"W.; thence north to

(320) 60°39'00"N., 146°30'00"W.; thence northwesterly to the beginning point.

(321) (b) *The regulations.* (1) This anchorage area is for the temporary use of vessels during:

(322) (i) Adverse weather or tidal conditions;

(323) (ii) Vessel equipment failure; or

(324) (iii) Delays at Port Valdez;

(325) (2) No vessel may anchor in this anchorage without notifying the vessel traffic center in Valdez; and

(326) (3) Each vessel anchored shall notify the vessel traffic center in Valdez when it weighs anchor.

(327)

Part 157–Rules for the Protection of the Marine Environment relating to Tank Vessels Carrying Oil in Bulk.

(328)

Subpart A–General

(329)

§157.01 Applicability.

(330) (a) Unless otherwise indicated, this part applies to each vessel that carries oil in bulk as cargo and that is:

(331) (1) Documented under the laws of the United States (a U.S. vessel); or

(332) (2) Any other vessel that enters or operates in the navigable waters of the United States, or that operates, conducts lightering under 46 U.S.C. 3715, or receives cargo from or transfers cargo to a deepwater port under 33 U.S.C. 1501 *et seq.*, in the United States Exclusive Economic Zone, as defined in 33 U.S.C. 2701(8).

(333) (b) This part does not apply to a vessel exempted under 46 U.S.C. 2109 or 46 U.S.C. 3702.

(334)

§157.02 Incorporation by reference: Where can I get a copy of the publications mentioned in this part?

(335) (a) Certain material is incorporated by reference into this part with the approval of the Director of the Federal Register under 5 U.S.C. 552(a) and 1 CFR part 51. To enforce any edition other than that specified in this section, the Coast Guard must publish notice of change in the **Federal Register** and the material must be available to the public. All approved material is available for inspection at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202–741–6030 or go to *http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html*. Also, it is available for inspection at the Coast Guard Headquarters. Contact Commandant (CG–ENG), Attn: Office of Design and Engineering Standards, U.S. Coast Guard Stop 7509, 2703 Martin Luther King Jr. Avenue SE., Washington, DC 20593–7509; telephone 202–372–1375. The material is also available from the sources indicated in this section.

(336) (b) *International Maritime Organization (IMO)*—4 Albert Embankment, London SE1 7SR, United Kingdom.

(337) (1) IMCO Assembly Resolution A.393(X), adopted on 14 November 1977, Recommendation on International Performance and Test Specifications For Oily Water Separating Equipment and Oil Content Meters ("A.393(x)"), incorporation by reference approved for §157.12.

(338) (2) IMO Assembly Resolution A.496(XII), Adopted on 19 November 1981, Agenda Item 11, Guidelines and Specifications for Oil Discharge Monitoring and Control Systems for Oil Tankers ("A.496(XII)"), incorporation by reference approved for §157.12.

(339) (3) IMO Assembly Resolution A.586(14), Adopted on 20 November 1985, Agenda item 12, Revised

Guidelines and Specifications for Oil Discharge Monitoring and Control Systems for Oil Tankers ("A.586(14)"), incorporation by reference approved for §157.12.

(340) (4) IMO Marine Environment Protection Committee Resolution MEPC.13 (19), adopted on 9 December 1983, Guidelines for Plan Approval and Installation Survey of Oil Discharge Monitoring and Control Systems for Oil Tankers and Environmental Testing of Control Sections Thereof ("MEPC.13(19)"), incorporation by reference approved for §157.12.

(341) (5) IMO Marine Environment Protection Committee Resolution MEPC.108(49), Adopted on 18 July 2003, Revised Guidelines and Specifications for Oil Discharge Monitoring and Control Systems for Oil Tankers ("MEPC.108(49)"), incorporation by reference approved for § 157.12.

(342) (6) IMO Assembly Resolution A.601(15), Provision and Display of Manoeuvring Information on Board Ships, Annex sections 1.1, 2.3, 3.1, and 3.2 with appendices, adopted on 19 November 1987 ("A.601(15)"), incorporation by reference approved for §157.450.

(343) (7) IMO Assembly Resolution A.744(18), Guidelines on the Enhanced Programme of Inspections During Surveys of Bulk Carriers and Oil Tankers, Annex B sections 1.1.3-1.1.4, 1.2-1.3, 2.1, 2.3-2.6, 3-8, and Annexes 1-10 with appendices, adopted 4 November 1993 ("A.744(18)"), incorporation by reference approved for §157.430.

(344) (8) IMO Assembly Resolution A.751(18), Interim Standards for Ship Manoeuvrability, Annex sections 1.2, 2.3-2.4, 3-4.2, and 5, adopted 4 November 1993 with Explanatory Notes in MSC/Circ. 644 dated 6 June 1994 ("A.751(18)"), incorporation by reference approved for §157.445.

(345) (9) MARPOL Consolidated Edition 2011, Annex I, Regulations for the prevention of pollution by oil, chapter 4—Requirements for the cargo area of oil tankers, Part A—Construction, Regulation 22, "Pump-room bottom protection," (Annex I, Regulation 22) incorporation by reference approved for §157.14.

(346) (10) MARPOL Consolidated Edition 2011, Annex I, Regulations for the prevention of pollution by oil, chapter 4—Requirements for the cargo area of oil tankers, Part A—Construction, Regulation 23, "Accidental oil outflow performance," (Annex I, Regulation 23) incorporation by reference approved for §157.20.

(347) (c) *Oil Companies International Marine Forum (OCIMF)* 27 Queen Anne's Gate, London, SW1H 9BU, England].

(348) (1) International Safety Guide for Oil Tankers and Terminals, Fourth Edition, chapters 6, 7, and 10, 1996, incorporation by reference approved for §157.435.

(349) (2) [Reserved]

(350)

§157.03 Definitions.

(351) Except as otherwise stated in a subpart:

(352) *Amidships* means the middle of the length.

(353) *Animal fat* means a non-petroleum oil, fat, or grease derived from animals and not specifically identified elsewhere in this part.

(354) *Ballast voyage* means the voyage that a tank vessel engages in after it leaves the port of final cargo discharge.

(355) *Breadth or B* means the maximum molded breadth of a vessel in meters.

(356) *Cargo tank length* means the length from the forward bulkhead of the forwardmost cargo tanks, to the after bulkhead of the aftermost cargo tanks.

(357) *Center tank* means any tank inboard of a longitudinal bulkhead.

(358) *Clean ballast* means ballast which:

(359) (1) If discharged from a vessel that is stationary into clean, calm water on a clear day, would not–

(360) (i) Produce visible traces of oil on the surface of the water or on adjoining shore lines; or

(361) (ii) Cause a sludge or emulsion to be deposited beneath the surface of the water or upon adjoining shore lines; or

(362) (2) If verified by an approved oil discharge monitoring and control system, has an oil content that does not exceed 15 p.m.

(363) *Combination carrier* means a vessel designed to carry oil or solid cargoes in bulk.

(364) *Crude oil* means any liquid hydrocarbon mixture occurring naturally in the earth, whether or not treated to render it suitable for transportation, and includes crude oil from which certain distillate fractions may have been removed, and crude oil to which certain distillate fractions may have been added.

(365) *Deadweight or DWT* means the difference in metric tons between the lightweight displacement and the total displacement of a vessel measured in water of specific gravity 1.025 at the load waterline corresponding to the assigned summer freeboard.

(366) *Dedicated clean ballast tank* means a cargo tank that is allocated solely for the carriage of clean ballast.

(367) *Domestic trade* means trade between ports or places within the United States, its territories and possessions, either directly or via a foreign port including trade on the navigable rivers, lakes, and inland waters.

(368) *Double bottom* means watertight protective spaces that do not carry any oil and which separate the bottom of tanks that hold any oil within the cargo tank length from the outer skin of the vessel.

(369) *Double hull* means watertight protective spaces that do not carry any oil and which separate the sides, bottom, forward end, and aft end of tanks that hold any oil within the cargo tank length from the outer skin of the vessel as prescribed in §157.10d.

(370) *Doubles sides* means watertight protective spaces that do not carry any oil and which separate the sides of tanks that hold any oil within the cargo tank length from the outer skin of the vessel.

(371) *Existing vessel* means any vessel that is not a new vessel.

(372) *Fleeting or assist towing vessel* means any commercial vessel engaged in towing astern, alongside, or pushing ahead, used solely within a limited geographic area, such as a particular barge fleeting area or commercial facility, and used solely for restricted service, such as making up or breaking up larger tows.

(373) *Foreign trade* means any trade that is not domestic trade.

(374) *From the nearest land* means from the baseline from which the territorial sea of the United States is established in accordance with international law.

(375) *Fuel oil* means any oil used as fuel for machinery in the vessel in which it is carried.

(376) *Inland vessel* means a vessel that is not oceangoing and that does not operate on the Great Lakes.

(377) *Instantaneous rate of discharge of oil content* means the rate of discharge of oil in liters per hour at any instant, divided by the speed of the vessel in knots at the same instant.

(378) *Integrated tug barge* means a tug and a tank barge with a mechanical system that allows the connection of the propulsion unit (the tug) to the stern of the cargo carrying unit (the tank barge) so that the two vessels function as a single self-propelled vessel.

(379) *Large primary structural member* includes any of the following:

(380) (1) Web frames.

(381) (2) Girders.

(382) (3) Webs.

(383) (4) Main brackets.

(384) (5) Transverses.

(385) (6) Stringers.

(386) (7) Struts in transverse web frames when there are 3 or more struts and the depth of each is more than 1/15 of the total depth of the tank.

(387) *Length or L* means the distance in meters from the fore side of the stem to the axis of the rudder stock on a waterline at 85 percent of the least molded depth measured from the molded baseline, or 96 percent of the total length on that waterline, whichever is greater. In vessels designed with drag, the waterline is measured parallel to the designed waterline.

(388) *Lightweight* means the displacement of a vessel in metric tons without cargo, fuel oil, lubricating oil, ballast water, fresh water, and feedwater in tanks, consumable stores, and any persons and their effects.

(389) *Major conversion* means a conversion of an existing vessel that:

(390) (1) Substantially alters the dimensions or carrying capacity of the vessel, except a conversion that includes only the installation of segregated ballast tanks, dedicated clean ballast tanks, a crude oil washing system, double sides, a double bottom, or a double hull;

(391) (2) Changes the type of vessel;

(392) (3) Substantially prolongs the vessel's service life; or

(393) (4) Otherwise so changes the vessel that it is essentially a new vessel, as determined by the Commandant (CG–CVC).

(394) *MARPOL 73/78* means the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating to that Convention. A copy of MARPOL 73/78 is available from the International Maritime Organization, 4 Albert Embankment, London, SE1.

(395) *New vessel* means:

(396) (1) A U.S. vessel in domestic trade that:

(397) (i) Is constructed under a contract awarded after December 31, 1974;

(398) (ii) In the absence of a building contract, has the keel laid or is at a similar stage of construction after June 30, 1975;

(399) (iii) Is delivered after December 31, 1977; or

(400) (iv) Has undergone a major conversion for which:

(401) (A) The contract is awarded after December 31, 1974;

(402) (B) In the absence of a contract, conversion is begun after June 30, 1975; or

(403) (C) Conversion is completed after December 31, 1977; and

(404) (2) A foreign vessel or a U.S. vessel in foreign trade that;

(405) (i) Is constructed under a contract awarded after December 31, 1975;

(406) (ii) In the absence of a building contract, has the keel laid or is at a similar stage of construction after June 30, 1976;

(407) (iii) Is delivered after December 31, 1979; or

(408) (iv) Has undergone a major conversion for which:

(409) (A) The contract is awarded after December 31, 1975;

(410) (B) In the absence of a contract, conversion is begun after June 30, 1976; or

(411) (C) Conversion is completed after December 31, 1979.

(412) *Non-petroleum oil* means oil of any kind that is not petroleum-based. It includes, but is not limited to, animal fat and vegetable oil.

(413) *Oceangoing* has the same meaning as defined in §151.05 of this chapter.

(414) *Officer in charge of a navigational watch* means any officer employed or engaged to be responsible for navigating or maneuvering the vessel and for maintaining a continuous vigilant watch during his or her periods of duty and following guidance set out by the master, international or national regulations, and company policies.

(415) *Oil* means oil of any kind or in any form including, but not limited to, petroleum, fuel oil, sludge, oil refuse, and oil mixed with wastes other than dredged spoil. This includes liquid hydrocarbons as well as animal and vegetable oils.

(416) *Oil cargo residue* means any residue of oil cargo whether in solid, semi-solid, emulsified, or liquid form

from cargo tanks and cargo pump room bilges, including but not limited to, drainages, leakages, exhausted oil, muck, clingage, sludge, bottoms, paraffin (wax), and any constituent component of oil. The term "oil cargo residue" is also known as "cargo oil residue."

(417) *Oil residue* means–

(418) (1) Oil cargo residue; and

(419) (2) Other residue of oil whether in solid, semi-solid, emulsified, or liquid form resulting from drainages, leakages, exhausted oil and other similar occurrences from machinery spaces.

(420) *Oil spill response vessel* means a vessel that is exclusively dedicated to operations to prevent or mitigate environmental damage due to an actual or impending accidental oil spill. This includes a vessel that performs routine service as an escort for a tank vessel, but excludes a vessel that engages in any other commercial activity, such as the carriage of any type of cargo.

(421) *Oil tanker* means a vessel that is constructed or adapted primarily to carry crude oil or products in bulk as cargo. This includes a tank barge, a tankship, and a combination carrier, as well as a vessel that is constructed or adapted primarily to carry noxious liquid substances in bulk as cargo and which also carries crude oil or products in bulk as cargo.

(422) *Oily mixture* means a mixture, in any form, with any oil content. "Oily mixture" includes, but is not limited to—

(423) (1) Slops from bilges;

(424) (2) Slops from oil cargoes (such as cargo tank washings, oily waste, and oily refuse);

(425) (3) Oil residue; and

(426) (4) Oily ballast water from cargo or fuel oil tanks, including any oil cargo residue.

(427) *Other non-petroleum oil* means an oil of any kind that is not petroleum oil, an animal fat, or a vegetable oil.

(428) *Permeability of a space* means the ratio of volume within a space that is assumed to be occupied by water to the total volume of that space.

(429) *Petroleum oil* means petroleum in any form, including but not limited to, crude oil, fuel oil, sludge, oil residue, and refined products.

(430) *Primary towing vessel* means any vessel engaged in towing astern, alongside, or pushing ahead and includes the tug in an integrated tug barge. It does not include fleeting or assist towing vessels.

(431) *Product* means any liquid hydrocarbon mixture in any form, except crude oil, petrochemicals, and liquefied gases.

(432) *Segregated ballast* means the ballast water introduced into a tank that is completely separated from the cargo oil and fuel oil system and that is permanently allocated to the carriage of ballast.

(433) *Slop tank* means a tank specifically designated for the collection of cargo drainings, washings, and other oily mixtures.

(434) *Tank* means an enclosed space that is formed by the permanent structure of a vessel, and designed for the carriage of liquid in bulk.

(435) *Tank barge* means a tank vessel not equipped with a means of self-propulsion.

(436) *Tank vessel* means a vessel that is constructed or adapted primarily to carry, or that carries, oil or hazardous material in bulk as cargo or cargo residue, and that–

(437) (1) Is a vessel of the United States;

(438) (2) Operates on the navigable waters of the United States; or

(439) (3) Transfers oil or hazardous material in a port or place subject to the jurisdiction of the United States. This does not include an offshore supply vessel, or a fishing vessel or fish tender vessel of not more than 750 gross tons when engaged only in the fishing industry.

(440) *Tankship* means a tank vessel propelled by mechanical power or sail.

(441) *Vegetable oil* means a non-petroleum oil or fat not specifically identified elsewhere in this part that is derived from plant seeds, nuts, kernels, or fruits.

(442) *Wing tank* means a tank that is located adjacent to the side shell plating.

(443)

§157.04 Authorization of classification societies.

(444) (a) The Coast Guard may authorize any classification society (CS) to perform certain plan reviews, certifications, and inspections required by this part on vessels classed by that CS except that only U.S. classification societies may be authorized to perform those plan reviews, inspections, and certifications for U.S. vessels.

(445) (b) If a CS desires authorization to perform the plan reviews, certifications, and inspections required under this part, it must submit to the Commandant (CG–CVC), Attn: Office of Commercial Vessel Compliance, U.S. Coast Guard Stop 7501, 2703 Martin Luther King Jr. Avenue SE., Washington, DC 20593–7501, evidence from the governments concerned showing that they have authorized the CS to inspect and certify vessels on their behalf under the MARPOL 73/78.

(446) (c) The Coast Guard notifies the CS in writing whether or not it is accepted as an authorized CS. If authorization is refused, reasons for the refusal are included.

(447) (d) Acceptance as an authorized CS terminates unless the following are met:

(448) (1) The authorized CS must have each Coast Guard regulation that is applicable to foreign vessels on the navigable waters of the United States.

(449) (2) Each issue concerning equivalents to the regulations in this part must be referred to the Coast Guard for determination.

(450) (3) Copies of any plans, calculations, records of inspections, or other documents relating to any plan review, inspection, or certification performed to meet this part must be made available to the Coast Guard.

(451) (4) Each document certified under §§157.116(a)(2), 157.118(b)(1)(ii), and 157.216(b)(1)(ii) must be marked with the name or seal of the authorized CS.

(452) (5) A copy of the final documentation that is issued to each vessel that is certified under this part must be referred to the Commandant (CG–CVC), Attn: Office of Commercial Vessel Compliance, U.S. Coast Guard Stop 7501, 2703 Martin Luther King Jr. Avenue SE., Washington, DC 20593–7501.

(453)

Subpart B–Design, Equipment, and Installation

(454)

§157.08 Applicability of Subpart B.

(455) **NOTE:** An "oil tanker" as defined in §157.03 includes barges as well as self-propelled vessels.

(456) (a) Sections 157.10d and 157.11(g) apply to each vessel to which this part applies.

(457) (b) Sections 157.11 (a) through (f), 157.12, 157.15, 157.19(b)(3), 157.33, and 157.37 apply to each vessel to which this part applies that carries 200 cubic meters or more of crude oil or products in bulk as cargo, as well as to each oceangoing oil tanker to which this part applies of 150 gross tons or more. These sections do not apply to a foreign vessel which remains beyond the navigable waters of the United States and does not transfer oil cargo at a port or place subject to the jurisdiction of the United States.

(458) (c) Section 157.21 applies to each oil tanker to which this part applies of 150 gross tons or more that is oceangoing or that operates on the Great Lakes. This section does not apply to a foreign vessel which remains beyond the navigable waters of the United States and does not transfer oil cargo at a port or place subject to the jurisdiction of the United States.

(459) (d) Sections in subpart B of 33 CFR part 157 that are not specified in paragraphs (a) through (c) of this section apply to each oceangoing oil tanker to which this part applies of 150 gross tons or more, unless otherwise indicated in paragraphs (e) through (m) of this section. These sections do not apply to a foreign vessel which remains beyond the navigable waters of the United States and does not transfer oil cargo at a port or place subject to the jurisdiction of the United States.

(460) (e) Sections 157.11 (a) through (f), 157.12, and 157.15 do not apply to a vessel, except an oil tanker, that carries less than 1,000 cubic meters of crude oil or products in bulk as cargo and which retains oil mixtures on board and discharges them to a reception facility.

(461) (f) Sections 157.11 (a) through (f), 157.12, 157.13, and 157.15 do not apply to a tank vessel that carries only asphalt, carbon black feedstock, or other products with similar physical properties, such as specific gravity and cohesive and adhesive characteristics, that inhibit effective product/water separation and monitoring.

(462) (g) Sections 157.11 (a) through (f), 157.12, 157.13, 157.15, and 157.23 do not apply to a tank barge that cannot ballast cargo tanks or wash cargo tanks while underway.

(463) (h) Sections 157.19 and 157.21 do not apply to a tank barge that is certificated by the Coast Guard for limited short protected coastwise routes if the barge is otherwise constructed and certificated for service exclusively on inland routes.

(464) (i) Section 157.09(d) does not apply to any:

(465) (1) U.S. vessel in domestic trade that is constructed under a contract awarded before January 8, 1976;

(466) (2) U.S. vessel in foreign trade that is constructed under a contract awarded before April 1, 1977; or

(467) (3) Foreign vessel that is constructed under a contract awarded before April 1, 1977.

(468) (j) Sections 157.09 and 157.10a do not apply to a new vessel that:

(469) (1) Is constructed under a building contract awarded after June 1, 1979;

(470) (2) In the absence of a building contract, has the keel laid or is at a similar stage of construction after January 1, 1980;

(471) (3) Is delivered after June 1, 1982; or

(472) (4) Has undergone a major conversion for which:

(473) (i) The contract is awarded after June 1, 1979;

(474) (ii) In the absence of a contract, conversion is begun after January 1, 1980; or

(475) (iii) Conversion is completed after June 1, 1982.

(476) (k) Sections 157.09(b)(3), 157.10(c)(3), 157.10a(d)(3), and 157.10b(b)(3) do not apply to tank barges.

(477) (1) Section 157.10b does not apply to tank barges if they do not carry ballast while they are engaged in trade involving the transfer of crude oil from an offshore oil exploitation or production facility on the Outer Continental Shelf of the United States.

(478) (m) Section 157.12 does not apply to a U.S. vessel that:

(479) (1) Is granted an exemption under Subpart F of this part; or

(480) (2) Is engaged solely in voyages that are:

(481) (i) Between ports or places within the United States, its territories or possessions;

(482) (ii) Of less than 72 hours in length; and

(483) (iii) At all times within 50 nautical miles of the nearest land.

(484) (n) Section 157.10d does not apply to:

(485) (1) A vessel that operates exclusively beyond the navigable waters of the United States and the United States Exclusive Economic Zone, as defined in 33 U.S.C. 2701(8);

(486) (2) An oil spill response vessel;

(487) (3) Before January 1, 2015–

(488) (i) A vessel unloading oil in bulk as cargo at a deepwater port licensed under the Deepwater Port Act of 1974 (33 U.S.C. 1501 *et seq.*); or

(489) (ii) A delivering vessel that is off-loading oil in bulk as cargo in lightering activities–

(490) (A) Within a lightering zone established under 46 U.S.C. 3715(b)(5); and

(491) (B) More than 60 miles from the territorial sea base line, as defined in 33 CFR 2.20.

(492) (4) A vessel documented under 46 U.S.C., chapter 121, that was equipped with a double hull before August 12, 1992;

(493) (5) A barge of less than 1,500 gross tons as measured under 46 U.S.C., chapter 145, carrying refined petroleum in bulk as cargo in or adjacent to waters of the Bering Sea, Chukchi Sea, and Arctic Ocean and waters tributary thereto and in the waters of the Aleutian Islands and the Alaskan Peninsula west of 155 degrees west longitude; or

(494) (6) A vessel in the National Defense Reserve Fleet pursuant to 50 App. U.S.C. 1744.

(495) (o) Section 157.11(h) applies to every oil tanker delivered on or after January 1, 2010, meaning an oil tanker—

(496) (1) For which the building contract is placed on or after January 1, 2007;

(497) (2) In the absence of a building contract, the keel of which is laid or which is at a similar stage of construction on or after July 1, 2007;

(498) (3) The delivery of which is on or after January 1, 2010; or

(499) (4) That has undergone a major conversion—

(500) (i) For which the contract is placed on or after January 1, 2007;

(501) (ii) In the absence of a contract, the construction work of which is begun on or after July 1, 2007; or

(502) (iii) That is completed on or after January 1, 2010.

(503)

§157.10d Double hulls on tank vessels.

(504) (a) With the exceptions stated in §157.08(n), this section applies to a tank vessel–

(505) (1) For which the building contract is awarded after June 30, 1990; or

(506) (2) That is delivered after December 31, 1993;

(507) (3) That undergoes a major conversion for which;

(508) (i) The contract is awarded after June 30, 1990; or

(509) (ii) Conversion is completed after December 31, 1993; or

(510) (4) That is otherwise required to have a double hull by 46 U.S.C. 3703a(c).

(511) **NOTE:** The double hull compliance dates of 46 U.S.C. 3703a(c) are set out in appendix G to this part. To determine a tank vessel's double hull compliance date under OPA 90, use the vessel's hull configuration *(i.e.*, single hull; single hull with double sides; or single hull with double bottom) on August 18, 1990.

(512) (b) Each vessel to which this section applies must be fitted with:

(513) (1) A double hull in accordance with this section; and

(514) (2) If §157.10 applies, segregated ballast tanks and a crude oil washing system in accordance with that section.

(515) (c) Except on a vessel to which §157.10d(d) applies, tanks within the cargo tank length that carry any oil must be protected by double sides and a double bottom as follows:

(516) (1) Double sides must extend for the full depth of the vessel's side or from the uppermost deck, disregarding a rounded gunwale where fitted, to the top of the double bottom. At any cross section, the molded width of the double side, measured at right angles to the side shell plating, from the side of tanks containing oil to the side shell plating, must not be less than the distance *w*, as shown in Figure 157.10d(c) and specified as follows:

(517) (i) For a vessel of 5,000 DWT and above: *w*=[0.5+(DWT/20,000)] meters; or, *w*=2.0 meters (79 in.), whichever is less, but in no case less than 1.0 meter (39 in.).

(518) (ii) For a vessel of less than 5,000 DWT: *w*=[0.4+(2.4)(DWT/20,000)] meters, but in no case less than 0.76 meter (30 in.).

(519) (iii) For a vessel to which Paragraph (a)(4) of this section applies: *w*=0.76 meter (30 in.), provided that the double side was fitted under a construction or conversion contract awarded prior to June 30, 1990.

(520) (2) At any cross section, the molded depth of the double bottom, measured at right angles to the bottom shell plating, from the bottom of tanks containing oil to the bottom shell plating, must not be less than the distance h, as shown in Figure 157.10d(c) and specified as follows:

(521) (i) For a vessel of 5,000 DWT and above: *h*=B/15; or, *h*=2.0 meters (79 in.), whichever is less, but in no case less than 1.0 meter (39 in.).

(522) (ii) For a vessel of less than 5,000 DWT: *h*=B/15, but in no case less than 0.76 meter (30 in.).

(523) (iii) For a vessel to which Paragraph (a)(4) of this section applies: *h*=B/15; or, *h*=2.0 meters (79 in.), whichever is the lesser, but in no case less than 0.76 meter (30 in.), provided that the double bottom was fitted under a construction or conversion contract awarded prior to June 30, 1990.

(524) (3) For a vessel built under a contract awarded after September 11, 1992, within the turn of the bilge or at cross sections where the turn of the bilge is not clearly defined, tanks containing oil must be located inboard of the outer shell–

(526) (i) For a vessel of 5,000 DWT and above: At levels up to 1.5*h* above the base line, not less than the distance has shown in Figure 157.10d(c) and specified in paragraph (c)(2) of this section. At levels greater than 1.5*h* above the base line, not less than the distance *w*, as shown in

(525)

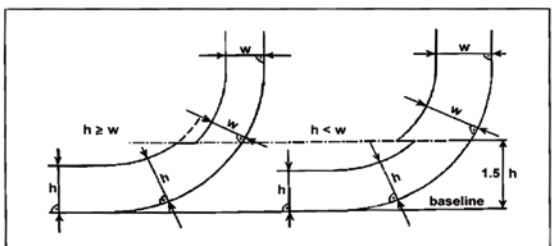


Figure 157.10d(c) Minimum Double Hull Dimensions

Figure 157.10d(c) and specified in paragraph (c)(1) of this section.

(527) (ii) For a vessel of less than 5,000 DWT: Not less than the distance *h* above the line of the mid-ship flat bottom, as shown in Figure 157.10d(c)(3)(ii) and specified in Paragraph (c)(2) of this section. At levels greater than *h* above the line of the mid-ship flat bottom, not less than the distance was shown in Figure 157.10d(c)(3)(ii) and specified in Paragraph (c)(1) of this section.

(528) (4) For a vessel to which §157.10(b) applies that is built under a contract awarded after September 11, 1992.

(529) (i) The aggregate volume of the double sides, double bottom, forepeak tanks, and afterpeak tanks must not be less than the capacity of segregated ballast tanks required under §157.10(b). Segregated ballast tanks that may be provided in addition to those required under §157.10(b) may be located anywhere within the vessel.

(530) (ii) Double side and double bottom tanks used to meet the requirements of §157.10(b) must be located as uniformly as practicable along the cargo tank length. Large inboard extensions of individual double side and double bottom tanks, which result in a reduction of overall side or bottom protection, must be avoided.

(531) (d) A vessel of less than 10,000 DWT that is constructed and certificated for service exclusively on inland or limited short protected coastwise routes must be fitted with double sides and a double bottom as follows:

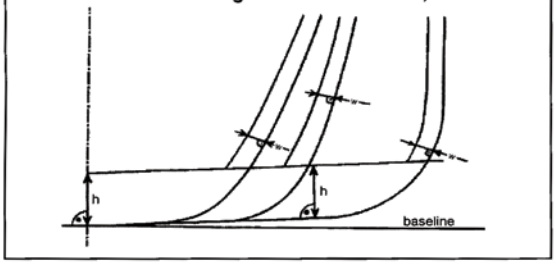
(533) (1) A minimum of 61 cm. (2 ft.) from the inboard side of the side shell plate, extending the full depth of the side or from the main deck to the top of the double bottom, measured at right angles to the side shell; and

(534) (2) A minimum of 61 cm. (2 ft.) from the top of the bottom shell plating, along the full breadth of the vessel's bottom, measured at right angles to the bottom shell.

(535) (3) For a vessel to which Paragraph (a)(4) of this

(532)

Figure 157.10d(c)(3)(ii) - Minimum Double Hull Dimensions Within the turn of the bilge of Vessels under 5,000 DWT



section applies, the width of the double sides and the depth of the double bottom may be 38 cm. (15 in.), in lieu of the dimensions specified in paragraphs (d)(1) and (d)(2) of this section, provided that the double side and double bottom tanks were fitted under a construction or conversion contract awarded prior to June 30, 1990.

(536) (4) For a vessel built under a contract awarded after September 11, 1992, a minimum 46 cm. (18 in.) clearance for passage between framing must be maintained throughout the double sides and double bottom.

(537) (e) Except as provided in paragraph (e)(3) of this section, a vessel must not carry any oil in any tank extending forward of:

(538) (1) The collision bulkhead; or

(539) (2) In the absence of a collision bulkhead, the transverse plane perpendicular to the centerline through a point located:

(540) (i) The lesser of 10 meters (32.8 ft.) or 5 percent of the vessel length, but in no case less than 1 meter (39 in.), aft of the forwarded perpendicular;

(541) (ii) On a vessel of less than 10,000 DWT tons that is constructed and certificated for service exclusively on inland or limited short protected coastwise routes, the lesser of 7.62 meters (25 ft.) or 5 percent of the vessel length, but in no case less than 61 cm. (2 ft.), aft of the headlog or stem at the freeboard deck; or

(542) (iii) On each vessel which operates exclusively as a box or trail barge, 61 cm. (2 ft.) aft of the headlog.

(543) (3) This paragraph does not apply to independent fuel oil tanks that must be located on or above the main deck within the areas described in paragraphs (e)(1) and (e)(2) of this section to serve adjacent deck equipment that cannot be located further aft. Such tanks must be as small and as far aft as is practicable.

(544) (f) On each vessel, the cargo tank length must not extend aft to any point closer to the stern than the distance equal to the required width of the double side, as prescribed in §157.10d(c)(1) or §157.10d(d)(1).

(545)

Subpart G–Interim Measures for Certain Tank Vessels Without Double Hulls Carrying Petroleum Oils

(546)

§157.400 Purpose and applicability.

(547) (a) The purpose of this subpart is to establish mandatory safety and operational requirements to reduce environmental damage resulting from petroleum oil spills.

(548) (b) This subpart applies to each tank vessels specified in §157.01 of this part that–

(549) (1) Is 5,000 gross tons or more;

(550) (2) Carries petroleum oil in bulk as cargo or oil cargo residue; and

(551) (3) Is not equipped with a double hull meeting §157.10d of this part, or an equivalent to the requirements of §157.10d, but required to be equipped with a double hull at a date set forth in 46 U.S.C. 3703a (b)(3) and (c)(3).

(552)

§157.445 Maneuvering performance capability.

(553) (a) A tankship owner or operator shall ensure that maneuvering tests in accordance with IMO Resolution A.751(18), sections 1.2, 2.3-2.4, 3-4.2, and 5 (with Explanatory Notes in MSC/Circ. 644) have been

conducted by July 29, 1997. Completion of maneuvering performance tests must be shown by–

(554) (1) For a foreign flag tankship, a letter from the flag administration or an authorized classification society, as described in §157.04 of this part, stating the requirements in paragraph (a) of this section have been met; or

(555) (2) For a U.S. flag tankship, results from the vessel owner confirming the completion of the tests or a letter from an authorized classification society, as described in §157.04 of this part, stating the requirements in Paragraph (a) of this section have been met.

(556) (b) If a tankship undergoes a major conversion or alteration affecting the control systems, control surfaces, propulsion system, or other areas which may be expected to alter maneuvering performance, the tankship owner or operator shall ensure that new maneuvering tests are conducted as required by Paragraph (a) of this section.

(557) (c) If a tankship is one of a class of vessels with identical propulsion, steering, hydrodynamic, and other relevant design characteristics, maneuvering performance test results for any tankship in the class may be used to satisfy the requirements of Paragraph (a) of this section.

(558) (d) The tankship owner or operator shall ensure that the performance test results, recorded in the format of Appendix 6 of the Explanatory Notes in MSC/Circ. 644, are prominently displayed in the wheelhouse.

(559) (e) Prior to entering the port or place of destination and prior to getting underway, the tankship master shall discuss the results of the performance tests with the pilot while reviewing the anticipated transit and the possible impact of the tankship's maneuvering capability on the transit.

(560)

Part 160–Ports and Waterways Safety-General

(561)

Subpart A–General

(562)

§160.1 Purpose.

(563) (a) This subchapter contains regulations implementing the Ports and Waterways Safety Act (33 U.S.C. 1221) and related statutes.

(564)

§160.3 Definitions.

(565) For the purposes of this subchapter:

(566) *Bulk* means material in any quantity that is shipped, stored, or handled without the benefit of package, label, mark or count and carried in integral or fixed independent tanks.

(567) *Captain of the Port* means the Coast Guard officer designated by the Commandant to command a Captain of the Port Zone as described in part 3 of this chapter.

(568) *Commandant* means the Commandant of the United States Coast Guard.

(569) *Deviation* means any departure from any rule in this subchapter.

(570) *Director, Vessel Traffic Services* means the Coast Guard officer designated by the Commandant to command a Vessel Traffic Service (VTS) as described in part 161 of this chapter.

(571) *District Commander* means the Coast Guard officer designated by the Commandant to command a Coast Guard District as described in part 3 of this chapter.

(572) *ETA* means estimated time of arrival.

(573) *Length of Tow* means, when towing with a hawser, the length in feet from the stern of the towing vessel to the stern of the last vessel in tow. When pushing ahead or towing alongside, length of tow means the tandem length in feet of the vessels in tow excluding the length of the towing vessel.

(574) *Person* means an individual, firm, corporation, association, partnership, or governmental entity.

(575) *State* means each of the several States of the United States, the District of Columbia, the Commonwealth of Puerto Rico, Guam, American Samoa, the United States Virgin Islands, the Trust Territories of the Pacific Islands, the Commonwealth of the Northern Marianas Islands, and any other commonwealth, territory, or possession of the United States.

(576) *Tanker* means a self-propelled tank vessel constructed or adapted primarily to carry oil or hazardous materials in bulk in the cargo spaces.

(577) *Tank Vessel* means a vessel that is constructed or adapted to carry, or that carries, oil or hazardous material in bulk as cargo or cargo residue.

(578) *Vehicle* means every type of conveyance capable of being used as a means of transportation on land.

(579) *Vessel* means every description of watercraft or other artificial contrivance used, or capable of being used, as a means of transportation on water.

(580) *Vessel Traffic Services (VTS)* means a service implemented under Part 161 of this chapter by the United States Coast Guard designed to improve the safety and efficiency of vessel traffic and to protect the environment. The VTS has the capability to interact with marine traffic and respond to traffic situations developing in the VTS area.

(581) *Vessel Traffic Service Area or VTS Area* means the geographical area encompassing a specific VTS area of service as described in Part 161 of this chapter. This area of service may be subdivided into sectors for the purpose of allocating responsibility to individual Vessel Traffic Centers or to identify different operating requirements.

(582) **Note:** Although regulatory jurisdiction is limited to the navigable waters of the United States, certain vessels will be encouraged or may be required, as a condition of port entry, to report beyond this area to facilitate traffic management within the VTS area.

(583) *VTS Special Area* means a waterway within a VTS area in which special operating requirements apply.

(584)

§160.5 Delegations.

(585) (a) District Commanders and Captains of the Ports are delegated the authority to establish safety zones.

(586) (b) Under the provisions of 33 CFR 6.04-1 and 6.04-6, District Commanders and Captains of the Ports have been delegated authority to establish security zones.

(587) (c) Under the provisions 33 CFR §1.05-1, District Commanders have been delegated authority to establish regulated navigation areas.

(588) (d) Subject to the supervision of the cognizant Captain of the Port and District Commander, Directors, Vessel Traffic Services are delegated authority under 33 CFR 1.01-30 to discharge the duties of the Captain of the Port that involve directing the operation, movement, and anchorage of vessels within a Vessel Traffic Service area including management of vessel traffic within anchorages, regulated navigation areas and safety zones, and to enforce Vessel Traffic Service and ports and waterways safety regulations. This authority may be exercised by Vessel Traffic Center personnel. The Vessel Traffic Center may, within the Vessel Traffic Service Area, provide information, make recommendations, or, to a vessel required under Part 161 of this chapter to participate in a Vessel Traffic Service, issue an order, including an order to operate or anchor as directed; require the vessel to comply with orders issued; specify times of entry, movement or departure; restrict operations as necessary for safe operation under the circumstances; or take other action necessary for control of the vessel and the safety of the port or of the marine environment.

(589)

§160.7 Appeals.

(590) (a) Any person directly affected by a safety zone or an order or direction issued under this subchapter may request reconsideration by the official who issued it or in whose name it was issued. This request may be made orally or in writing, and the decision of the official receiving the request may be rendered orally or in writing.

(591) (b) Any person directly affected by the establishment of a safety zone or by an order or direction issued by, or on behalf of, a Captain of the Port may appeal to the District Commander through the Captain of the Port. The appeal must be in writing, except as allowed under paragraph (e) of this section, and shall contain complete supporting documentation and evidence which the appellant wishes to have considered. Upon receipt of the appeal, the District Commander may direct a representative to gather and submit documentation or other evidence which would be necessary or helpful to a resolution of the appeal. A copy of this documentation and evidence is made available to the appellant. The appellant is afforded five working days from the date of receipt to submit rebuttal materials. Following submission of all materials, the District Commander issues a ruling, in writing, on the appeal. Prior to issuing the ruling, the District Commander may, as a matter of discretion, allow oral presentation on the issues.

(592) (c) Any person directly affected by the establishment of a safety zone or by an order or direction issued by, or on behalf of, a District Commander, or who receives an unfavorable ruling on an appeal taken under paragraph (b) of this section may appeal to the Area Commander through the District Commander. The appeal must be in writing, except as allowed under paragraph (e) of this section, and shall contain complete supporting documentation and evidence which the appellant wishes to have considered. Upon receipt of the appeal, the Area Commander may direct a representative to gather and submit documentation or other evidence which would be necessary or helpful to a resolution of the appeal. A copy of this documentation and evidence is made available to the appellant. The appellant is afforded five working days from the date of receipt to submit rebuttal materials. Following submission of all materials, the Area Commander issues a ruling, in writing, on the appeal. Prior to issuing the ruling, the Area Commander may, as a matter of discretion, allow oral presentation on the issues.

(593) (d) Any person who receives an unfavorable ruling on an appeal taken under paragraph (c) of this section, may appeal to the Commandant (CG–5P), Attn: Assistant Commandant for Prevention, U.S. Coast Guard Stop 7501, 2703 Martin Luther King Jr. Avenue SE., Washington, DC 20593–7501. The appeal must be in writing, except as allowed under paragraph (e) of this section. The Area Commander forwards the appeal, all the documents and evidence which formed the record upon which the order or direction was issued or the ruling under paragraph (c) of this section was made, and any comments which might be relevant, to the Assistant Commandant for Prevention. A copy of this documentation and evidence is made available to the appellant. The appellant is afforded 5 working days from the date of receipt to submit rebuttal materials to the Assistant Commandant for Prevention. The decision of the Assistant Commandant for Prevention is based upon the materials submitted, without oral argument or presentation. The decision of the Assistant Commandant for Prevention is issued in writing and constitutes final agency action.

(594) (e) If the delay in presenting a written appeal would have significant adverse impact on the appellant, the appeal under paragraphs (b) and (c) of this section may initially be presented orally. If an initial presentation of the appeal is made orally, the appellant must submit the appeal in writing within five days of the oral presentation to the Coast Guard official to whom the presentation was made. The written appeal must contain, at a minimum, the basis for the appeal and a summary of the material presented orally. If requested, the official to whom the appeal is directed may stay the effect of the action while the ruling is being appealed.

(595)

Subpart B–Control of Vessel and Facility Operations

(596)

§160.101 Purpose.

(597) This subpart describes the authority exercised by District Commanders and Captains of the Ports to insure the safety of vessels and waterfront facilities, and the protection of the navigable waters and the resources therein. The controls described in this subpart are directed to specific situations and hazards.

(598)

§160.103 Applicability.

(599) (a) This subpart applies to any–

(600) (1) Vessel on the navigable waters of the United States, except as provided in paragraphs (b) and (c) of this section;

(601) (2) Bridge or other structure on or in the navigable waters of the United States; and

(602) (3) Land structure or shore area immediately adjacent to the navigable waters of the United States.

(603) (b) This subpart does not apply to any vessel on the Saint Lawrence Seaway.

(604) (c) Except pursuant to international treaty, convention, or agreement, to which the United States is a party, this subpart does not apply to any foreign vessel that is not destined for, or departing from, a port or place subject to the jurisdiction of the United States and that is in–

(605) (1) Innocent passage through the territorial sea of the United States;

(606) (2) Transit through the navigable waters of the United States which form a part of an international strait.

(607)

§160.105 Compliance with orders.

(608) Each person who has notice of the terms of an order issued under this subpart must comply with that order.

(609)

§160.107 Denial of entry.

(610) Each District Commander or Captain of the Port, subject to recognized principles of international law, may deny entry into the navigable waters of the United States or to any port or place under the jurisdiction of the United States, and within the district or zone of that District Commander or Captain of the Port, to any vessel not in compliance with the provisions of the Port and Tanker Safety Act (33 U.S.C. 1221-1232) or the regulations issued thereunder.

(611)

§160.109 Waterfront facility safety.

(612) (a) To prevent damage to, or destruction of, any bridge or other structure on or in the navigable waters of the United States, or any land structure or shore area immediately adjacent to such waters, and to protect the navigable waters and the resources therein from harm resulting from vessel or structure damage, destruction, or loss, each District Commander or Captain of the Port may–

(613) (1) Direct the handling, loading, unloading, storage, stowage, and movement (including the emergency removal, control, and disposition) of explosives or other dangerous articles and substances, including oil or hazardous material as those terms are defined in 46 U.S.C. 2101 on any structure on or in the navigable waters of the United States, or any land structure or shore area immediately adjacent to those waters; and

(614) (2) Conduct examinations to assure compliance with the safety equipment requirements for structures.

(615)

§160.111 Special orders applying to vessel operations.

(616) Each District Commander or Captain of the Port may order a vessel to operate or anchor in the manner directed when–

(617) (a) The District Commander or Captain of the Port has reasonable cause to believe that the vessel is not in compliance with any regulation, law or treaty;

(618) (b) The District Commander or Captain of the Port determines that the vessel does not satisfy the conditions for vessel operation and cargo transfers specified in §160.113; or

(619) (c) The District Commander or Captain of the Port has determined that such order is justified in the interest of safety by reason of weather, visibility, sea conditions, temporary port congestion, other temporary hazardous circumstances, or the condition of the vessel.

(620)

§160.113 Prohibition of vessel operation and cargo transfers.

(621) (a) Each District Commander or Captain of the Port may prohibit any vessel, subject to the provisions of chapter 37 of Title 46, U.S. Code, from operating in the navigable waters of the United States, or from transferring cargo or residue in any port or place under the jurisdiction of the United States, and within the district or zone of that District Commander or Captain of the Port, if the District Commander or the Captain of the Port determines that the vessel's history of accidents, pollution incidents, or serious repair problems creates reason to believe that the vessel may be unsafe or pose a threat to the marine environment.

(622) (b) The authority to issue orders prohibiting operation of the vessels or transfer of cargo or residue under paragraph (a) of this section also applies if the vessel:

(623) (1) Fails to comply with any applicable regulation;

(624) (2) Discharges oil or hazardous material in violation of any law or treaty of the United States;

(625) (3) Does not comply with applicable vessel traffic service requirements;

(626) (4) While underway, does not have at least one deck officer on the navigation bridge who is capable of communicating in the English language.

(627) (c) When a vessel has been prohibited from operating in the navigable waters of the United States under paragraphs (a) or (b) of this section, the District Commander or Captain of the Port may allow provisional entry into the navigable waters of the United States, or into any port or place under the jurisdiction of the United States and within the district or zone of that District Commander or Captain of the Port, if the owner or operator of such vessel proves to the satisfaction of the District Commander or Captain of the Port, that the vessel is not unsafe or does not pose a threat to the marine environment, and that such entry is necessary for the safety of the vessel or the persons on board.

(628) (d) A vessel which has been prohibited from operating in the navigable waters of the United States, or from transferring cargo or residue in a port or place under the jurisdiction of the United States under the provisions of paragraph (a) or (b)(1), (2) or (3) of this section, may be allowed provisional entry if the owner or operator proves, to the satisfaction of the District Commander or Captain of the Port that has jurisdiction, that the vessel is no longer unsafe or a threat to the environment, and that the condition which gave rise to the prohibition no longer exists.

(629)

§160.115 Withholding of clearance.

(630) (a) Each District Commander or Captain of the Port may request the Secretary of the Treasury, or the authorized representative thereof, to withhold or revoke the clearance required by 46 U.S.C. App. 91 of any vessel, the owner or operator of which is subject to any penalties under 46 U.S.C. 70036.

(631)

Subpart C–Notification of Arrival, Hazardous Conditions, and Certain Dangerous Cargoes

(632)

§160.201 General.

(633) This subpart contains requirements and procedures for submitting a notice of arrival (NOA), and a notice of hazardous condition. The sections in this subpart describe:

(634) (a) Applicability and exemptions from requirements in this subpart;

(635) (b) Required information in an NOA;

(636) (c) Required updates to an NOA;

(637) (d) Methods and times for submission of an NOA, and updates to an NOA;

(638) (e) How to obtain a waiver; and

(639) (f) Requirements for submission of the notice of hazardous condition.

(640) **Note to §160.201.** For notice-of-arrival requirements for the U.S. Outer Continental Shelf, see 33 CFR part 146.

(641)

§160.202 Definitions.

(642) Terms in this subpart that are not defined in this section or in §160.3 have the same meaning as those terms in 46 U.S.C. 2101. As used in this subpart:

(643) *Agent* means any person, partnership, firm, company or corporation engaged by the owner or charterer of a vessel to act in their behalf in matters concerning the vessel.

(644) *Barge* means a non-self propelled vessel engaged in commerce.

(645) *Boundary waters* mean the waters from main shore to main shore of the lakes and rivers and connecting waterways, or the portions thereof, along which the international boundary between the United States and the Dominion of Canada passes, including all bays, arms, and inlets thereof, but not including tributary waters which in their natural channels would flow into such lakes, rivers, and waterways, or waters flowing from such lakes, rivers, and waterways, or the waters of rivers flowing across the boundary.

(646) *Carried in bulk* means a commodity that is loaded or carried on board a vessel without containers or labels and received and handled without mark or count.

(647) *Certain dangerous cargo (CDC)* includes any of the following:

(648) (1) Division 1.1 or 1.2 explosives as defined in 49 CFR 173.50.

(649) (2) Division 1.5D blasting agents for which a permit is required under 49 CFR 176.415 or, for which a permit is required as a condition of a Research and Special Programs Administration exemption.

(650) (3) Division 2.3 "poisonous gas", as listed in 49 CFR 172.101 that is also a "material poisonous by inhalation" as defined in 49 CFR 171.8, and that is in a quantity in excess of 1 metric ton per vessel.

(651) (4) Division 5.1 oxidizing materials for which a permit is required under 49 CFR 176.415 or for which a permit is required as a condition of a Research and Special Programs Administration exemption.

(652) (5) A liquid material that has a primary or subsidiary classification of Division 6.1 "poisonous material" as listed 49 CFR 172.101 that is also a "material poisonous by inhalation," as defined in 49 CFR 171.8 and that is in a bulk packaging, or that is in a quantity in excess of 20 metric tons per vessel when not in a bulk packaging.

(653) (6) Class 7, "highway route controlled quantity" radioactive material or "fissile material, controlled shipment," as defined in 49 CFR 173.403.

(654) (7) All bulk liquefied gas cargo carried under 46 CFR 151.50-31 or listed in 46 CFR 154.7 that is flammable and/or toxic and that is not carried as certain dangerous cargo residue (CDC residue).

(655) (8) The following bulk liquids except when carried as CDC residue:

(656) (i) Acetone cyanohydrin;

(657) (ii) Allyl alcohol;

(658) (iii) Chlorosulfonic acid;

(659) (iv) Crotonaldehyde;

(660) (v) Ethylene chlorohydrin;

(661) (vi) Ethylene dibromide;

(662) (vii) Methacrylonitrile;

(663) (viii) Oleum (fuming sulfuric acid); and

(664) (ix) Propylene oxide, alone or mixed with ethylene oxide.

(665) (9) The following bulk solids:

(666) (i) Ammonium nitrate listed as Division 5.1 (oxidizing) material in 49 CFR 172.101 except when carried as CDC residue; and

(667) (ii) Ammonium nitrate based fertilizer listed as a Division 5.1 (oxidizing) material in 49 CFR 172.101 except when carried as CDC residue.

(668) *Certain dangerous cargo residue (CDC residue)* includes any of the following:

(669) (1) Ammonium nitrate in bulk or ammonium nitrate based fertilizer in bulk remaining after all saleable cargo is discharged, not exceeding 1,000 pounds in total and not individually accumulated in quantities exceeding two cubic feet.

(670) (2) For bulk liquids and liquefied gases, the cargo that remains onboard in a cargo system after discharge that is not accessible through normal transfer procedures, with the exception of the following bulk liquefied gas cargoes carried under 46 CFR 151.50-31 or listed in 46 CFR 154.7:

(671) (i) Ammonia, anhydrous;

(672) (ii) Chlorine;

(673) (iii) Ethane;

(674) (iv) Ethylene oxide;

(675) (v) Methane (LNG);

(676) (vi) Methyl bromide;

(677) (vii) Sulfur dioxide; and

(678) (viii) Vinyl chloride.

(679) *Charterer* means the person or organization that contracts for the majority of the carrying capacity of a ship for the transportation of cargo to a stated port for a specified period. This includes "time charterers" and "voyage charterers."

(680) *Crewmember* means all persons carried on board the vessel to provide navigation and maintenance of the vessel, its machinery, systems, and arrangements essential for propulsion and safe navigation or to provide services for other persons on board.

(681) *Embark* means when a crewmember or a person in addition to the crew joins the vessel.

(682) *Ferry schedule* means a published document that:

(683) (1) Identifies locations a ferry travels to and from;

(684) (2) Lists the times of departures and arrivals; and

(685) (3) Identifies the portion of the year in which the ferry maintains this schedule.

(686) *Foreign vessel* means a vessel of foreign registry or operated under the authority of a country except the United States.

(687) *Great Lakes* means Lakes Superior, Michigan, Huron, Erie, and America, their connecting and tributary waters, the Saint Lawrence River as far as Saint Regis, and adjacent port areas.

(688) *Gross tons* means the tonnage determined by the tonnage authorities of a vessel's flag state in accordance with the national tonnage rules in force before the entry into force of the International Convention on Tonnage Measurement of Ships, 1969 ("Convention"). For a vessel measured only under Annex I of the Convention, gross tons means that tonnage. For a vessel measured under both systems, the higher gross tonnage is the tonnage used for the purposes of the 300-gross-ton threshold.

(689) *Hazardous condition* means any condition that may adversely affect the safety of any vessel, bridge, structure, or shore area or the environmental quality of any port, harbor, or navigable waterway of the United States. It may, but need not, involve collision, allision, fire, explosion, grounding, leaking, damage, injury or illness of a person aboard, or manning-shortage.

(690) *Nationality* means the state (nation) in which a person is a citizen or to which a person owes permanent allegiance.

(691) *Operating exclusively within a single Captain of the Port zone* refers to vessel movements within the boundaries of a single COTP zone, e.g., from one dock to another, one berth to another, one anchorage to another, or any combination of such transits. Once a vessel has arrived in a port in a COPT zone, it would not be considered as departing from a port or place simply because of its movements within that specific port.

(692) *Operator* means any person including, but not limited to, an owner, a charterer, or another contractor who conducts, or is responsible for, the operation of a vessel.

(693) *Persons in addition to crewmembers* mean any person onboard the vessel, including passengers, who are not included on the list of crewmembers.

(694) *Port or place of departure* means any port or place in which a vessel is anchored or moored.

(695) *Port or place of destination* means any port or place in which a vessel is bound to anchor or moor.

(696) *Public vessel* means a vessel that is owned or demise-(bareboat) chartered by the government of the United States, by a State or local government, or by the government of a foreign country and that is not engaged in commercial service.

(697) *Time charterer* means the party who hires a vessel for a specific amount of time. The owner and his crew manage the vessel, but the charterer selects the ports of destination.

(698) *Voyage charterer* means the party who hires a vessel for a single voyage. The owner and his crew manage the vessel, but the charterer selects the ports of destination.

(699)

§160.203 Applicability.

(700) (a) This subpart applies to the following vessels that are bound for or departing from ports or places within the navigable waters of the United States, as defined in

(736)

Table 160.206 – NOA Information Items

Required Information	Vessels neither carrying CDC nor controlling another vessel carrying CDC	Vessels carrying CDC or controlling another vessel carrying CDC
(1) Vessel Information		
(i) Name	X	X
(ii) Name of the registered owner	X	X
(iii) Country of registry	X	X
(iv) Call sign	X	X
(v) International Maritime Organization (IMO) international number or, if vessel does not have an assigned IMO international number, substitute with official number	X	X
(vi) Name of the operator	X	X
(vii) Name of the charterer	X	X
(viii) Name of classification society or recognized organization	X	X
(ix) Maritime Mobile Service Identity (MMSI) number, if applicable	X	X
(x) Whether the vessel is 300 gross tons or less (yes or no)	X	X
(xi) USCG Vessel Response Plan Control Number, if applicable	X	X
(2) Voyage Information		
(i) Names of last five foreign ports or places visited	X	X
(ii) Dates of arrival and departure for last five foreign ports or places visited	X	X
(iii) For the port or place of the United States to be visited, list the names of the receiving facility, the port or place, the city, and the state	X	X
(iv) For the port or place in the United States to be visited, the estimated date and time of arrival	X	X
(v) For the port or place in the United States to be visited, the estimated date and time of departure	X	X
(vi) The location (port or place and country) or position (latitude and longitude or waterway and mile marker) of the vessel at the time of reporting	X	X
(vii) The name and telephone number of a 24-hour point of contact	X	X
(viii) Whether the vessel's voyage time is less than 24 hours (yes or no)	X	X
(ix) Last port or place of departure	X	X
(x) Dates of arrival and departure for last port or place of departure	X	X
(3) Cargo Information		
(i) A general description of cargo, other than CDC, on board the vessel (e.g. grain, container, oil, etc.)	X	X
(ii) Name of each CDC carried, including cargo UN number, if applicable	–	X
(iii) Amount of each CDC carried	–	X
(4) Information for each Crewmember On Board		
(i) Full name	X	X
(ii) Date of birth	X	X
(iii) Nationality	X	X
(iv) Passport* or mariners document number (type of identification and number)	X	X
(v) Position or duties on the vessel	X	X
(vi) Where the crewmembers embarked (list port or place and country)	X	X
(5) Information for each Person On Board in Addition to Crew		
(i) Full name	X	X
(ii) Date of birth	X	X
(iii) Nationality	X	X
(iv) Passport number*	X	X
(v) Where the person embarked (list port or place and country)	X	X
(6) Operational condition of equipment required by 33 CFR part 164 of this chapter (see note to table)	X	X
(7) International Safety Management (ISM) Code Notice		
(i) The date of expiration for the company's Document of Compliance certificate that covers the vessel	X	X
(ii) The date of expiration for the vessel's Safety Management Certificate	X	X
(iii) The name of the Flag Administration, or the recognized organization(s) representing the vessel Flag Administration, that issued those certificates	X	X
(8) International Ship and Port Facility Code (ISPS) Notice		
(i) The date of issuance for the vessel's International Ship Security Certificate (ISSC), if any	X	X
(ii) Whether the ISSC, if any, is an initial Interim ISSC, subsequent and consecutive Interim ISSC, or final ISSC	X	X
(iii) Declaration that the approved ship security plan, if any, is being implemented	X	X
(iv) If a subsequent and consecutive Interim ISSC, the reasons therefore	X	X
(v) The name and 24-hour contact information for the Company Security Officer	X	X
(vi) The name of the Flag Administration, or the recognized security organization(s) representing the vessel Flag Administration that issued the ISSC	X	X

Note to Table 160.206. For items with an asterisk (*), see paragraph (b) of this section. Submitting a response for item 6 indicating that navigation equipment is not operating properly does not serve as notice to the District Commander, Captain of the Port, or Vessel Traffic Center, under 33 CFR 164.53.

33 CFR 2.36(a), which includes internal waters and the territorial seas of the United States, and any deepwater port as defined in 33 CFR 148.5:

(701) (1) U.S. vessels in commercial service, and

(702) (2) All foreign vessels.

(703) (b) Unless otherwise specified in this subpart, the owner, agent, master, operator, or person in charge of a vessel regulated by this subpart is responsible for compliance with the requirements in this subpart.

(704) (c) Towing vessels controlling a barge or barges required to submit an NOA under this subpart must submit only one NOA containing the information required for the towing vessel and each barge under its control.

(705)

§160.204 Exemptions and exceptions.

(706) (a) Except for reporting notice of hazardous conditions, the following vessels are exempt from requirements in this subpart:

(707) (1) A passenger or offshore supply vessel when employed in the exploration for or in the removal of oil, gas, or mineral resources on the continental shelf.

(708) (2) An oil spill response vessel (OSRV) when engaged in actual spill response operations or during spill response exercises.

(709) (3) After December 31, 2015, a vessel required by 33 CFR 165.830 or 165.921 to report its movements, its cargo, or the cargo in barges it is towing.

(710) (4) A United States or Canadian vessel engaged in the salving operations of any property wrecked, or rendering aid and assistance to any vessels wrecked, disabled, or in distress, in waters specified in Article II of the 1908 Treaty of Extradition, Wrecking and Salvage (35 Stat. 2035; Treaty Series 502).

(711) (5) The following vessels neither carrying certain dangerous cargo nor controlling another vessel carrying certain dangerous cargo:

(712) (i) A foreign vessel 300 gross tons or less not engaged in commercial service.

(713) (ii) A vessel operating exclusively within a single Captain of the Port zone. Captain of the Port zones are defined in 33 CFR part 3.

(714) (iii) A U.S. towing vessel and a U.S. barge operating solely between ports or places of the contiguous 48 states, Alaska, and the District of Columbia.

(715) (iv) A public vessel.

(716) (v) Except for a tank vessel, a U.S. vessel operating solely between ports or places of the United States on the Great Lakes.

(717) (vi) A U.S. vessel 300 gross tons or less, engaged in commercial service not coming from a foreign port or place.

(718) (vii) Each ferry on a fixed route that is described in an accurate schedule that is submitted by the ferry operator, along with information in paragraphs (a)(5)(vii)(A) through (J) of this section, to the Captain of the Port for each port or place of destination listed in the schedule at least 24 hours in advance of the first date and time of arrival listed on the schedule. At least 24 hours before the first date and time of arrival listed on the ferry schedule, each ferry operator who submits a schedule under paragraph (a)(5)(vii) of this section must also provide the following information to the Captain of the Port for each port or place of destination listed in the schedule for the ferry, and if the schedule or the following submitted information changes, the ferry operator must submit an updated schedule at least 24 hours in advance of the first date and time of arrival listed on the new schedule and updates on the following items whenever the submitted information is no longer accurate:

(719) (A) Name of the vessel;

(720) (B) Country of registry of the vessel;

(721) (C) Call sign of the vessel;

(722) (D) International Maritime Organization (IMO) international number or, if the vessel does not have an assigned IMO international number, the official number of the vessel;

(723) (E) Name of the registered owner of the vessel;

(724) (F) Name of the operator of the vessel;

(725) (G) Name of the vessel's classification society or recognized organization, if applicable;

(726) (H) Each port or place of destination;

(727) (I) Estimated dates and times of arrivals at and departures from these ports or places; and

(728) (J) Name and telephone number of a 24-hour point of contact.

(729) (b) A vessel less than 500 gross tons is not required to submit the International Safety Management (ISM) Code Notice (Entry 7 in Table 160.206 of §160.206).

(730) (c) A U.S. vessel is not required to submit the International Ship and Port Facility Security (ISPS) Code Notice information (Entry 8 in Table 160.206 of §160.206).

(731)

§160.205 Notices of arrival.

(732) The owner, agent, Master, operator, or person in charge of a vessel must submit notices of arrival consistent with the requirements in this subpart.

(733)

§160.206 Information required in an NOA.

(734) (a) *Information required*. With the exceptions noted in paragraph (b) of this section, each NOA must contain all of the information items specified in Table 160.206. Vessel owners and operators should protect any personal information they gather in preparing notices for transmittal to the National Vessel Movement Center (NVMC) to prevent unathorized disclosure of that information.

(735) (b) *Exceptions*. If a crewmember or person on board other than a crewmember is not required to carry a passport for travel, then passport information required in Table 160.206 by items (4)(iv) and (5)(iv) need not be provided for that person.

(737)

§160.208 Updates to a submitted NOA.

(738) (a) Unless otherwise specified in this section, whenever events cause NOA information submitted for a vessel to become inaccurate, or the submitter to realize that data submitted was inaccurate, the owner, agent, Master, operator, or person in charge of that vessel must submit an update within the times required in §160.212.

(739) (b) Changes in the following information need not be reported:

(740) (1) Changes in arrival or departure times that are less than six (6) hours;

(741) (2) Changes in vessel location or position of the vessel at the time of reporting (entry (2)(vi) to Table 160.206); and

(742) (3) Changes to crewmembers' position or duties on the vessel (entry (4)(vii) to Table 160.206).

(743) (c) When reporting updates, revise and resubmit the NOA.

(744)

§160.210 Methods for submitting an NOA.

(745) (a) *National Vessel Movement Center (NVMC)*. Except as otherwise provided in this paragraph or paragraph (b) of this section, vessels must submit NOA information required by §160.206 to the NVMC using methods currently specified at *www.nvmc.uscg.gov*, which includes submission through the NVMC electronic Notice of Arrival and Departure (eNOAD) World Wide Web site, and XML, which includes the Excel Workbook format. These data may also be submitted using other methods that may be added as future options on *www.nvmc.uscg.gov*. XML spreadsheets may be submitted via email to *enoad@ nvmc.uscg.gov*. If a vessel operator must submit an NOA or an update, for a vessel in an area without internet access or when experiencing technical difficulties with an onboard computer, and he or she has no shore-side support available, the vessel operator may fax or phone the submission to the NVMC. Fax at 1–800–547–8724 or 304–264–2684. Workbook available at *www.nvmc.uscg.gov*; or, telephone at 1– 800–708–9823 or 304–264–2502.

(746) (b) *Saint Lawrence Seaway*. Those vessels transiting the Saint Lawrence Seaway inbound, bound for a port or place in the United States, may meet the submission requirements of paragraph (a) of this section by submitting the required information to the Saint Lawrence Seaway Development Corporation and the Saint Lawrence Seaway Management Corporation of Canada using methods specified at *www.nvmc.uscg.gov*.

(747)

§160.212 When to submit an NOA.

(748) (a) *Submission of NOA*. (1) Except as set out in paragraphs (a)(2) and (a)(3) of this section, all vessels must submit NOAs within the times required in paragraph (a)(4) of this section.

(749) (2) Towing vessels, when in control of a vessel carrying CDC and operating solely between ports or places of the contiguous 48 states, Alaska, and the District of Columbia, must submit an NOA before departure but at least 12 hours before arriving at the port or place of destination.

(750) (3) U.S. vessels 300 gross tons or less, arriving from a foreign port or place, and whose voyage time is less than 24 hours must submit an NOA at least 60 minutes before departure from the foreign port or place. Also, Canadian vessels 300 gross tons or less, arriving directly from Canada, via boundary waters, to a United States port or place on the Great Lakes, whose voyage time is less than 24 hours must submit an NOA at least 60 minutes before departure from the Canadian port or place.

(751) (4) Times for submitting NOAs are as follows:

(752)

If your voyage time is –	Then you must submit an NOA –
(i) 96 hours or more; or	At least 96 hours before arriving at the port or place of destination; or
(ii) Less than 96 hours	Before departure but at least 24 hours before arriving at the port or place of destination.

(753) (b) *Submission of updates to an NOA*. (1) Except as set out in paragraph (b)(2) and (b)(3) of this section, vessels must submit updates in NOA information within the times required in paragraph (b)(4) of this section.

(754) (2) Towing vessels, when in control of a vessel carrying CDC and operating solely between ports or places in the contiguous 48 states, Alaska, and the District of Columbia, must submit updates to an NOA as soon as practicable but at least 6 hours before entering the port or place of destination.

(755) (3) U.S. vessels 300 gross tons or less, arriving from a foreign port or place, whose voyage time is—

(756) (i) Less than 24 hours but greater than 6 hours, must submit updates to an NOA as soon as practicable, but at least 6 hours before entering the port or place of destination.

(757) (ii) Less than or equal to 6 hours, must submit updates to an NOA as soon as practicable, but at least 60 minutes before departure from the foreign port or place.

(758) (4) Times for submitting updates to NOAs are as follows:

(759)

If your remaining voyage time is –	Then you must submit updates to an NOA –
(i) 96 hours or more;	As soon as practicable, but at least 24 hours before arriving at the port or place of destination;
(ii) Less than 96 hours but not less than 24 hours; or	As soon as practicable, but at least 24 hours before arriving at the port or place of destination; or
(iii) Less than 24 hours	As soon as practicable, but at least 12 hours before arriving at the port or place of destination.

(760)

§160.214 Waivers.

(761) The Captain of the Port may waive, within that Captain of the Port's designated zone, any of the requirements of

this subpart for any vessel or class of vessels upon finding that the vessel, route area of operations, conditions of the voyage, or other circumstances are such that application of this subpart is unnecessary or impractical for purposes of safety, environmental protection, or national security.

(762)

§160.215 Force majeure.

(763) When a vessel is bound for a port or place of the United States under force majeure, it must comply with the requirements in this section, but not other sections of this subpart. The vessel must report the following information to the nearest Captain of the Port as soon as practicable:

(764) (a) The vessel Master's intentions;

(765) (b) Any hazardous conditions as defined in §160.202; and

(766) (c) If the vessel is carrying certain dangerous cargo or controlling a vessel carrying certain dangerous cargo, the amount and name of each CDC carried, including cargo UN number if applicable.

(767)

§160.216 Notice of hazardous conditions.

(768) (a) Whenever there is a hazardous condition either on board a vessel or caused by a vessel or its operation, the owner, agent, master, operator, or person in charge must immediately notify the nearest Coast Guard Sector Office or Group Office, and in addition submit any report required by 46 CFR 4.05-10.

(769) (b) When the hazardous condition involves cargo loss or jettisoning as described in 33 CFR 97.115, the notification required by paragraph (a) of this section must include—

(770) (1) What was lost, including a description of cargo, substances involved, and types of packages;

(771) (2) How many were lost, including the number of packages and quantity of substances they represent;

(772) (3) When the incident occurred, including the time of the incident or period of time over which the incident occurred;

(773) (4) Where the incident occurred, including the exact or estimated location of the incident, the route the ship was taking, and the weather (wind and sea) conditions at the time or approximate time of the incident; and

(774) (5) How the incident occurred, including the circumstances of the incident, the type of securing equipment that was used, and any other material failures that may have contributed to the incident.

(775)

Part 161–Vessel Traffic Management

(776)

Subpart A–Vessel Traffic Services General Rules

(777)

§161.1 Purpose and Intent.

(778) (a) The purpose of this part is to promulgate regulations implementing and enforcing certain sections of the Ports and Waterways Safety Act (PWSA) setting up a national system of Vessel Traffic Services that will enhance navigation, vessel safety, and marine environmental protection and promote safe vessel movement by reducing the potential for collisions, rammings, and groundings, and the loss of lives and property associated with these incidents within VTS areas established hereunder.

(779) (b) Vessel Traffic Services provide the mariner with information related to the safe navigation of a waterway. This information, coupled with the mariner's compliance with the provisions set forth in this part, enhances the safe routing of vessels through congested waterways or waterways of particular hazard. Under certain circumstances, a VTS may issue directions to control the movement of vessels in order to minimize the risk of collision between vessels, or damage to property or the environment.

(780) (c) The owner, operator, charterer, master, or person directing the movement of a vessel remains at all times responsible for the manner in which the vessel is operated and maneuvered, and is responsible for the safe navigation of the vessel under all circumstances. Compliance with these rules or with a direction of the VTS is at all times contingent upon the exigencies of safe navigation.

(781) (d) Nothing in this part is intended to relieve any vessel, owner, operator, charterer, master, or person directing the movement of a vessel from the consequences of any neglect to comply with this part or any other applicable law or regulation (*e.g.*, the International Regulations for Prevention of Collisions at Sea, 1972 (72 COLREGS) or the Inland Navigation Rules) or of the neglect of any precaution which may be required by the ordinary practice of seamen, or by the special circumstances of the case.

(782)

§161.2 Definitions.

(783) For the purposes of this part:

(784) *Center* means a Vessel Traffic Center or Vessel Movement Center.

(785) *Cooperative Vessel Traffic Services (CVTS)* means the system of vessel traffic management established and jointly operated by the United States and Canada within adjoining waters. In addition, CVTS facilitates traffic movement and anchorages, avoids jurisdictional

disputes, and renders assistance in emergencies in adjoining United States and Canadian waters.

(786) *Hazardous Vessel Operating Condition* means any condition related to a vessel's ability to safely navigate or maneuver, and includes, but is not limited to:

(787) (1) The absence or malfunction of vessel operating equipment, such as propulsion machinery, steering gear, radar system, gyrocompass, depth sounding device, automatic radar plotting aid (ARPA), radiotelephone, Automatic Identification System equipment, navigational lighting, sound signaling devices or similar equipment.

(788) (2) Any condition on board the vessel likely to impair navigation, such as lack of current nautical charts and publications, personnel shortage, or similar condition.

(789) (3) Vessel characteristics that affect or restrict maneuverability, such as cargo or tow arrangement, trim, loaded condition, underkeel or overhead clearance, speed capabilities, power availability, or similar characteristics, which may affect the positive control or safe handling of the vessel or the tow.

(790) *Navigable waters* means all navigable waters of the United States including the territorial sea of the United States, extending to 12 nautical miles from United States baselines, as described in Presidential Proclamation No. 5928 of December 27, 1988.

(791) *Precautionary Area* means a routing measure comprising an area within defined limits where vessels must navigate with particular caution and within which the direction of traffic may be recommended.

(792) *Published* means available in a widely-distributed and publicly available medium (e.g., VTS User's Manual, ferry schedule, Notice to Mariners).

(793) *Towing Vessel* means any commercial vessel engaged in towing another vessel astern, alongside, or by pushing ahead.

(794) *Vessel Movement Center (VMC)* means the shore-based facility that operates the vessel tracking system for a Vessel Movement Reporting System (VMRS) area or zone within such an area. The VMC does not necessarily have the capability or qualified personnel to interact with marine traffic, nor does it necessarily respond to traffic situations developing in the area, as does a Vessel Traffic Service (VTS).

(795) *Vessel Movement Reporting System (VMRS)* means a mandatory reporting system used to monitor and track vessel movements. This is accomplished by a vessel providing information under established procedures as set forth in this part in the areas defined in Table 161.12(c) (VTS and VMRS Centers, Call Signs/MMSI, Designated Frequencies, and Monitoring Areas).

(796) *Vessel Movement Reporting System (VMRS) User* means a vessel, or an owner, operator, charterer, Master, or person directing the movement of a vessel that is required to participate in a VMRS.

(797) *Vessel Traffic Center (VTC)* means the shore-based facility that operates the vessel traffic service for the Vessel Traffic Service area or zone within such an area.

(798) *Vessel Traffic Services (VTS)* means a service implemented by the United States Coast Guard designed to improve the safety and efficiency of vessel traffic and to protect the environment. The VTS has the capability to interact with marine traffic and respond to traffic situations developing in the VTS area.

(799) *Vessel Traffic Service Area or VTS Area* means the geographical area encompassing a specific VTS area of service. This area of service may be subdivided into zones for the purpose of allocating responsibility to individual Vessel Traffic Centers or to identify different operating requirements.

(800) **Note:** Although regulatory jurisdiction is limited to the navigable waters of the United States, certain vessels will be encouraged or may be required, as a condition of port entry, to report beyond this area to facilitate traffic management within the VTS area.

(801) *VTS Special Area* means a waterway within a VTS area in which special operating requirements apply.

(802) *VTS User* means a vessel, or an owner, operator, charterer, Master, or person directing the movement of a vessel, within a VTS Area that is:

(803) (1) Subject to the Vessel Bridge-to-Bridge Radiotelephone Act:

(804) (2) Required to participate in a VMRS; or

(805) (3) Equipped with a required Coast Guard type-approved Automatic Identification System (AIS).

(806) *VTS User's Manual* means the manual established and distributed by the VTS to provide the mariner with a description of the services offered and rules in force for that VTS. Additionally, the manual may include chartlets showing the area and zone boundaries, general navigational information about the area, and procedures, radio frequencies, reporting provisions and other information which may assist the mariner while in the VTS area.

(807)

§161.3 Applicability.

(808) The provisions of this subpart shall apply to each VTS User and may also apply to any vessel while underway or at anchor on the navigable waters of the United States within a VTS area, to the extent the VTS considers necessary.

(809)

§161.4 Requirement to carry the rules.

(810) Each VTS User shall carry on board and maintain for ready reference a copy of these rules.

(811) **Note 1 to § 161.4:** These rules are contained in the applicable U.S. Coast Pilot, the VTS User's Manual which may be obtained by contacting the appropriate VTS or downloaded from the Coast Guard Navigation Center website (https://www.navcen.uscg.gov).

(812)

§161.5 Deviations from the rules.

(813) (a) Requests to deviate from any provision in this part, either for an extended period of time or if anticipated before the start of a transit, must be submitted in writing to

(858)

TABLE to §161.12(c)-VTS and VMRS Centers, Call Signs/MMSI, Designated Frequencies, and Monitoring Areas

Center MMSI[1] Call Sign	Designated frequency (Channel designation)—purpose[2]	Monitoring Area [3, 4]
Berwick Bay 003669950 *Berwick Traffic*	156.550 MHz (Ch. 11)	The waters south of 29°45'N, west of 91°10'W, north of 29°37'N, and east of 91°18'W.
Buzzards Bay *Buzzards Bay Control*[5]	156.600 MHz (Ch. 12)	The waters east and north of a line drawn from the southern tangent of Sakonnet Point, Rhode Island, in approximate position latitude 41°27.20′ N., longitude 71°11.70′ W., to the Buzzards Bay Entrance Light in approximate position latitude 41°23.8′ N., longitude 71°02.00′ W., and then to the southwestern tangent of Cuttyhunk Island, Massachusetts, at approximate position latitude 41°24.60′ N., longitude 70°57.00′ W., and including all of the Cape Cod Canal to its eastern entrance, except that the area of New Bedford harbor within the confines (north of) the hurricane barrier, and the passages through the Elizabeth Islands, is not considered to be ''Buzzards Bay''.
Houston-Galveston 003669954		The navigable waters north of 29°00.00′ N., west of 94°20.00′ W., south of 29°49.00′ N., and east of 95°20.00′ W.
Houston Traffic	156.550 MHz (Ch. 11) 156.250 MHz (Ch. 5A) —For sailing plans only	The navigable waters north of a line extending due west from the southern most end of Exxon Dock #1 (20°43.37' N, 95°01.27' W.)
Houston Traffic	156.600 MHz (Ch. 12) 156.250 MHz (Ch. 5A) —For sailing plans only	The navigable waters south of a line extending due west from the southern most end of Exxon Dock #1 (29°43.37' N, 95°01.27' W.).
Los Angeles/Long Beach 03660465 *San Pedro Traffic*	156.700 MHz (Ch. 14)	*Vessel Movement Reporting System Area*: The navigable waters within a 25 nautical mile radius of Point Fermin Light (33°42.30' N, 118°17.60' W.).
Louisville 003669732 *Louisville Traffic*	156.650 MHz (Ch. 13)	The waters of the Ohio River between McAlpine Locks (Mile 606) and Twelve Mile Island (Mile 593), only when the McAlpine upper pool gauge is at approximately 13.0 feet or above.
Lower Mississippi River 0036699952 *New Orleans Traffic*	156.550 MHz (Ch. 11)	The navigable waters of the Lower Mississippi River below 29°55.30' N, 89°55.60' W (Saxonholm Light) at 86.0 miles Above Head of Passes (AHP), extending down river to Southwest Pass, and, within a 12 nautical mile radius around 28°54.30' N, 89°25.70' W (Southwest Pass Entrance Light) at 20.1 miles Below Head of Passes.
New Orleans Traffic	156.600 MHz (Ch. 12)	The navigable waters of the Lower Mississippi River bounded on the north by a line drawn perpendicular on the river at 29°55.50′ N., 90°12.77′ W. (Upper Twelve Mile Point) at 109.0 miles AHP and on the south by a line drawn perpendicularly at 29°55.30′ N., 89°55.60′ W. (Saxonholm Light) at 86.0 miles AHP.
New Orleans Traffic	156.250 MHz (Ch. 05A)	The navigable waters of the Lower Mississippi River below 30°38.70′ N., 91°17.50′ W. (Port Hudson Light) at 254.5 miles AHP bounded on the south by a line drawn perpendicular on the river at 29°55.50′ N., 90°12.77′ W. (Upper Twelve Mile Point) at 109.0 miles AHP.
New York 003669951 *New York Traffic*	156.550 MHz (Ch. 11) —For sailing plans only 156.600 MHz (Ch. 12) —For vessels at anchor	The area consists of the navigable waters of the Lower New York Bay bounded on the east by a line drawn from Norton Point to Breezy Point; on the south by a line connecting the entrance buoys at the Ambrose Channel, Swash Channel, and Sandy Hook Channel to Sandy Hook Point; and on the southeast including the waters of Sandy Hook Bay south to a line drawn at latitude 40°25.00′ N.; then west in the Raritan Bay to the Raritan River Railroad Bridge, then north into waters of the Arthur Kill and Newark Bay to the Lehigh Valley Draw Bridge at latitude 40°41.90′ N.; and then east including the waters of the Kill Van Kull and the Upper New York Bay north to a line drawn east-west from the Holland Tunnel ventilator shaft at latitude 40°43.70′ N., longitude 74°01.60′ W., in the Hudson River; and then continuing east including the waters of the East River to the Throgs Neck Bridge, excluding the Harlem River.
New York Traffic	156.700 MHz (Ch. 14)	The navigable waters of the Lower New York Bay west of a line drawn from Norton Point to Breezy Point; and north of a line connecting the entrance buoys of Ambrose Channel, Swash Channel, and Sandy Hook Channel, to Sandy Hook Point; on the southeast including the waters of the Sandy Hook Bay south to a line drawn at latitude 40°25.00′ N.; then west into the waters of Raritan Bay East Reach to a line drawn from Great Kills Light south through Raritan Bay East Reach LGB #14 to Comfort PT, NJ; then north including the waters of the Upper New York Bay south of 40°42.40′ N. (Brooklyn Bridge) and 40°43.70′ N. (Holland Tunnel Ventilator Shaft); west through the KVK into the Arthur Kill north of 40°38.25′ N. (Arthur Kill Railroad Bridge); then north into the waters of the Newark Bay, south of 40°41.95′ N. (Lehigh Valley Draw Bridge).
New York Traffic	156.600 MHz (Ch. 12)	The navigable waters of the Raritan Bay south to a line drawn at latitude 40°26.00′ N.; then west of a line drawn from Great Kills Light south through the Raritan Bay East Reach LGB #14 to Point Comfort, NJ; then west to the Raritan River Railroad Bridge; and north including the waters of the Arthur Kill to 40°28.25′ N. (Arthur Kill Railroad Bridge); including the waters of the East River north of 40°42.40′ N. (Brooklyn Bridge) to the Throgs Neck Bridge, excluding the Harlem River.

(859)

TABLE to §161.12(c)-VTS and VMRS Centers, Call Signs/MMSI, Designated Frequencies, and Monitoring Areas

Center MMSI[1] Call Sign	Designated frequency (Channel designation)—purpose[2]	Monitoring Area [3, 4]
Port Arthur 003669955 *Port Arthur Traffic*	156.050 MHz (Ch. 01A)	The navigable waters of the Sabine-Neches Canal south of 29°52.70′ N.; Port Arthur Canal; Sabine Pass Channel; Sabine Bank Channel; Sabine Outer Bar Channel; the offshore safety fairway; and the ICW from High Island to its intersection with the Sabine-Neches Canal.
Port Arthur Traffic	156.275 MHz (Ch. 65A)	The navigable waters of the Neches River; Sabine River; and Sabine-Neches Waterway north of 29°52.70′ N.; and the ICW from its intersection with the Sabine River to MM 260.
Port Arthur Traffic	156.675 MHz (Ch. 73)[6]	The navigable waters of the Calcasieu Channel; Calcasieu River Channel; and the ICW from MM 260 to MM 191.
Prince William Sound 003669958 *Valdez Traffic*	156.650 MHz (Ch. 13)	The navigable waters south of 61°05.00′ N., east of 147°20.00′ W., north of 60°00.00′ N., and west of 146°30.00′ W.; and, all navigable waters in Port Valdez.
Puget Sound[7] *Seattle Traffic* 003669957	156.700 MHz (Ch. 14)	The waters of Puget Sound, Hood Canal and adjacent waters south of a line connecting Nodule Point and Bush Point in Admiralty Inlet and south of a line drawn due east from the southernmost tip of Possession Point on Whidbey Island to the shoreline.
Seattle Traffic 003669957	156.250 MHz (Ch. 5A)	The waters of the Salish Sea east of 124°40.00′ W. excluding the waters in the central portion of the Salish Sea north and east of Race Rocks; the navigable waters of the Strait of Georgia east of 122°52.00′ W.; the San Juan Island Archipelago, Rosario Strait, Bellingham Bay; Admiralty Inlet north of a line connecting Nodule Point and Bush Point and all waters east of Whidbey Island north of a line drawn due east from the southernmost tip of Possession Point on Whidbey Island to the shoreline.
Tofino Traffic 003160012	156.725 MHz (Ch. 74)	The waters west of 124°40.00′ W. within 50 nautical miles of the coast of Vancouver Island including the waters north of 48°00.00′ N., and east of 127°00.00′ W.
Victoria Traffic 003160010	156.550 MHz (Ch. 11)	The waters of the Strait of Georgia west of 122°52.00′ W., the navigable waters of the central Salish Sea north and east of Race Rocks, including the Gulf Island Archipelago, Boundary Pass and Haro Strait.
San Francisco 003669956 *San Francisco Traffic*	156.700 MHz (Ch. 14)	The navigable waters of the San Francisco Offshore Precautionary Area, the navigable waters shoreward of the San Francisco Offshore Precautionary Area east of 122°42.00′ W. and north of 37°40.00′ N. extending eastward through the Golden Gate, and the navigable waters of San Francisco Bay and as far east as the port of Stockton on the San Joaquin River, as far north as the port of Sacramento on the Sacramento River.
San Francisco Traffic	156.600 MHz (Ch. 12)	The navigable waters within a 38 nautical mile radius of Mount Tamalpais (37°55.80′ N., 122°34.60′ W.) west of 122°42.00′ W. and south of 37°40.00′ N. and excluding the San Francisco Offshore Precautionary Area.
St. Marys River 003669953 *Soo Traffic*	156.600 MHz (Ch. 12)	The waters of the St. Marys River and lower Whitefish Bay from 45°57.00′ N. (De Tour Reef Light) to the south, to 46°38.70′ N. (Ile Parisienne Light) to the north, except the waters of the St. Marys Falls Canal and to the east along a line from La Pointe to Sims Point, within Potagannissing Bay and Worsley Bay.

Notes:

[1] Maritime Mobile Service Identifier (MMSI) is a unique nine-digit number assigned that identifies ship stations, ship earth stations, coast stations, coast earth stations, and group calls for use by a digital selective calling (DSC) radio, an INMARSAT ship earth station or AIS. AIS requirements are set forth in §§161.21 and 164.46 of this subchapter. The requirements set forth in §161.21 of this subchapter apply in those areas denoted with an MMSI number, except for Louisville and Los Angeles/Long Beach.

[2] In the event of a communication failure, difficulties or other safety factors, the Center may direct or permit a user to monitor and report on any other designated monitoring frequency or the bridge-to-bridge navigational frequency, 156.650 MHz (Channel 13) or 156.375 MHz (Ch. 67), to the extent that doing so provides a level of safety beyond that provided by other means. The bridge-to-bridge navigational frequency, 156.650 MHz (Ch. 13), is used in certain monitoring areas where the level of reporting does not warrant a designated frequency.

[3] All geographic coordinates (latitude and longitude) are expressed in North American Datum of 1983 (NAD 83).

[4] Some monitoring areas extend beyond navigable waters. Although not required, users are strongly encouraged to maintain a listening watch on the designated monitoring frequency in these areas. Otherwise, they are required to maintain watch as stated in 47 CFR 80.148.

[5] In addition to the vessels denoted in Section 161.16 of this chapter, requirements set forth in subpart B of 33 CFR part 161 also apply to any vessel transiting VMRS Buzzards Bay required to carry a bridge-to-bridge radiotelephone by part 26 of this chapter.

[6] Until otherwise directed, full VTS services will not be available in the Calcasieu Channel, Calcasieu River Channel, and the ICW from MM 260 to MM 191. Vessels may contact Port Arthur Traffic on the designated VTS frequency to request advisories, but are not required to monitor the VTS frequency in this zone.

[7] A Cooperative Vessel Traffic Service was established by the United States and Canada within adjoining waters. The appropriate Center administers the rules issued by both nations; however, enforces only its own set of rules within its jurisdiction. Note, the bridge-to-bridge navigational frequency, 156.650 MHz (Ch. 13), is not so designated in Canadian waters, therefore users are encouraged and permitted to make passing arrangements on the designated monitoring frequencies.

the appropriate District Commander. Upon receipt of the written request, the District Commander may authorize a deviation if it is determined that such a deviation provides a level of safety equivalent to that provided by the required measure or is a maneuver considered necessary for safe navigation under the circumstances. An application for an authorized deviation must state the need and fully describe the proposed alternative to the required measure.

(814) (b) Requests to deviate from any provision in this part due to circumstances that develop during a transit or immediately preceding a transit may be made to the appropriate VTC. Requests to deviate must be made as far in advance as practicable. Upon receipt of the request, the VTC may authorize a deviation if it is determined that, based on vessel handling characteristics, traffic density, radar contacts, environmental conditions and other relevant information, such a deviation provides a level of safety equivalent to that provided by the required measure or is a maneuver considered necessary for safe navigation under the circumstances.

(815)

§161.6 Preemption.

(816) The regulations in this part have preemptive impact over State laws or regulations on the same subject matter. The Coast Guard has determined, after considering the factors developed by the Supreme Court in U.S. v. Locke, 529 U.S. 89 (2000), that by enacting chapter 25 of the Ports and Waterways Safety Act (33 U.S.C. 1221 et seq.), Congress intended that Coast Guard regulations preempt State laws or regulations regarding vessel traffic services in United States ports and waterways.

(817)

§161.10 Services.

(818) To enhance navigation and vessel safety, and to protect the marine environment, a VTS may issue advisories, or respond to vessel requests for information, on reported conditions within the VTS area, such as:

(819) (a) Hazardous conditions or circumstances;

(820) (b) Vessel congestion;

(821) (c) Traffic density;

(822) (d) Environmental conditions;

(823) (e) Aids to navigation status;

(824) (f) Anticipated vessel encounters;

(825) (g) Another vessel's name, type, position, hazardous vessel operating conditions, if applicable, and intended navigation movements, as reported;

(826) (h) Temporary measures in effect;

(827) (i) A description of local harbor operations and conditions, such as ferry routes, dredging, and so forth;

(828) (j) Anchorage availability; or

(829) (k) Other information or special circumstances.

(830)

§161.11 VTS measures.

(831) (a) A VTS may issue measures or directions to enhance navigation and vessel safety and to protect the marine environment, such as, but not limited to:

(832) (1) Designating temporary reporting points and procedures;

(833) (2) Imposing vessel operating requirements; or

(834) (3) Establishing vessel traffic routing schemes.

(835) (b) During conditions of vessel congestion, restricted visibility, adverse weather, or other hazardous circumstances, a VTS may control, supervise, or otherwise manage traffic, by specifying times of entry, movement, or departure to, from, or within a VTS area.

(836)

§161.12 Vessel operating requirements.

(837) (a) Subject to the exigencies of safe navigation, a VTS User shall comply with all measures established or directions issued by a VTS.

(838) (b) If, in a specific circumstance, a VTS User is unable to safely comply with a measure or direction issued by the VTS, the VTS User may deviate only to the extent necessary to avoid endangering persons, property or the environment. The deviation shall be reported to the VTS as soon as is practicable.

(839) (c) When not exchanging voice communications, a VTS User must maintain a listening watch as required by §26.04(e) of this chapter on the VTS frequency designated in Table 161.12(c) (VTS and VMRS Centers, Call Signs/ MMSI, Designated Frequencies, and Monitoring Areas). In addition, the VTS User must respond promptly when hailed and communicated in the English language.

(840) **Note to §161.12(c):** As stated in 47 CFR 80.148(b), a very high frequency watch on Channel 16 (156.800 MHz) is not required on vessels subject to the Vessel Bridge-to-Bridge Radiotelephone Act and participating in a Vessel Traffic Service (VTS) system when the watch is maintained on both the vessel bridge-to-bridge frequency and a designated VTS frequency.

(841) (d) As soon as practicable a VTS User shall notify the VTS of any of the following:

(842) (1) A marine casualty as defined in 46 CFR 4.05-1;

(843) (2) Involvement in the ramming of a fixed or floating object;

(844) (3) A pollution incident as defined in §151.15 of this chapter:

(845) (4) A defect or discrepancy in an aid to navigation;

(846) (5) A hazardous condition as defined in §160.202 of this chapter;

(847) (6) Improper operation of vessel equipment required by Part 164 of this chapter;

(848) (7) A situation involving hazardous materials for which a report is required by 49 CFR 176.48; and

(849) (8) A hazardous vessel operating condition as defined in §161.2.

(850)

§161.13 VTS Special Area Operating Requirements.

(851) The following operating requirements apply within a VTS Special Area:

(852) (a) A VTS User shall, if towing astern, do so with as short a hawser as safety and good seamanship permits.

(853) (b) A VMRS User shall:

(912)

TABLE 161.18(a) – The IMO Standard Ship Reporting System

A	ALPHA	Ship	Name, call sign or ship station identity, and flag.
B	BRAVO	Dates and time of events	A 6 digit group giving day of month (first two digits), hours and minutes (last four digits). If other than UTC state time zone used.
C	CHARLIE	Position	A 4 digit group giving latitude in degrees and minutes suffixed with N (north) or S (south) and a 5 digit group giving longitude in degrees and minutes suffixed with E (east) or W (west); or
D	DELTA	Position	True bearing (first 3 digits) and distance (state distance) in nautical miles from a clearly identified landmark (state landmark).
E	ECHO	True course	A 3 digit group.
F	FOXTROT	Speed in knots and tenths of knots	A 3 digit group.
G	GOLF	Port of Departure	Name of last port of call.
H	HOTEL	Date, time and point of entry system	Entry time expressed as in (B) and into the entry position expressed as in (C) or (D).
I	INDIA	Destination and expected time of arrival	Name of port and date time group expressed as in (B).
J	JULIET	Pilot	State whether a deep sea or local pilot is on board.
K	KILO	Date, time and point of exit from system	Exit time expressed as in (B) and exit position expressed as in (C) or (D).
L	LIMA	Route information	Intended track.
M	MIKE	Radio	State in full names of communications stations/frequencies guarded.
N	NOVEMBER	Time of next report	Date time group expressed as in (B).
O	OSCAR	Maximum present static draught in meters	4 digit group giving meters and centimeters.
P	PAPA	Cargo on board	Cargo and brief details of any dangerous cargoes as well as harmful substances and gases that could endanger persons or the environment.
Q	QUEBEC	Defects, damage, deficiencies or limitations	Brief detail of defects, damage, deficiencies or other limitations.
R	ROMEO	Description of pollution or dangerous goods lost	Brief details of type of pollution (oil, chemicals, etc.) or dangerous goods lost overboard; position expressed as in (C) or (D).
S	SIERRA	Weather conditions	Brief details of weather and sea conditions prevailing.
T	TANGO	Ship's representative and/or owner	Details of name and particulars of ship's representative and/or owner for provision of information.
U	UNIFORM	Ship size and type	Details of length, breadth, tonnage, and type, etc., as required.
V	VICTOR	Medical personnel	Doctor, physician's assistant, nurse, no medic.
W	WHISKEY	Total number of persons on board	State number.
X	XRAY	Miscellaneous	Any other information as appropriate. [i.e., a detailed description of a planned operation, which may include: its duration; effective area; any restrictions to navigation; notification procedures for approaching vessels; in addition, for a towing operation: configuration, length of the tow, available horsepower, etc.; for a dredge or floating plant: configuration of pipeline, mooring configuration, number of assist vessels, etc.].

(854) (1) Not enter or get underway in the area without prior approval of the VTS;

(855) (2) Not enter a VTS Special Area if a hazardous vessel operating condition or circumstance exists;

(856) (3) Not meet, cross, or overtake any other VMRS User in the area without prior approval of the VTS; and

(857) (4) Before meeting, crossing, or overtaking any other VMRS User in the area, communicate on the designated vessel bridge-to-bridge radiotelephone frequency, intended navigation movements, and any other information necessary in order to make safe passing arrangements. This requirement does not relieve a vessel of any duty prescribed by the International Regulations for Prevention of Collisions at Sea, 1972 (72 COLREGS) or the Inland Navigation Rules.

(860)

Subpart B–Vessel Movement Reporting System

(861)

§161.15 Purpose and Intent.

(862) (a) A Vessel Movement Reporting System (VMRS) is a system used to monitor and track vessel movements within a VTS or VMRS area. This is accomplished by requiring that vessels provide information under established procedures as set forth in this part, or as directed by the Center.

(863) (b) To avoid imposing an undue reporting burden or unduly congesting radiotelephone frequencies, reports shall be limited to information which is essential to achieve the objectives of the VMRS. These reports are consolidated into three reports (sailing plan, position, and final).

(864)

§161.16 Applicability.

(865) Unless otherwise stated, the provisions of this subpart apply to the following vessels and VMRS Users:

(866) (a) Every power-driven vessel of 40 meters (approximately 131 feet) or more in length, while navigating;

(867) (b) Every towing vessel of 8 meters (approximately 26 feet) or more in length, while navigating; or

(868) (c) Every vessel certificated to carry 50 or more passengers for hire, when engaged in trade.

(869)

§161.17 [Removed and Reserved]

(870)

§161.18 Reporting requirements.

(871) (a) A Center may: (1) Direct a vessel to provide any of the information set forth in Table 161.18(a) (IMO Standard Ship Reporting System);

(872) (2) Establish other means of reporting for those vessels unable to report on the designated frequency; or

(873) (3) Require reports from a vessel in sufficient time to allow advance vessel traffic planning.

(874) (b) All reports required by this part shall be made as soon as is practicable on the frequency designated in Table 161.12(c) (VTS and VMRS Centers, Call Signs/MMSI, Designated Frequencies, and Monitoring Areas).

(875) (c) When not exchanging communications, a VMRS User must maintain a listening watch as described in §26.04(e) of this chapter on the frequency designated in Table 161.12(c) (VTS and VMRS Centers, Call Signs/MMSI, Designated Frequencies, and Monitoring Areas). In addition, the VMRS User must respond promptly when hailed and communicate in the English language.

(876) **Note:** As stated in 47 CFR 80.148(b), a VHF watch on Channel 16 (156.800 MHz) is not required on vessels subject to the Vessel Bridge-to-Bridge Radiotelephone Act and participating in a Vessel Traffic Service (VTS) system when the watch is maintained on both the vessel bridge-to-bridge frequency and a designated VTS frequency.

(877) (d) A vessel must report:

(878) (1) Any significant deviation from its Sailing Plan, as defined in §161.19, or from previously reported information; or

(879) (2) Any intention to deviate from a VTS issued measure or vessel traffic routing system.

(880) (e) When reports required by this part include time information, such information shall be given using the local time zone in effect and the 24-hour military clock system.

(881)

§161.19 Sailing Plan (SP).

(882) Unless otherwise stated, at least 15 minutes before navigating a VTS area, a vessel must report the:

(883) (a) Vessel name and type;

(884) (b) Position;

(885) (c) Destination and ETA;

(886) (d) Intended route;

(887) (e) Time and point of entry; and

(888) (f) Certain dangerous cargo on board or in its tow, as defined in §160.202 of this subchapter.

(889)

§161.20 Position Report (PR).

(890) A vessel must report its name and position:

(891) (a) Upon point of entry into a VMRS area;

(892) (b) At designated points as set forth in Subpart C; or

(893) (c) When directed by the Center.

(894)

§161.21 Automated reporting.

(895) (a) Unless otherwise directed, vessels equipped with an Automatic Identification System (AIS) are required to make continuous, all stations, AIS broadcasts, in lieu of voice Position Reports, to those Centers denoted in Table 161.12(c) of this part.

(896) (b) Should an AIS become non-operational, while or prior to navigating a VMRS area, it should be restored to operating condition as soon as possible, and, until restored a vessel must:

(897) (1) Notify the Center;

(898) (2) Make voice radio Position Reports at designated reporting points as required by §161.20(b) of this part; and

(899) (3) Make any other reports as directed by the Center.

(900)

§161.22 Final Report (FR).

(901) A vessel must report its name and position:

(902) (a) On arrival at its destination; or

(903) (b) When leaving a VTS area.

(904)

§161.23 Reporting exemptions.

(905) (a) Unless otherwise directed, the following vessels are exempted from providing Position and Final Reports due to the nature of their operation:

(906) (1) Vessels on a published schedule and route;

(907) (2) Vessels operating within an area of a radius of three nautical miles or less; or

(908) (3) Vessels escorting another vessel or assisting another vessel in maneuvering procedures.

(909) (b) A vessel described in paragraph (a) of this section must:

(910) (1) Provide a Sailing Plan at least 5 minutes but not more than 15 minutes before navigating within the VMRS area; and

(911) (2) If it departs from its promulgated schedule by more than 15 minutes or changes its limited operating area, make the established VMRS reports, or report as directed.

(913)

Subpart C–Vessel Traffic Service and Vessel

(928)

TABLE 161.60(d) – VTS Prince William Sound Reporting Points

Designator	Geographic name	Geographic description	Latitude/Longitude	Notes
1A	Cape Hinchinbrook	Cape Hinchinbrook	60°16'18"N., 146°45'30"W.	Northbound Only
1B	Schooner Rock	Schooner Rock	60°18'42"N., 146°51'36"W.	Southbound Only
2A	Naked Island	Naked Island	60°40'00"N., 147°01'24"W.	Northbound Only
2B	Naked Island	Naked Island	60°40'00"N., 147°05'00"W.	Southbound Only
3A	Bligh Reef	Bligh Reef Light (Pilot Embark)	60°50'36"N., 146°57'30"W.	Northbound Only
3B	Bligh Reef	Bligh Reef Light (Pilot Disembark)	60°51'00"N., 147°01'24"W.	Southbound Only
4A	Rocky Point	Rocky Point	60°57'48"N., 146°47'30"W.	Northbound Only
4B	Rocky Point	Rocky Point	60°57'48"N., 146°50'00"W.	Southbound Only
5	Entrance Island	Entrance Island Light	61°05'24"N., 146°37'30"W.	

Movement Reporting System Areas and Reporting Points

(914) **Note:** All geographic coordinates contained in part 161 (latitude and longitude) are expressed in North American Datum of 1983 (NAD 83).

(915)

§161.60 Vessel Traffic Service Prince William Sound.

(916) (a) The VTS area consists of the navigable waters of the United States north of a line drawn from Cape Hinchinbrook Light to Schooner Rock Light, comprising that portion of Prince William Sound between 146°30'W. and 147°20'W. and includes Valdez Arm, Valdez Narrows and Port Valdez.

(917) (b) The Valdez Arm VTS Special Area consists of the waters of the Valdez Arm Traffic Separation Scheme (described in §167.1703 of this chapter); the waters northeast of a line drawn from shoreline to shoreline through the points 60°58.04'N., 146°46.52'W and 60°58.93'N., 146°48.86'W.; and southwest of a line bearing 307° True from Tongue Point at 61°02.10'N., 146°40.00'W.

(918) (c) The Valdez Narrows VTS Special Area consists of those waters of Valdez Arm, Valdez Narrows, and Port Valdez northeast of a line bearing 307° True from Tongue Point at 61°02'06"N., 146°40'W.; and southwest of a line bearing 307° True from Entrance Island Light at 61°05'06"N., 146°36'42"W.

(919) (d) Additional VTS Special Area Operating Requirements. The following additional requirements are applicable in the Valdez Narrows VTS Special Area:

(920) (1) No VMRS User shall proceed north of 61°N. without prior approval of the VTS.

(921) (2) For a vessel listed in paragraph (c)(3) of this section–

(922) (i) Approval to enter this area will not be granted to a vessel when a tank vessel of more than 20,000 deadweight tons is navigating therein;

(923) (ii) A northbound vessel shall remain south of 61°N. until the VTS has granted permission to proceed; and

(924) (iii) A southbound vessel shall remain in Port Valdez east of 146°35'W. and north of 61°06'N. until the VTS has granted permission to proceed.

(925) (3) Paragraph (c)(2) of this section applies to–

(926) (i) A vessel of 1,600 gross tons or more; and

(927) (ii) A towing vessel of 8 meters or more in length, except for a vessel performing duties as an escort vessel as defined in 33 CFR Part 168.

(929) (e) Reporting Points. (Table 161.60(d))

(930)

Part 162–Inland Waterways Navigation Regulations

(931)

§162.1 General.

(932) Geographic coordinates expressed in terms of latitude or longitude, or both, are not intended for plotting on maps or charts whose referenced horizontal datum is the North American Datum of 1983 (NAD 83), unless such geographic coordinates are expressly labeled NAD 83. Geographic coordinates without the NAD 83 reference may be plotted on maps or charts referenced to NAD 83 only after application of the appropriate corrections that are published on the particular map or chart being used.

(933)

§162.5 Definitions.

(934) The following definitions apply to this part:

(935) *Merchant mariner credential or MMC* means the credential issued by the Coast Guard under 46 CFR part 10. It combines the individual merchant mariner's document, license, and certificate of registry enumerated in 46 U.S.C. subtitle II part E as well as the STCW endorsement into a single credential that serves as the mariner's qualification document, certificate of identification, and certificate of service.

(936)

§162.245 Kenai River, Kenai, Alaska; use, administration, and navigation.

(937) (a) *The area*. The main channel area of the river, having a width of 150 feet, beginning at a point directly

offshore from the centerline of the city dock and extending about 2,200 feet upstream to a point 200 feet upstream from the Inlet Co. dock.

(938) (b) *The regulations*. (1) Vessels may navigate, anchor, or moor within the area until such times as notification is received or observation is made of intended passage to or from the docking areas.

(939) (2) Notice of anticipated passage of towboats and barges shall be indicated 24 hours in advance by display of a red flag by the Inlet Co. from its warehouse.

(940)

Part 164–Navigation Safety Regulations (in part).

(941)

§164.01 Applicability.

(942) (a) This part (except as specifically limited by this section) applies to each self-propelled vessel of 1600 or more gross tons (except as provided in paragraphs (c) and (d) of this section, or for foreign vessels described in §164.02) when it is operating in the navigable waters of the United States except the St. Lawrence Seaway.

(943) (b) Sections 164.70 through 164.82 of this part apply to each towing vessel of 12 meters (39.4 feet) or more in length operating in the navigable waters of the United States other than the St. Lawrence Seaway; except that a towing vessel is exempt from the requirements of §164.72 if it is–

(944) (1) Used solely within a limited geographic area, such as a fleeting-area for barges or a commercial facility, and used solely for restricted service, such as making up or breaking up larger tows;

(945) (2) Used solely for assistance towing as defined by 46 CFR 10.103;

(946) (3) Used solely for pollution response; or

(947) (4) Any other vessel exempted by the Captain of the Port (COTP). The COTP, upon written request, may, in writing, exempt a vessel from §164.72 for a specified route if he or she decides that exempting it would not allow its unsafe navigation under anticipated conditions.

(948) (c) Provisions of §§164.11(a)(2) and (c), 164.30, and 164.33, and 164.46 do not apply to warships or other vessels owned, leased, or operated by the United States Government and used only in government noncommercial service when these vessels are equipped with electronic navigation systems that have met the applicable agency regulations regarding navigation safety.

(949) (d) Provisions of §164.46 apply to some self-propelled vessels of less than 1600 gross tonnage.

(950)

§164.02 Applicability exception for foreign vessels.

(951) (a) Except as provided in §164.46(c), none of the requirements of this part apply to foreign vessels that:

(952) (1) Are not destined for, or departing from, a port or place subject to the jurisdiction of the United States; and

(953) (2) Are in:

(954) (i) Innocent passage through the territorial sea of the United States; or

(955) (ii) Transit through navigable waters of the United States which form a part of an international strait.

(956)

§164.03 Incorporation by reference.

(957) (a) Certain material is incorporated by reference into this part with the approval of the Director of the Federal Register under 5 U.S.C. 552(a) and 1 CFR part 51. To enforce any edition other than that specified in this section, the Coast Guard must publish notice of the change in the **Federal Register** and the material must be available to the public. All approved material is available for inspection at the National Archives and Records Administration (NARA). For more information on the availability of this material at NARA, call 202–741–6030, or go to: *www.archives.gov/federal-register/cfr/ ibr-locations.html*. Also, it is available for inspection at the Commandant (CG-NAV), U.S. Coast Guard Stop 7418, Attn: Office of Navigation Systems, 2703 Martin Luther King Jr. Ave. SE., Washington, DC 20593-7418, telephone 202–372–1565, and is available from the sources listed below.

(958) (b) American Petroleum Institute (API), 1220 L Street NW., Washington, DC 20005-4070, 202–682–8000, *www.api.org*:

(959) (1) API Specification 9A, Specification for Wire Rope, Section 3, Properties and Tests for Wire and Wire Rope, May 28, 1984, IBR approved for §164.74.

(960) (2) [Reserved]

(961) (c) ASTM International, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959, 610–832–9585, *www.astm.org*:

(962) (1) ASTM D4268-93, Standard Test Method for Testing Fiber Rope, IBR approved for §164.74.

(963) (2) [Reserved]

(964) (d) Cordage Institute, 350 Lincoln Street, Hingham, MA 02043.

(965) (1) CIA-3, Standard Test Methods for Fiber Rope Including Standard Terminations, Revised, June 1980, IBR approved for §164.74.

(966) (2) [Reserved]

(967) (e) International Maritime Organization (IMO), 4 Albert Embankment, London SE1 7SR, United Kingdom, *www.imo.org*:

(968) (1) IMO Resolution A342(IX), Recommendation on Performance Standards for Automatic Pilots, November 12, 1975, IBR approved for § 164.13.

(969) (2) IMO Resolution A.917(22), Guidelines for the Onboard Operational Use of Shipborne Automatic Identification System (AIS), January 25, 2002, IBR approved for §164.46.

(970) (3) SN/Circ.227, Guidelines for the Installation of a Shipborne Automatic Identification System (AIS), January 6, 2003, IBR approved for §164.46.

(971) (4) SN/Circ.244, Guidance on the Use of the UN/LOCODE in the Destination Field in AIS Messages, December 15, 2004, IBR approved for §164.46.

(972) (5) SN/Circ.245, Amendments to the Guidelines for the Installation of a Shipborne Automatic Identification System (AIS)(SN/Circ.227), December 15, 2004, IBR approved for §164.46.

(973) (6) SOLAS, International Convention for the Safety of Life at Sea, 1974, and 1988 Protocol relating thereto, 2000 Amendments, effective January and July 2002, (SOLAS 2000 Amendments), IBR approved for §164.46.

(974) (7) Conference resolution 1, Adoption of amendments to the Annex to the International Convention for the Safety of Life at Sea, 1974, and amendments to Chapter V of SOLAS 1974, adopted on December 12, 2002, IBR approved for §164.46.

(975) (8) SN.1/Circ.289, Guidance on the Use of AIS Application-Specific Messages, June 2, 2010, IBR approved for §164.46.

(976) (f) National Marine Electronics Association (NMEA), 7 Riggs Avenue, Severna Park, MD 21146, 800–808– 6632, *www.nmea.org*:

(977) (1) NMEA 0400, Installation Standard for Marine Electronic Equipment used on Moderate-Sized Vessels, Version 3.10, February 2012, IBR approved for §164.46.

(978) (2) [Reserved]

(979) (g) Radio Technical Commission for Maritime Services (RTCM), 1611 N. Kent St., Suite 605, Arlington, VA 22209, 703–527–2000, *www.rtcm.org*:

(980) (1) RTCM Paper 12-78/DO-100, Minimum Performance Standards, Loran C Receiving Equipment, 1977, IBR approved for §164.41.

(981) (2) RTCM Paper 71-95/SC112-STD, RTCM Recommended Standards for Marine Radar Equipment Installed on Ships of Less Than 300 Tons Gross Tonnage, Version 1.1, October 10, 1995, IBR approved for §164.72.

(982) (3) RTCM Paper 191-93/SC112-X, RTCM Recommended Standards for Maritime Radar Equipment Installed on Ships of 300 Tons Gross Tonnage and Upwards, Version 1.2, December 20, 1993, IBR approved for §164.72.

(983) (h) International Electrotechnical Commission (IEC), 3, rue de Varembe, Geneva, Switzerland, +41 22 919 02 11, *http://www.iec.ch/*. Email: info@iec.ch.

(984) (1) IEC 62065 (IEC 62065 2002–03), Maritime navigation and radiocommunication equipment and systems—Track control systems— Operational and performance requirements, methods of testing and required test results, First Edition, dated 2002, IBR approved for **§ 164.13(d)**.

(985) (2) IEC 62065 (IEC 62065 2014–02), Maritime navigation and radiocommunication equipment and systems—Track control systems— Operational and performance requirements, methods of testing and required test results, Edition 2.0, dated 2014, IBR approved for**§ 164.13(d)**.

(986)

§164.11 Navigation under way: General.

(987) The owner, master, or person in charge of each vessel underway shall ensure that:

(988) (a) The wheelhouse is constantly manned by persons who–

(989) (1) Direct and control the movement of the vessel; and

(990) (2) Fix the vessel's position;

(991) (b) Each person performing a duty described in paragraph (a) of this section is competent to perform that duty;

(992) (c) The position of the vessel at each fix is plotted on a chart of the area and the person directing the movement of the vessel is informed of the vessel's position;

(993) (d) Electronic and other navigational equipment, external fixed aids to navigation, geographic reference points, and hydrographic contours are used when fixing the vessel's position;

(994) (e) Buoys alone are not used to fix the vessel's position;

(995) **Note:** Buoys are aids to navigation placed in approximate positions to alert the mariner to hazards to navigation or to indicate the orientation of a channel. Buoys may not maintain an exact position because strong or varying currents, heavy seas, ice, and collisions with vessels can move or sink them or set them adrift. Although buoys may corroborate a position fixed by other means, buoys cannot be used to fix a position: however, if no other aids are available, buoys alone may be used to establish an estimated position.

(996) (f) The danger of each closing visual or each closing radar contact is evaluated and the person directing the movement of the vessel knows the evaluation;

(997) (g) Rudder orders are executed as given;

(998) (h) Engine speed and direction orders are executed as given;

(999) (i) Magnetic variation and deviation and gyrocompass errors are known and correctly applied by the person directing the movement of the vessel;

(1000) (j) A person whom he has determined is competent to steer the vessel is in the wheelhouse at all times;1

(1001) 1See also 46 U.S.C. 8702(d), which requires an able seaman at the wheel on U.S. vessels of 100 gross tons or more in narrow or crowded waters during low visibility.

(1002) (k) If a pilot other than a member of the vessel's crew is employed, the pilot is informed of the draft, maneuvering characteristics, and peculiarities of the vessel and of any abnormal circumstances on the vessel that may affect its safe navigation.

(1003) (l) Current velocity and direction for the area to be transited are known by the person directing the movement of the vessel;

(1004) (m) Predicted set and drift are known by the person directing movement of the vessel;

(1005) (n) Tidal state for the area to be transited is known by the person directing movement of the vessel;

(1006) (o) The vessel's anchors are ready for letting go;

(1007) (p) The person directing the movement of the vessel sets the vessel's speed with consideration for–

(1008) (1) The prevailing visibility and weather conditions;

(1009) (2) The proximity of the vessel to fixed shore and marine structures;

(1010) (3) The tendency of the vessel underway to squat and suffer impairment of maneuverability when there is small underkeel clearance;

(1011) (4) The comparative proportions of the vessel and the channel;

(1012) (5) The density of marine traffic;

(1013) (6) The damage that might be caused by the vessel's wake;

(1014) (7) The strength and direction of the current; and

(1015) (8) Any local vessel speed limit;

(1016) (q) The tests required by §164.25 are made and recorded in the vessel's log; and

(1017) (r) The equipment required by this part is maintained in operable condition.

(1018) (s) Upon entering U.S. waters, the steering wheel or lever on the navigating bridge is operated to determine if the steering equipment is operating properly under manual control, unless the vessel has been steered under manual control from the navigating bridge within the preceding 2 hours, except when operating on the Great Lakes and their connecting and tributary waters.

(1019) (t) At least two of the steering-gear power units on the vessel are in operation when such units are capable of simultaneous operation, except when the vessel is sailing on the Great Lakes and their connecting and tributary waters, and except as required by paragraph (u) of this section.

(1020) (u) On each passenger vessel meeting the requirements of the International Convention for the Safety of Life at Sea, 1960 (SOLAS 60) and on each cargo vessel meeting the requirements of SOLAS 74 as amended in 1981, the number of steering-gear power units necessary to move the rudder from 35° on either side to 30° on the other in not more than 28 seconds must be in simultaneous operation.

(1021)

§164.13 Navigation underway: tankers.

(1022) (a) As used in this section, "tanker" means a self-propelled tank vessel, including integrated tug barge combinations, constructed or adapted primarily to carry oil or hazardous material in bulk in the cargo spaces and inspected and certificated as a tanker.

(1023) (b) Each tanker must have an engineering watch capable of monitoring the propulsion system, communicating with the bridge, and implementing manual control measures immediately when necessary. The watch must be physically present in the machinery spaces or in the main control space and must consist of at least an engineer with an appropriately endorsed license or merchant mariner credential.

(1024) (c) Each tanker must navigate with at least two deck officers with an appropriately endorsed license or merchant mariner credential on watch on the bridge, one of whom may be a pilot. In waters where a pilot is required, the second officer, must be an individual holding an appropriately endorsed license or merchant mariner credential and assigned to the vessel as master, mate, or officer in charge of navigational watch, who is separate and distinct from the pilot.

(1025) (d) This paragraph (d) has preemptive effect over State or local regulation within the same field. A tanker may navigate using a heading or track control system only if:

(1026) (1) The tanker is at least one-half nautical mile (1,012 yards) beyond the territorial sea baseline, as defined in **33 CFR 2.20**;

(1027) (i) Not within waters specified in **33 CFR part 110** (anchorages), or;

(1028) (ii) Not within waters specified as precautionary areas in **33 CFR part 167** , and;

(1029) (2) There is a person, competent to steer the vessel, present to assume manual control of the steering station at all times including, but not limited to, the conditions listed in **46 CFR 35.20–45(a)** through **(c)**; and

(1030) (3) The system meets the heading or track control specifications of either IEC 62065 (2002–03) or IEC 62065 (2014–02) (incorporated by reference, see **§ 164.03**).

(1031)

§164.15 Navigation bridge visibility.

(1032) (a) The arrangement of cargo, cargo gear, and trim of all vessels entering or departing from U.S. ports must be such that the field of vision from the navigation bridge conforms as closely as possible to the following requirements:

(1033) (1) From the conning position, the view of the sea surface must not be obscured by more than the lesser of two ship lengths or 500 meters (1640 feet) from dead ahead to 10 degrees on either side of the vessel. Within this arc of visibility and blind sector caused by cargo, cargo gear, or other permanent obstruction must not exceed 5 degrees.

(1034) (2) From the conning position, the horizontal field of vision must extend over an arc from at least 22.5 degrees abaft the beam on one side of the vessel, through dead ahead, to at least 22.5 degrees abaft the beam on the other side of the vessel. Blind sectors forward of the beam caused by cargo, cargo gear, or other permanent obstruction must not exceed 10 degrees each, nor total more than 20 degrees, including any blind sector within the arc of visibility described in paragraph (a)(1) of this section.

(1035) (3) From each bridge wing, the field of vision must extend over an arc from at least 45 degree on the opposite bow, through dead ahead, to at least dead astern.

(1036) (4) From the main steering position, the field of vision must extend over an arc from dead ahead to at least 60 degrees on either side of the vessel.

(1037) (b) A clear view must be provided through at least two front windows at all times regardless of weather conditions.

(1038)

§164.19 Requirements for vessels at anchor.

(1039) The master or person in charge of each vessel that is anchored shall ensure that–

(1040) (a) A proper anchor watch is maintained;

(1041) (b) Procedures are followed to detect a dragging anchor; and

(1042) (c) Whenever weather, tide, or current conditions are likely to cause the vessel's anchor to drag, action is taken to ensure the safety of the vessel, structures, and other vessels, such as being ready to veer chain, let go a second anchor, or get underway using the vessel's own propulsion or tug assistance.

(1043)

§164.25 Tests before entering or getting underway.

(1044) (a) Except as provided in paragraphs (b) and (c) of this section no person may cause a vessel to enter into or get underway on the navigable waters of the United States unless no more than 12 hours before entering or getting underway, the following equipment has been tested:

(1045) (1) Primary and secondary steering gear. The test procedure includes a visual inspection of the steering gear and its connecting linkage, and, where applicable, the operation of the following:

(1046) (i) Each remote steering gear control system.

(1047) (ii) Each steering position located on the navigating bridge.

(1048) (iii) The main steering gear from the alternative power supply, if installed.

(1049) (iv) Each rudder angle indicator in relation to the actual position of the rudder.

(1050) (v) Each remote steering gear control system power failure alarm.

(1051) (vi) Each remote steering gear power unit failure alarm.

(1052) (vii) The full movement of the rudder to the required capabilities of the steering gear.

(1053) (2) All internal vessel control communications and vessel control alarms.

(1054) (3) Standby or emergency generator, for as long as necessary to show proper functioning, including steady state temperature and pressure readings.

(1055) (4) Storage batteries for emergency lighting and power systems in vessel control and propulsion machinery spaces.

(1056) (5) Main propulsion machinery, ahead and astern.

(1057) (b) Vessels navigating on the Great Lakes and their connecting and tributary waters, having once completed the test requirements of this subpart, are considered to remain in compliance until arriving at the next port of call on the Great Lakes.

(1058) (c) Vessels entering the Great Lakes from the St. Lawrence Seaway are considered to be in compliance with this subpart if the required tests are conducted preparatory to or during the passage of the St. Lawrence Seaway or within one hour of passing Wolfe Island.

(1059) (d) No vessel may enter, or be operated on the navigable waters of the United States unless the emergency steering drill described below has been conducted within 48 hours prior to entry and logged in the vessel logbook, unless the drill is conducted and logged on a regular basis at least once every three months. This drill must include at a minimum the following:

(1060) (1) Operation of the main steering gear from within the steering gear compartment.

(1061) (2) Operation of the means of communications between the navigating bridge and the steering compartment.

(1062) (3) Operation of the alternative power supply for the steering gear if the vessel is so equipped.

(1063)

§164.30 Charts, publications, and equipment: General.

(1064) No person may operate or cause the operation of a vessel unless the vessel has the marine charts, publications, and equipment as required by §§164.33 through 164.41 of this part.

(1065)

§164.33 Charts and publications.

(1066) (a) Each vessel must have the following:

(1067) (1) Marine charts of the area to be transited, published by the National Ocean Service, U.S. Army Corps of Engineers, or a river authority that–

(1068) (i) Are of a large enough scale and have enough detail to make safe navigation of the area possible; and

(1069) (ii) Are currently corrected.

(1070) (2) For the area to be transited, a currently corrected copy of, or applicable currently corrected extract from, each of the following publications:

(1071) (i) U.S. Coast Pilot.

(1072) (ii) Coast Guard Light List.

(1073) (3) For the area to be transited, the current edition of, or applicable current extract from:

(1074) (i) Tide Tables published by private entities using data provided by the National Ocean Service.

(1075) (ii) Tidal current tables published by the National Ocean Service, or river current publication issued by a river authority.

(1076) (b) As an alternative to the requirements for paragraph (a) of this section, a marine chart or publication, or applicable extract, published by a foreign government may be substituted for a U.S. chart and publication required by this section. The chart must be of large enough scale and have enough detail to make safe navigation of the area possible, and must be currently corrected. The publication, or applicable extract, must singly or in combination contain similar information to the U.S. Government publication to make safe navigation of the area possible. The publication, or applicable extract must be currently corrected, with the exceptions of tide and tidal current tables, which must be the current editions.

(1077) (c) As used in this section, "currently corrected" means corrected with changes contained in all Notices to Mariners published by the National Geospatial-Intelligence Agency, or an equivalent foreign government publication, reasonably available to the vessel, and that is applicable to the vessel's transit.

(1078)

§164.35 Equipment: All vessels.

(1079) Each vessel must have the following:

(1080) (a) A marine radar system for surface navigation.

(1081) (b) An illuminated magnetic steering compass, mounted in a binnacle, that can be read at the vessel's main steering stand.

(1082) (c) A current magnetic compass deviation table or graph or compass comparison record for the steering compass, in the wheelhouse.

(1083) (d) A gyrocompass.

(1084) (e) An illuminated repeater for the gyrocompass required by paragraph (d) of this section that is at the main steering stand, unless that gyrocompass is illuminated and is at the main steering stand.

(1085) (f) An illuminated rudder angle indicator in the wheelhouse.

(1086) (g) The following maneuvering information prominently displayed on a fact sheet in the wheelhouse:

(1087) (1) A turning circle diagram to port and starboard that shows the time and distance and advance and transfer required to alter course **90 degrees** with maximum rudder angle and constant power settings, for either full and half speeds, or for full and slow speeds. For vessels whose turning circles are essentially the same for both directions, a diagram showing a turning circle in one direction, with a note on the diagram stating that turns to port and starboard are essentially the same, may be substituted.

(1088) (2) The time and distance to stop the vessel from either full and half speeds, or from full and slow speeds, while maintaining approximately the initial heading with minimum application of rudder.

(1089) (3) For each vessel with a fixed propeller, a table of shaft revolutions per minute for a representative range of speeds.

(1090) (4) For each vessel with a controllable pitch propeller, a table of control settings for a representative range of speeds.

(1091) (5) For each vessel that is fitted with an auxiliary device to assist in maneuvering, such as a bow thruster, a table of vessel speeds at which the auxiliary device is effective in maneuvering the vessel.

(1092) (6) The maneuvering information for the normal load and normal ballast condition for–

(1093) (i) Calm weather-wind 10 knots or less, calm sea;

(1094) (ii) No current;

(1095) (iii) Deep water conditions-water depth twice the vessel's draft or greater; and

(1096) (iv) Clean hull.

(1097) (7) At the bottom of the fact sheet, the following statement:

(1098)

WARNING

The response of the (name of the vessel) may be different from that listed above if any of the following conditions, upon which the maneuvering information is based, are varied:
(1) Calm weather—wind 10 knots or less, calm sea;
(2) No current;
(3) Water depth twice the vessel's draft or greater;
(4) Clean hull; and
(5) Intermediate drafts or unusual trim.

(1099) (h) An echo depth sounding device.

(1100) (i) A device that can continuously record the depth readings of the vessel's echo depth sounding device, except when operating on the Great Lakes and their connecting and tributary waters.

(1101) (j) Equipment on the bridge for plotting relative motion.

(1102) (k) Simple operating instructions with a block diagram, showing the change-over procedures for remote steering gear control systems and steering gear power units, permanently displayed on the navigating bridge and in the steering gear compartment.

(1103) (l) An indicator readable from the centerline conning position showing the rate of revolution of each propeller, except when operating on the Great Lakes and their connecting and tributary waters.

(1104) (m) If fitted with controllable pitch propellers, an indicator readable from the centerline conning position showing the pitch and operational mode of such propellers, except when operating on the Great Lakes and their connecting and tributary waters.

(1105) (n) If fitted with lateral thrust propellers, an indicator readable from the centerline conning position showing the direction and amount of thrust of such propellers, except when operating on the Great Lakes and their connecting and tributary waters.

(1106) (o) A telephone or other means of communication for relaying headings to the emergency steering station. Also, each vessel of 500 gross tons and over and constructed on or after June 9, 1995 must be provided with arrangements for supplying visual compass-readings to the emergency steering station.

(1107)

§164.37 Equipment: Vessels of 10,000 gross tons or more.

(1108) (a) Each vessel of 10,000 gross tons or more must have, in addition to the radar system under §164.35(a), a second marine radar system that operates independently of the first.

(1109) **Note:** Independent operation means two completely separate systems, from separate branch power supply circuits or distribution panels to antennas, so that failure of any component of one system will not render the other system inoperative.

(1110) (b) On each tanker of 10,000 gross tons or more that is subject to 46 U.S.C. 3708, the dual radar system required by this part must have a short range capability and a long range capability and each radar must have true

north features consisting of a display that is stabilized in azimuth.

(1111)

§164.38 Automatic radar plotting aids (ARPA). (See 33 CFR 164.)

(1112)

§164.39 Steering gear: Foreign tankers.

(1113) (a) This section applies to each foreign tanker of 10,000 gross tons or more, except a public vessel, that–

(1114) (1) Transfers oil at a port or place subject to the jurisdiction of the United States; or

(1115) (2) Otherwise enters or operates in the navigable waters of the United States, except a vessel described by §164.02 of this part.

(1116) (b) *Definitions*. The terms used in this section are as follows:

(1117) *Constructed* means the same as in chapter II-1, Regulations 1.1.2 and 1.1.3.1, of SOLAS 74.

(1118) *Existing tanker* means a tanker–

(1119) (1) For which the building contract is placed on or after June 1, 1979;

(1120) (2) In the absence of a building contract, the keel of which is laid or which is at a similar stage of construction on or after January 1, 1980;

(1121) (3) The delivery of which occurs on or after June 1, 1982; or

(1122) (4) That has undergone a major conversion contracted for on or after June 1, 1979; or construction of which was begun on or after January 1, 1980, or completed on or after June 1, 1982.

(1123) *Public vessel, oil hazardous materials, and foreign vessel* mean the same as in 46 U.S.C. 2101.

(1124) *SOLAS 74* means the International Convention for the Safety of Life at Sea, 1974, as amended.

(1125) *Tanker* means a self-propelled vessel defined as a tanker by 46 U.S.C. 2101(38) or as a tank vessel by 46 U.S.C. 2101(39).

(1126) (c) Each tanker constructed on or after September 1, 1984, must meet the applicable requirements of chapter II-1, Regulations 29 and 30, of SOLAS 74.

(1127) (d) Each tanker constructed before September 1, 1984, must meet the requirements of chapter II-1, Regulation 29.19, of SOLAS 74.

(1128) (e) Each tanker of 40,000 gross tons or more, constructed before September 1, 1984, that does not meet the single-failure criterion of chapter II-1, Regulation 29.16, of SOLAS 74, must meet the requirements of chapter II-1, Regulation 29.20, of SOLAS 74.

(1129) (f) Each tanker constructed before September 1, 1984, must meet the applicable requirements of chapter II-1, Regulations 29.14 and 29.15, of SOLAS 74.

(1130)

§164.40 Devices to indicate speed and distance.

(1131) (a) Each vessel required to be fitted with an Automatic Radar Plotting Aid (ARPA) under §164.38 of this part must be fitted with a device to indicate speed and distance of the vessel either through the water or over the ground.

(1132) (b) The device must meet the following specifications:

(1133) (1) The display must be easily readable on the bridge by day or night.

(1134) (2) Errors in the indicated speed, when the vessel is operating free from shallow water effect, and from the effects of wind, current, and tide, should not exceed 5 percent of the speed of the vessel, or 0.5 knot, whichever is greater.

(1135) (3) Errors in the indicated distance run, when the vessel is operating free from shallow water effect, and from the effects of wind, current, and tide, should not exceed 5 percent of the distance run of the vessel in one hour or 0.5 nautical mile in each hour, whichever is greater.

(1136)

§164.41 Electronic position fixing devices.

(1137) (a) Each vessel calling at a port in the continental United States, including Alaska south of Cape Prince of Wales, except each vessel owned or bareboat chartered and operated by the United States, or by a state or its political subdivision, or by a foreign nation, and not engaged in commerce, must have a satellite navigation receiver with-

(1138) (1) Automatic acquisition of satellite signals after initial operator settings have been entered; and

(1139) (2) Position updates derived from satellite information during each usable satellite pass.

(1140) (b) A system that is found by the Commandant to meet the intent of the statements of availability, coverage, and accuracy for the U.S. Coastal Confluence Zone (CCZ) contained in the U.S. "Federal Radionavigation Plan" (Report No. DOD-NO 4650.4-P, I or No. DOT-TSC-RSPA-80-16, I). A person desiring a finding by the Commandant under this subparagraph must submit a written application describing the device to the Commandant (CG-DCO-D), Attn: Deputy for Operations Policy and Capabilities, U.S. Coast Guard Stop 7318, 2703 Martin Luther King Jr. Avenue SE., Washington, DC 20593-7318. After reviewing the application, the Commandant may request additional information to establish whether or not the device meets the intent of the Federal Radionavigation Plan.

(1141) **Note:** The Federal Radionavigation Plan is available from the National Technical Information Service, Springfield, Va. 22161, with the following Government Accession Numbers:

(1142) Vol 1, ADA 116468

(1143) Vol 2, ADA 116469

(1144) Vol 3, ADA 116470

(1145) Vol 4, ADA 116471

(1146)

§164.42 Rate of turn indicator.

(1147) Each vessel of 100,000 gross tons or more constructed on or after September 1, 1984, shall be fitted with a rate of turn indicator.

(1148)

§164.43 [Removed]

(1149)

§164.46 Automatic Identification System.

(1150) (a) *Definitions*. As used in this section—*Automatic Identification Systems or AIS* means a maritime navigation safety communications system standardized by the International Telecommunication Union (ITU), adopted by the International Maritime Organization (IMO), that—

(1151) (1) Provides vessel information, including the vessel's identity, type, position, course, speed, navigational status and other safety-related information automatically to appropriately equipped shore stations, other ships, and aircraft;

(1152) (2) Receives automatically such information from similarly fitted ships, monitors and tracks ships; and

(1153) (3) Exchanges data with shore-based facilities.

(1154) *Gross tonnage* means tonnage as defined under the International Convention on Tonnage Measurement of Ships, 1969.

(1155) *International voyage* means a voyage from a country to which the present International Convention for the Safety of Life at Sea applies to a port outside such country, or conversely.

(1156) *Properly installed, operational* means an Automatic Identification System (AIS) that is installed and operated using the guidelines set forth by the International Maritime Organization (IMO) Resolution A.917(22) and Safety of Navigation Circulars (SN/Circ.) 227, 244, 245, and SN.1/Circ.289; or National Marine Electronics Association (NMEA) Installation Standard 0400-3.10 in lieu of SN/Circ.227 and 245 (incorporated by reference, see §164.03).

(1157) (b) *AIS carriage*—(1) *AIS Class A device*. The following vessels must have on board a properly installed, operational Coast Guard type-approved AIS Class A device:

(1158) (i) A self-propelled vessel of 65 feet or more in length, engaged in commercial service.

(1159) (ii) A towing vessel of 26 feet or more in length and more than 600 horsepower, engaged in commercial service.

(1160) (iii) A self-propelled vessel that is certificated to carry more than 150 passengers.

(1161) (iv) A self-propelled vessel engaged in dredging operations in or near a commercial channel or shipping fairway in a manner likely to restrict or affect navigation of other vessels.

(1162) (v) A self-propelled vessel engaged in the movement of—

(1163) (A) Certain dangerous cargo as defined in subpart C of part 160 of this chapter, or

(1164) (B) Flammable or combustible liquid cargo in bulk that is listed in 46 CFR 30.25-1, Table 30.25-1.

(1165) (2) *AIS Class B device*. Use of a Coast Guard type-approved AIS Class B device in lieu of an AIS Class A device is permissible on the following vessels if they are not subject to pilotage by other than the vessel Master or crew:

(1166) (i) Fishing industry vessels;

(1167) (ii) Vessels identified in paragraph (b)(1)(i) of this section that are certificated to carry less than 150 passengers and that—

(1168) (A) Do not operate in a Vessel Traffic Service (VTS) or Vessel Movement Reporting System (VMRS) area defined in Table 161.12(c) of §161.12 of this chapter, and

(1169) (B) Do not operate at speeds in excess of 14 knots; and

(1170) (iii) Vessels identified in paragraph (b)(1)(iv) of this section engaged in dredging operations.

(1171) *Note to paragraph (b)*: Under 33 U.S.C. 1223(b)(3) and **33 CFR 160.111**, a Coast Guard Captain of the Port (COTP) may restrict the operation of a vessel if he or she determines that by reason of weather, visibility, sea conditions, port congestion, other hazardous circumstances, or the condition of such vessel, the restriction is justified in the interest of safety. In certain circumstances, if a COTP is concerned that the operation of a vessel not subject to §164.46 would be unsafe, the COTP may determine that voluntary installation of AIS by the operator would mitigate that concern. Fishing industry vessels include fishing vessels, fish processing vessels, and fish tender vessels as defined in 46 U.S.C. 2101.

(1172) (c) *SOLAS provisions*. The following self-propelled vessels must comply with International Convention for Safety of Life at Sea (SOLAS), as amended, chapter V, regulation 19.2.1.6 (Positioning System), 19.2.4 (AIS Class A), and 19.2.3.5 (Transmitting Heading Device) or 19.2.5.1 (Gyro Compass) as applicable (Incorporated by reference, see §164.03):

(1173) (1) A vessel of 300 gross tonnage or more, on an international voyage.

(1174) (2) A vessel of 150 gross tonnage or more, when carrying more than 12 passengers on an international voyage.

(1175) (d) *Operations*. The requirements in this paragraph are applicable to any vessel equipped with AIS.

(1176) (1) Use of AIS does not relieve the vessel of the requirements to sound whistle signals or display lights or shapes in accordance with the International Regulations for Preventing Collisions at Sea, 1972 (72 COLREGS), 28 U.S.T. 3459, T.I.A.S. 8587, or Inland Navigation Rules, 33 CFR part 83; nor of the radio requirements of the Vessel Bridge-to-Bridge Radiotelephone Act, 33 U.S.C. 1201-1208, part 26 of this chapter, and 47 CFR part 80.

(1177) (2) AIS must be maintained in effective operating condition, which includes—

(1178) (i) The ability to reinitialize the AIS, which requires access to and knowledge of the AIS power source and password;

(1179) (ii) The ability to access AIS information from the primary conning position of the vessel;

(1180) (iii) The accurate broadcast of a properly assigned Maritime Mobile Service Identity (MMSI) number;

(1181) (iv) The accurate input and upkeep of all AIS data fields and system updates; and

(1182) (v) For those vessels denoted in paragraph (b) of this section, the continual operation of AIS and its associated devices (*e.g.*, positioning system, gyro, converters, displays) at all times while the vessel is underway or at anchor, and, if moored, at least 15 minutes prior to getting underway; except when its operation would compromise the safety or security of the vessel or a security incident is imminent. The AIS should be returned to continuous operation as soon as the compromise has been mitigated or the security incident has passed. The time and reason for the silent period should be recorded in the ship's official log and reported to the nearest Captain of the Port or Vessel Traffic Center (VTC).

(1183) (3) AIS safety-related text messaging must be conducted in English and solely to exchange or communicate pertinent navigation safety information (analogous to a SECURITE broadcast). Although not prohibited, AIS text messaging should not be relied upon as the primary means for broadcasting distress (MAYDAY) or urgent (PAN PAN) communications. (47 CFR 80.1109, Distress, urgency, and safety communications).

(1184) (4) AIS application-specific messaging (ASM) is permissible, but is limited to applications adopted by the International Maritime Organization (such as IMO SN.1/Circ.289) or those denoted in the International Association of Marine Aids to Navigation and Lighthouse Authorities' (IALA) ASM Collection for use in the United States or Canada, and to no more than one ASM per minute.

(1185) *Note 1 to §164.46(d)*: The Coast Guard has developed the ''USCG AIS Encoding Guidance'' to help ensure consistent and accurate data encoding (input) by AIS users. This Guide is available at our ''AIS Frequently Asked Questions'' (FAQ #2) World Wide Web page at *www.navcen.uscg.gov/ais-frequently-asked-questions#2*. Although of great benefit, the interfacing or installation of other external devices or displays (*e.g.*, transmitting heading device, gyro, rate of turn indicator, electronic charting systems, and radar), is not currently required except as denoted in §164.46(c). Most application-specific messages require interfacing to an external system that is capable of their portrayal, such as equipment certified to meet Radio Technical Commission for Maritime Services (RTCM) electronic chart system (ECS) standard 10900 series.

(1186) (e) *Watchkeeping*. AIS is primarily intended for use by the Master or person in charge of the vessel, or by the person designated by the Master or person in charge to pilot or direct the movement of the vessel, who must maintain a periodic watch for AIS information.

(1187) (f) *Portable AIS*. The use of a portable AIS is permissible only to the extent that electromagnetic interference does not affect the proper function of existing navigation and communication equipment on board and such that only one AIS device may be transmitting on board a vessel at any one time.

(1188) (g) *AIS Pilot Plug*. The AIS Pilot Plug on any vessel subject to pilotage by other than the vessel Master or crew must be readily available and easily accessible from the primary conning position of the vessel and permanently affixed (not an extension cord) and adjacent (within 3 feet) to a 120-volt 50/60 Hz AC power receptacle (NEMA 5-15).

(1189) (h) *Exceptions*. The following vessels may seek up to a 5-year deviation from the AIS requirements of this section by requesting a deviation under §164.55.

(1190) (1) Vessels that operate solely within a very confined area (e.g., less than a 1 nautical-mile radius, shipyard, or barge fleeting facility);

(1191) (2) Vessels that conduct only short voyages (less than 1 nautical mile) on a fixed schedule (*e.g.*, a bank-to-bank river ferry service or a tender vessel);

(1192) (3) Vessels that are not likely to encounter other AIS-equipped vessels;

(1193) (4) Vessels whose design or construction makes it impracticable to operate an AIS device (*e.g.*, those that lack electrical power, have an exposed or open cabin, or are submersible); or

(1194) (5) Vessels denoted in paragraph (b)(2) that seek a deviation from requirements in paragraphs (d)(2)(ii) and (e) of this section because their AIS Class B device lacks a display.

(1195) (i) *Prohibition*. Except for maritime support stations (see **47 CFR 80.5**) licensed by the Federal Communications Commission (FCC), broadcasts from AIS Class A or B devices on aircraft, non-self propelled vessels or from land are prohibited.

(1196) (j) *Implementation date*. Those vessels identified in paragraphs (b) and (c) of this section that were not previously subject to AIS carriage must install AIS no later than March 1, 2016.

(1197)

§164.51 Deviations from rules: Emergency.

(1198) Except for the requirements of §164.53(b), in an emergency, any person may deviate from any rule in this part to the extent necessary to avoid endangering persons, property, or the environment.

(1199)

§164.53 Deviations from rules and reporting: Non-operating equipment.

(1200) (a) If during a voyage any equipment required by this part stops operating properly, the person directing the movement of the vessel may continue to the next port of call, subject to the directions of the District Commander or the Captain of the Port, as provided by part 160 of this chapter.

(1201) (b) If the vessel's automatic identification system (AIS), radar, radio navigation receivers, gyrocompass, echo depth sounding device, or primary steering gear stops operating properly, the person directing the movement of the vessel must report or cause to be reported that it

is not operating properly to the nearest Captain of the Port, District Commander, or, if participating in a Vessel Traffic Service, to the Vessel Traffic Center, as soon as possible.

(1202)

§164.55 Deviations from rules: Continuing operation or period of time.

(1203) The Captain of the Port, upon written application, may authorize a deviation from any rule in this part if he determines that the deviation does not impair the safe navigation of the vessel under anticipated conditions and will not result in a violation of the rules for preventing collisions at sea. The authorization may be issued for vessels operating in the waters under the jurisdiction of the Captain of the Port for any continuing operation or period of time the Captain of the Port specifies.

(1204)

§164.61 Marine casualty reporting and record retention.

(1205) When a vessel is involved in a marine casualty as defined in 46 CFR 4.03–1, the master or person in charge of the vessel shall–

(1206) (a) Ensure compliance with 46 CFR Subpart 4.05, "Notice of Marine Casualty and Voyage Records;" and

(1207) (b) Ensure that the voyage records required by 46 CFR 4.05–15 are retained for–

(1208) (1) 30 days after the casualty if the vessel remains in the navigable waters of the United States; or

(1209) (2) 30 days after the return of the vessel to a United States port if the vessel departs the navigable waters of the United States within 30 days after the marine casualty.

(1210)

§164.70 Definitions.

(1211) For purposes of §§164.72 through 164.82, the term–

(1212) *Current edition* means the most recent published version of a publication, chart, or map required by §164.72.

(1213) *Currently corrected edition* means a current or previous edition of a publication required by §164.72, corrected with changes that come from Notice to Mariners (NTMs) or Notices to Navigation reasonably available and that apply to the vessel's transit. Hand-annotated river maps from U.S. Army Corps of Engineers (USACE) are currently corrected editions if issued within the previous 5 years.

(1214) *Great Lakes* means the Great Lakes and their connecting and tributary waters including the Calumet River as far as the Thomas J. O'Brien Lock and Controlling Works (between miles 326 and 327), the Chicago River as far as the east side of the Ashland Avenue Bridge (between miles 321 and 322), and the Saint Lawrence River as far east as the lower exit of Saint Lambert Lock.

(1215) *Merchant mariner credential or MMC* means the credential issued by the Coast Guard under 46 CFR part 10. It combines the individual merchant mariner's document, license, and certificate of registry enumerated in 46 U.S.C. subtitle II part E as well as the STCW endorsement into a single credential that serves as the mariner's qualification document, certificate of identification, and certificate of service.

(1216) *Swing-meter* means an electronic or electric device that indicates that rate of turn of the vessel on board which it is installed.

(1217) *Towing vessel* means a commercial vessel engaged in or intending to engage in pulling, pushing or hauling alongside, or any combination of pulling, pushing, or hauling alongside.

(1218) *Western Rivers* means the Mississippi River, its tributaries, South Pass, and Southwest Pass, to the navigational-demarcation lines dividing the high seas from harbors, rivers, and other inland waters of the United States, and the Port Allen-Morgan City Alternative Route, and that part of the Atchafalaya River above its junction with the Port Allen-Morgan City Alternative Route including the Old River and the Red River and those waters specified by §§89.25 and 89.27 of this chapter, and such other, similar waters as are designated by the COTP.

(1219)

§164.72 Navigational-safety equipment, charts or maps, and publications required on towing vessels.

(1220) (a) Except as provided by §164.01(b), each towing vessel must be equipped with the following navigational-safety equipment:

(1221) (1) *Marine Radar*. By August 2, 1997, a marine radar that meets the following applicable requirements:

(1222) (i) For a vessel of less than 300 tons gross tonnage that engages in towing on navigable waters of the U.S., including Western Rivers, the radar must meet–

(1223) (A) The requirements of the Federal Communications Commission (FCC) specified by 47 CFR part 80; and

(1224) (B) RTCM Standard for Marine Radar Equipment Installed on Ships of Less Than 300 Tons Gross Tonnage, RTCM Paper-71-95/SC112-STD, Version 1.1, display Category II and stabilization Category Bravo.

(1225) (ii) For a vessel of less than 300 tons gross tonnage that engages in towing seaward of navigable waters of the U.S. or more than three nautical miles from shore on the Great Lakes, the radar must meet–

(1226) (A) The requirements of the FCC specified by 47 CFR part 80; and

(1227) (B) RTCM Standard for Marine Radar Equipment Installed on Ships of Less Than 300 Tons Gross Tonnage, RTCM Paper 71-95/SC112-STD, Version 1.1, display Category I and stabilization Category Alpha.

(1228) (iii) For a vessel of 300 tons gross tonnage or more that engages in towing on navigable waters of the U.S., including Western rivers, the radar must meet–

(1229) (A) The requirements of the Federal Communications Commission (FCC) specified by 47 CFR part 80; and

(1230) (B) RTCM Recommended Standards for Marine Radar Equipment Installed on Ships of 300 Tons Gross Tonnage and Upwards, RTCM Paper 191-93/SC112-X,

(1261)

TABLE 164.72 – Equipment, Charts or Maps, and Publications of Towing Vessels for 12 Meters or More in Length

	Western Rivers	U.S. Navigable Waters (other than Western Rivers)	Waters seaward of Navigable Waters and 3 NM or more from shore on the Great Lakes
Marine Radar: Towing Vessels of less than 300 GT	RTCM Paper 71-95/SC112-STD Version 1.1 Display Category II[1] Stabilization Category BRAVO	RTCM Paper 71-95/SC112-STD Version 1.1 Display Category II[1] Stabilization Category BRAVO	RTCM Paper 71-95/SC112-STD Version 1.1 Display Category I[2] Stabilization Category ALPHA
Towing Vessels of 300 GT or more	RTCM Paper 191-93/SC112-X Version 1.2 (except the Azimuth stabilization requirement in paragraph 3.10)[1]	RTCM Paper 191-93/SC112-X Version 1.2 (except the Azimuth stabilization requirement in paragraph 3.10)[1]	RTCM Paper 191-93/SC112-X Version 1.2[1]
Searchlight	X	X	X
VHF-FM Radio	X	X	X
Magnetic Compass	X[3]	X	X
Swing Meter	X[3]		
Echo Depth-sounding Device		X	X
Electronic Position Fixing Device			X
Charts or Maps	(1) Large enough scale (2) Current edition or currently corrected edition	(1) Large enough scale (2) Current edition or currently corrected edition	(1) Large enough scale (2) Currently corrected edition
General Publications	(1) U.S. Coast Guard Light List (2) Notices to Navigation or Local Notices to Mariners (3) River-current Tables	(1) U.S. Coast Guard Light List (2) Local Notices to Mariners (3) Tidal-current Tables (4) Tide Tables (5) U.S. Coast Pilot	(1) U.S. Coast Guard Light List (2) Local Notices to Mariners (3) Tidal-current Tables (4) Tide Tables (5) U.S. Coast Pilot

Notes:
[1] Towing vessels with existing radar must meet this requirement by August 2, 1998.
[2] Towing vessels with existing radar must meet this requirement by August 2, 1998 but do not need to meet the display and stabilization requirements until August 2, 2001.
[3] A towing vessel may carry either a swing-meter or a magnetic compass.

Version 1.2 except the requirements for azimuth stabilization in paragraph 3.10.

(1231) (iv) For a vessel of 300 tons gross tonnage or more that engages in towing seaward of navigable waters of the U.S. or more than three nautical miles from shore on the Great Lakes, the radar must meet–

(1232) (A) The requirements of the FCC specified by 47 CFR Part 80; and

(1233) (B) RTCM Recommended Standards for Marine Radar Equipment Installed on Ships of 300 Tons Gross Tonnage and Upwards, RTCM Paper 191-93/SC112-X, Version 1.2.

(1234) (v) A towing vessel with an existing radar must meet the applicable requirements of paragraphs (a)(1) (i) through (iv) of this section by August 2, 1998; except that a towing vessel with an existing radar must meet the display and stabilization requirements of paragraph (a)(1)(ii)(B) of this section by August 2, 2001.

(1235) (2) *Searchlight*. A searchlight, directable from the vessel's main steering station and capable of illuminating objects at a distance of at least two times the length of the tow.

(1236) (3) *VHF-FM Radio*. An installation or multiple installations of VHF-FM radios as prescribed by part 26 of this chapter and 47 CFR part 80, to maintain a continuous listening watch on the designated calling channel, VHF-FM Channel 13 (except on portions of the Lower Mississippi River, where VHF-FM Channel 67 is the designated calling channel), and to separately monitor the International Distress and Calling Channel, VHF-FM Channel 16, except when transmitting or receiving traffic on other VHF-FM channels or when participating in a Vessel Traffic Service (VTS) or monitoring a channel of a VTS. (Each U.S. towing vessel of 26 feet (about 8 meters) or more in length, except a public vessel, must hold a ship-radio-station license for radio transmitters (including radar and EPIRBs), and each operator must hold a restricted operator's license or higher. To get an application for either license, call (800) 418-FORM or (202) 418-FORM, or write to the FCC; Wireless Bureau, Licensing Division; 1270 Fairfield Road; Gettysburg, PA 17325-7245.)

(1237) (4) *Magnetic Compass*. Either–

(1238) (i) An illuminated swing-meter or an illuminated card-type magnetic steering compass readable from the vessel's main steering station, if the vessel engages in towing exclusively on Western Rivers; or

(1239) (ii) An illuminated card-type magnetic steering compass readable from the vessel's main steering station.

(1240) (5) *Echo Depth-Sounding Device*. By August 2, 2001, an echo depth-sounding device readable from the vessel's main steering station, unless the vessel engages in towing exclusively on Western Rivers.

(1241) (6) *Electronic Position-Fixing Device*. An electronic position-fixing device, a satellite navigational system such as the Global Positioning System (GPS) as required by §164.41, if the vessel engages in towing seaward of navigable waters of the U.S. or more than three nautical miles from shore on the Great Lakes.

(1242) (b) Each towing vessel must carry on board and maintain the following:

(1243) (1) *Charts or maps*. Marine charts or maps of the areas to be transited, published by the National Ocean Service (NOS), the ACOE, or a river authority that satisfy the following requirements.

(1244) (i) The charts or maps must be of a large enough scale and have enough detail to make safe navigation of the areas possible.

(1245) (ii) The charts or maps must be either–

(1246) (A) Current editions or currently corrected editions, if the vessel engages in towing exclusively on navigable waters of the U.S., including Western Rivers; or

(1247) (B) Currently corrected editions, if the vessel engages in towing seaward of navigable waters of the U.S. or more than three nautical miles from shore on the Great Lakes.

(1248) (iii) The charts or maps may be, instead of charts or maps required by paragraphs (b)(1) (i) and (ii) of this section, currently corrected marine charts or maps, or applicable extracts, published by a foreign government. These charts or maps, or applicable extracts, must contain information similar to that on the charts or maps required by paragraphs (b)(1) (i) and (ii) of the section, be of large enough scale, and have enough detail to make safe navigation of the areas possible, and must be currently corrected.

(1249) (2) *General publications*. A currently corrected edition of, or an applicable currently corrected extract from, each of the following publications for the area to be transited:

(1250) (i) If the vessel is engaged in towing exclusively on Western Rivers–

(1251) (A) U.S. Coast Guard Light List;

(1252) (B) Applicable Notices to Navigation published by the ACOE, or Local Notices to Marines (LNMs) published by the Coast Guard, for the area to be transited, when available; and

(1253) (C) Tidal-current tables published by private entities using data provided by the NOS, or river-current tables published by a river authority;

(1254) (ii) if the vessel is engaged other than in towing exclusively on Western Rivers–

(1255) (A) Coast Guard Light List;

(1256) (B) Notices to Mariners published by the National Geospatial-Intelligence Agency, or LNMs published by the Coast Guard;

(1257) (C) Tidal-current tables published by private entities using data provided by the NOS, or river-current tables published by ACOE or a river authority:

(1258) (D) Tide tables published by private entities using data provided by the NOS; and

(1259) (E) U.S. Coast Pilot.

(1260) (c) Table 164.72, following, summarizes the navigational-safety equipment, charts or maps, and publications required for towing vessels of 12 meters or more in length engaged in towing:

(1262)

§164.74 Towline and terminal gear for towing astern.

(1263) (a) *Towline*. The owner, master, or operator of each vessel towing astern shall ensure that the strength of each towline is adequate for its intended service, considering at least the following factors:

(1264) (1) The size and material of each towline must be–

(1265) (i) Appropriate for the horsepower or bollard pull of the vessel;

(1266) (ii) Appropriate for the static loads and dynamic loads expected during the intended service;

(1267) (iii) Appropriate for the sea conditions expected during the intended service;

(1268) (iv) Appropriate for exposure to the marine environment and to any chemicals used or carried on board the vessel;

(1269) (v) Appropriate for the temperatures of normal stowage and service on board the vessel;

(1270) (vi) Compatible with associated navigational-safety equipment; and

(1271) (vii) Appropriate for the likelihood of mechanical damage.

(1272) (2) Each towline as rigged must be–

(1273) (i) Free of knots;

(1274) (ii) Spliced with a thimble, or have a poured socket at its end; and

(1275) (iii) Free of wire clips except for temporary repair, for which the towline must have a thimble and either five wire clips or as many wire clips as the manufacturer specifies for the nominal diameter and construction of the towline, whichever is more.

(1276) (3) The condition of each towline must be monitored through the–

(1277) (i) Keeping on board the towing vessel or in company files of a record of the towline's initial minimum breaking strength as determined by the manufacturer, by a classification ("class") society authorized in §157.04 of this chapter, or by a tensile test that meets API Specifications 9A, Specification for Wire Rope, Section 3; ASTM D 4268 (incorporated by reference, see §164.03), Standard Test Method for Testing Fiber Ropes; or Cordage Institute CIA 3, Standard Test Methods for Fiber Rope Including Standard Terminations;

(1278) (ii) If the towline is purchased from another owner, master, or operator of a vessel with the intent to use it as a towline or if it is retested for any reason, keeping on board the towing vessel or in company files of a record of each retest of the towline's minimum breaking strength as determined by a class society authorized in §157.04 of this chapter or by a tensile test that meets API Specification 9A, Section 3; ASTM D 4268 (incorporated

by reference, see §164.03); or Cordage Institute CIA 3, Standard Test Methods;

(1279) (iii) Conducting visual inspections of the towline in accordance with the manufacturer's recommendations, or at least monthly, and whenever the serviceability of the towline is in doubt (the inspections being conducted by the owner, master, or operator, or by a person on whom the owner, master, or operator confers the responsibility to take corrective measures appropriate for the use of the towline);

(1280) (iv) Evaluating the serviceability of the whole towline or any part of the towline, and removing the whole or part from service either as recommended by the manufacturer or a class society authorized in §157.04 of this chapter or in accordance with a replacement schedule developed by the owner, master, or operator that accounts for at least the–

(1281) (A) Nautical miles on, or time in service of, the towline;

(1282) (B) Operating conditions experienced by the towline;

(1283) (C) History of loading of the towline;

(1284) (D) Surface condition, including corrosion and discoloration, of the towline;

(1285) (E) Amount of visible damage to the towline;

(1286) (F) Amount of material deterioration indicated by measurements of diameter and, if applicable, measurements of lay extension of the towline; and

(1287) (G) Point at which a tensile test proves the minimum breaking strength of the towline inadequate by the standards of paragraph (a)(1) of this section, if necessary; and

(1288) (v) Keeping on board the towing vessel or in company files of a record of the material condition of the towline when inspected under paragraphs (a)(3)(iii) and (iv) of this section. Once this record lapses for three months or more, except when a vessel is laid up or out of service or has not deployed its towline, the owner, master, or operator shall retest the towline or remove it from service.

(1289) (b) *Terminal gear*. The owner, master, or operator of each vessel towing astern shall ensure that the gear used to control, protect, and connect each towline meets the following criteria:

(1290) (1) The material and size of the terminal gear are appropriate for the strength and anticipated loading of the towline and for the environment;

(1291) (2) Each connection is secured by at least one nut with at least one cotter pin or other means of preventing its failure;

(1292) (3) The lead of the towline is appropriate to prevent sharp bends in the towline from fairlead blocks, chocks, or tackle;

(1293) (4) There is provided a method, whether mechanical or non-mechanical, that does not endanger operating personnel but that easily releases the towline;

(1294) (5) The towline is protected from abrasion or chafing by chafing gear, lagging, or other means;

(1295) (6) Except on board a vessel towing in ice on Western Rivers or one using a towline of synthetic or natural fiber, there is fitted a winch that evenly spools and tightly winds the towline; and

(1296) (7) If a winch is fitted, there is attached to the main drum a brake that has holding power appropriate for the horsepower or bollard pull of the vessel and can be operated without power to the winch.

(1297)

§164.76 Towline and terminal gear for towing alongside and pushing ahead.

(1298) The owner, master, or operator of each vessel towing alongside or pushing ahead shall ensure the face wires, spring lines, and push gear used–

(1299) (a) Are appropriate for the vessel's horsepower;

(1300) (b) Are appropriate for the arrangement of the tow;

(1301) (c) Are frequently inspected; and

(1302) (d) Remain serviceable.

(1303)

§164.78 Navigation under way: Towing vessels.

(1304) (a) The owner, master, or operator of each vessel towing shall ensure that each person directing and controlling the movement of the vessel–

(1305) (1) Understands the arrangement of the tow and the effects of maneuvering on the vessel towing and on the vessel, barge, or object being towed;

(1306) (2) Can fix the position of the vessel using installed navigational equipment, aids to navigation, geographic reference-points, and hydrographic contours;

(1307) (3) Does not fix the position of the vessel using buoys alone (Buoys are aids to navigation placed in approximate positions either to alert mariners to hazards to navigation or to indicate the orientation of a channel. They may not maintain exact charted positions, because strong or varying currents, heavy seas, ice, and collisions with vessels can move or sink them or set them adrift. Although they may corroborate a position fixed by other means, they cannot fix a position; however, if no other aids are available, buoys alone may establish an estimated position.);

(1308) (4) Evaluates the danger of each closing visual or radar contact;

(1309) (5) Knows and applies the variation and deviation, where a magnetic compass is fitted and where charts or maps have enough detail to enable this type of correction;

(1310) (6) Knows the speed and direction of the current, and the set, drift, and tidal state for the area to be transited;

(1311) (7) Proceeds at a safe speed taking into account the weather, visibility, density of traffic, draft of tow, possibility of wake damage, speed and direction of the current, and local speed-limits; and

(1312) (8) Monitors the voyage plan required by §164.80.

(1313) (b) The owner, master, or operator of each vessel towing shall ensure that the tests and inspections required by §164.80 are conducted and that the results are entered in the log or other record carried on board.

(1314)

§164.80 Tests, inspections, and voyage planning.

(1315) (a) The owner, master, or operator of each towing vessel of less than 1,600 GT shall ensure that the following tests and inspections of gear occur before the vessel embarks on a voyage of more than 24 hours or when each new master or operator assumes command:

(1316) (1) *Steering-systems*. A test of the steering-gear-control system; a test of the main steering gear from the alternative power supply, if installed; a verification of the rudder-angle indicator relative to the actual position of the rudder; and a visual inspection of the steering gear and its linkage.

(1317) (2) *Navigational equipment*. A test of all installed navigational equipment.

(1318) (3) *Communications*. Operation of all internal vessel control communications and vessel-control alarms, if installed.

(1319) (4) *Lights*. Operation of all navigational lights and all searchlights.

(1320) (5) *Terminal gear*. Visual inspection of tackle; of connections of bridle and towing pendant, if applicable; of chafing gear; and the winch brake, if installed.

(1321) (6) *Propulsion systems*. Visual inspection of the spaces for main propulsion machinery, of machinery, and of devices for monitoring machinery.

(1322) (b) The owner, master, or operator of each towing vessel of 1,600 GT or more shall ensure that the following tests of equipment occur at the frequency required by §164.25 and that the following inspections of gear occur before the vessel embarks on a voyage of more than 24 hours or when each new master or operator assumes command:

(1323) (1) *Navigational equipment*. Tests of onboard equipment as required by §164.25.

(1324) (2) *Terminal gear*. Visual inspection of tackle; of connections of bridle and towing pendant, if applicable; of chafing gear; and of the winch brake, if installed.

(1325) (c)(1) The voyage-planning requirements outlined in this section do not apply to you if your towing vessel is–

(1326) (i) Used solely for any of the following services or any combination of these services–

(1327) (A) Within a limited geographic area, such as fleeting-area for barges or a commercial facility, and used for restricted service, such as making up or breaking up larger tows:

(1328) (B) For harbor assist;

(1329) (C) For assistance towing as defined by 46 CFR 10.103;

(1330) (D) For response to emergency or pollution;

(1331) (ii) A public vessel that is both owned, or demise chartered, and operated by the United States Government or by a government of a foreign country; and that is not engaged in commercial service;

(1332) (iii) A foreign vessel engaged in innocent passage; or

(1333) (iv) Exempted by the Captain of the Port (COTP).

(1334) (2) If you think your towing vessel should be exempt from these voyage planning requirements for a specified route, you should submit a written request to the appropriate COTP. The COTP will provide you with a written response granting or denying your request.

(1335) (3) If any part of a towing vessel's intended voyage is seaward of the baseline (*i.e.*, the shoreward boundary) of the territorial sea of the U.S., then the owner, master, or operator of the vessel, employed to tow a barge or barges, must ensure that the voyage with the barge or barges is planned, taking into account all pertinent information before the vessel embarks on the voyage. The master must check the planned route for proximity to hazards before the voyage begins. During a voyage, if a decision is made to deviate substantially from the planned route, then the master or mate must plan the new route before deviating from the planned route. The voyage plan must follow company policy and consider the following (related requirements noted in parentheses):

(1336) (i) Applicable information from nautical charts and publications (also see paragraph (b) of section 164.72), including Coast Pilot, Coast Guard Light List, and Coast Guard Local Notice to Mariners for the port of departures, all ports of call, and the destination;

(1337) (ii) Current and forecast weather, including visibility, wind, and sea state for the port of departure, all ports of call, and the destination (also see paragraphs (a)(7) of section 164.78 and (b) of section 164.82);

(1338) (iii) Data on tides and currents for the port of departure, all ports of call, and the destination, and the river stages and forecast, if appropriate;

(1339) (iv) Forward and after drafts of the barge or barges and under-keel and vertical clearances (air-gaps) for all bridges, ports, and berthing areas;

(1340) (v) Pre-departure checklists;

(1341) (vi) Calculated speed and estimated time of arrival at proposed waypoints;

(1342) (vii) Communication contacts at any Vessel Traffic Services, bridges, and facilities, and any port-specific requirements for VHF radio;

(1343) (viii) Any master's or operator's standings orders detailing closest points of approach, special conditions, and critical maneuvers; and

(1344) (ix) Whether the towing vessel has sufficient power to control the tow under all foreseeable circumstances.

(1345)

§164.82 Maintenance, failure, and reporting.

(1346) (a) *Maintenance*. The owner, master, or operator of each towing vessel shall maintain operative the navigational-safety equipment required by §164.72.

(1347) (b) *Failure*. If any of the navigational-safety equipment required by §164.72 fails during a voyage, the owner, master, or operator of the towing vessel shall exercise due diligence to repair it at the earliest practicable time. He or she shall enter its failure in the log or other record carried on board. The failure of equipment, in itself, does not constitute a violation of this

rule; nor does it constitute unseaworthiness; nor does it obligate an owner, master, or operator to moor or anchor the vessel. However, the owner, master, or operator shall consider the state of the equipment--along with such factors as weather, visibility, traffic, and the dictates of good seamanship--in deciding whether it is safe for the vessel to proceed.

(1348) (c) *Reporting*. The owner, master, or operator of each towing vessel whose equipment is inoperative or otherwise impaired while the vessel is operating within a Vessel Traffic Service (VTS) Area shall report the fact as required by 33 CFR 161.124. (33 CFR 161.124 requires that each user of a VTS report to the Vessel Traffic Center as soon as practicable:

(1349) (1) Any absence or malfunction of vessel-operating equipment for navigational safety, such as propulsion machinery, steering gear, radar, gyrocompass, echo depth-sounding or other sounding device, automatic dependent surveillance equipment, or navigational lighting;

(1350) (2) Any condition on board the vessel likely to impair navigation, such as shortage of personnel or lack of current nautical charts or maps, or publications; and

(1351) (3) Any characteristics of the vessel that affect or restrict the maneuverability of the vessel, such as arrangement of cargo, trim, loaded condition, under-keel clearance, and speed.)

(1352) (d) *Deviation and authorization*. The owner, master, or operator of each towing vessel unable to repair within 96 hours an inoperative marine radar required by §164.72(a) shall so notify the Captain of the Port (COTP) and shall seek from the COTP both a deviation from the requirements of this section and an authorization for continued operation in the area to be transited. Failure of redundant navigational-safety equipment, including but not limited to failure of one of two installed radars, where each satisfies §164.72(a), does not necessitate either a deviation or an authorization.

(1353) (1) The initial notice and request for a deviation and an authorization may be spoken, but the request must also be written. The written request must explain why immediate repair is impracticable, and state when and by whom the repair will be made.

(1354) (2) The COTP, upon receiving even a spoken request, may grant a deviation and an authorization from any of the provisions of §§164.70 through 164.82 for a specified time if he or she decides that they would not impair the safe navigation of the vessel under anticipated conditions.

(1355)

Part 165–Regulated Navigation Areas and Limited Access Areas

(1356)

Subpart A–General

(1357)

§165.1 Purpose of part.

(1358) The purpose of this part is to–

(1359) (a) Prescribe procedures for establishing different types of limited or controlled access areas and regulated navigation areas;

(1360) (b) Prescribe general regulations for different types of limited or controlled access areas and regulated navigation areas;

(1361) (c) Prescribe specific requirements for established areas; and

(1362) (d) List specific areas and their boundaries.

(1363)

§165.3 Definitions.

(1364) The following definitions apply to this part:

(1365) *Credential* means any or all of the following:

(1366) (1) Merchant mariner's document.

(1367) (2) Merchant mariner's license.

(1368) (3) STCW endorsement.

(1369) (4) Certificate of registry.

(1370) (5) Merchant mariner credential.

(1371) *Merchant mariner credential or MMC* means the credential issued by the Coast Guard under 46 CFR part 10. It combines the individual merchant mariner's document, license, and certificate of registry enumerated in 46 U.S.C. subtitle II part E as well as the STCW endorsement into a single credential that serves as the mariner's qualification document, certificate of identification, and certificate of service.

(1372)

§165.5 Establishment procedures.

(1373) (a) A safety zone, security zone, or regulated navigation area may be established on the initiative of any authorized Coast Guard official.

(1374) (b) Any person may request that a safety zone, security zone, or regulated navigation area be established. Except as provided in paragraph (c) of this section, each request must be submitted in writing to either the Captain of the Port or District Commander having jurisdiction over the location as described in part 3 of this chapter, and include the following:

(1375) (1) The name of the person submitting the request;

(1376) (2) The location and boundaries of the safety zone, security zone, or regulated navigation area;

(1377) (3) The date, time, and duration that the safety zone, security zone, or regulated navigation area should be established;

(1378) (4) A description of the activities planned for the safety zone, security zone, or regulated navigation area;

(1379) (5) The nature of the restrictions or conditions desired; and

(1380) (6) The reason why the safety zone, security zone, or regulated navigation area is necessary.

(1381) (c) Safety Zones and Security Zones. If, for good cause, the request for a safety zone or security zone is made less than 5 working days before the zone is to be established, the request may be made orally, but it must be followed by a written request within 24 hours.

(1382) (Requests for safety zones, security zones, and regulated navigation areas are approved by the Office of Management and Budget under control number 1625–0020)

(1383)

§165.7 Notification.

(1384) (a) The establishment of these limited access areas and regulated navigation areas is considered rulemaking. The procedures used to notify persons of the establishment of these areas vary depending upon the circumstances and emergency conditions. Notification may be made by marine broadcasts, local notice to mariners, local news media, distribution in leaflet form, and on-scene oral notice, as well as publication in the **Federal Register.**

(1385) (b) Notification normally contains the physical boundaries of the area, the reasons for the rule, its estimated duration, and the method of obtaining authorization to enter the area, if applicable, and special navigational rules, if applicable.

(1386)

§165.8 Geographic coordinates.

(1387) Geographic coordinates expressed in terms of latitude or longitude, or both, are not intended for plotting on maps or charts whose referenced horizontal datum is the North American Datum of 1983 (NAD 83), unless such geographic coordinates are expressly labeled NAD 83. Geographic coordinates without the NAD 83 reference may be plotted on maps or charts referenced to NAD 83 only after application of the appropriate corrections that are published on the particular map or chart being used.

(1388)

§165.9 Geographic application of limited and controlled access areas and regulated navigation areas.

(1389) (a) *General*. The geographic application of the limited and controlled access areas and regulated navigation areas in this part are determined based on the statutory authority under which each is created.

(1390) (b) *Safety zones and regulated navigation areas*. These zones and areas are created under the authority of 46 U.S.C. 70001–70041. Safety zones established under 46 U.S.C. 70116 and regulated navigation areas may be established in waters subject to the jurisdiction of the United States as defined in §2.38 of this chapter, including the territorial sea to a seaward limit of 12 nautical miles from the baseline.

(1391) (c) *Security zones*. These zones have two sources of authority–46 U.S.C. chapter 700, and the Act of June 15, 1917, as emended by both the Magnuson Act of August 9, 1950 ("Magnuson Act"), 46 U.S.C. 70051–54, and sec. 104 the Maritime Transportation Security Act of 2002 (Pub. L. 107-295, 116 Stat. 2064). Security zones established under either 46 U.S.C. 70116 or 46 U.S.C. 70051 may be established in waters subject to the jurisdiction of the United States as defined in §2.38 of this chapter, including the territorial sea to a seaward limit of 12 nautical miles from the baseline.

(1392) (d) *Naval vessel protection zones*. These zones are issued under the authority of 14 U.S.C. 91 and 633 and may be established in waters subject to the jurisdiction of the United States as defined in §2.38 of this chapter, including the territorial sea to a seaward limit of 12 nautical miles from the baseline.

(1393)

Subpart B–Regulated Navigation Areas

(1394)

§165.10 Regulated navigation area.

(1395) A regulated navigation area is a water area within a defined boundary for which regulations for vessels navigating within the area have been established under this part.

(1396)

§165.11 Vessel operating requirements (regulations).

(1397) Each District Commander may control vessel traffic in an area which is determined to have hazardous conditions, by issuing regulations–

(1398) (a) Specifying times of vessel entry, movement, or departure to, from, within, or through ports, harbors, or other waters;

(1399) (b) Establishing vessel size, speed, draft limitations, and operating conditions; and

(1400) (c) Restricting vessel operation, in a hazardous area or under hazardous conditions, to vessels which have particular operating characteristics or capabilities which are considered necessary for safe operation under the circumstances.

(1401)

§165.13 General regulations.

(1402) (a) The master of a vessel in a regulated navigation area shall operate the vessel in accordance with the regulations contained in Subpart F.

(1403) (b) No person may cause or authorize the operation of a vessel in a regulated navigation area contrary to the regulations in this Part.

(1404)

Subpart C–Safety Zones

(1405)

§165.20 Safety zones.

(1406) A Safety Zone is a water area, shore area, or water and shore area to which, for safety or environmental purposes, access is limited to authorized persons, vehicles, or vessels. It may be stationary and described

by fixed limits or it may be described as a zone around a vessel in motion.

(1407)

§165.23 General regulations.

(1408) Unless otherwise provided in this part–

(1409) (a) No person may enter a safety zone unless authorized by the COTP or the District Commander;

(1410) (b) No person may bring or cause to be brought into a safety zone any vehicle, vessel, or object unless authorized by the COTP or the District Commander;

(1411) (c) No person may remain in a safety zone or allow any vehicle, vessel, or object to remain in a safety zone unless authorized by the COTP or the District Commander; and

(1412) (d) Each person in a safety zone who has notice of a lawful order or direction shall obey the order or direction of the COTP or District Commander issued to carry out the purposes of this subpart.

(1413)

Subpart D–Security Zones

(1414)

§165.30 Security zones.

(1415) (a) A security zone is an area of land, water, or land and water which is so designated by the Captain of the Port or District Commander for such time as is necessary to prevent damage or injury to any vessel or waterfront facility, to safeguard ports, harbors, territories, or waters of the United States or to secure the observance of the rights and obligations of the United States.

(1416) (b) The purpose of a security zone is to safeguard from destruction, loss, or injury from sabotage or other subversive acts, accidents, or other causes of a similar nature:

(1417) (1) Vessels,

(1418) (2) Harbors,

(1419) (3) Ports, and

(1420) (4) Waterfront facilities:

(1421) in the United States and all territory and water, continental or insular, that is subject to the jurisdiction of the United States.

(1422)

§165.33 General regulations.

(1423) Unless otherwise provided in the special regulations in Subpart F of this part–

(1424) (a) No person or vessel may enter or remain in a security zone without the permission of the Captain of the Port;

(1425) (b) Each person and vessel in a security zone shall obey any direction or order of the Captain of the Port;

(1426) (c) The Captain of the Port may take possession and control of any vessel in the security zone;

(1427) (d) The Captain of the Port may remove any person, vessel, article, or thing from a security zone;

(1428) (e) No person may board, or take or place any article or thing on board, any vessel in a security zone without the permission of the Captain of the Port; and

(1429) (f) No person may take or place any article or thing upon any waterfront facility in a security zone without the permission of the Captain of the Port.

(1430)

Subpart E–Restricted Waterfront Areas

(1431)

§165.40 Restricted Waterfront Areas.

(1432) The Commandant, may direct the COTP to prevent access to waterfront facilities, and port and harbor areas, including vessels and harbor craft therein. This section may apply to persons who do not possess the credentials outlined in §125.09 of this chapter when certain shipping activities are conducted that are outlined in §125.15 of this chapter.

(1433)

Subpart F–Specific Regulated Navigation Areas and Limited Access Areas

(1434)

§165.1701 Port Valdez, Valdez, Alaska-safety zone.

(1435) The waters within the following boundaries are a safety zone–The area within 200 yards of any waterfront facility at the Trans-Alaska Pipeline Valdez Terminal complex or vessels moored or anchored at the Trans-Alaska Pipeline Valdez Terminal complex and the area within 200 yards of any tank vessel maneuvering to approach, moor, unmoor, or depart the Trans-Alaska Pipeline Valdez Terminal complex.

(1436)

§165.1703 Ammunition Island, Port Valdez, Alaska.

(1437) (a) *Location*. The waters within the following boundaries is a safety zone–the area within a radius of 1330 yards of Ammunition Island, centered on latitude 61°07'28"N., longitude 146°18'29"W., (NAD 83) and the vessel moored or anchored at Ammunition Island.

(1438) (b) The area 200 yards off the vessel navigating the Vessel Traffic System from abeam of Naked Island, maneuvering to approach, moor, unmoor at Ammunition Island, or the departure of the Vessel from Ammunition Island.

(1439) (c) *Special regulation*. (1) §165.23 does not apply to paragraph (a) of this section, except when the vessel is moored to Ammunition Island.

(1440) (d) Effective August 25, 1987 Notice of vessels arrival will be made in the Notice to Mariners, Local Notice to Mariners and in the Local Valdez newspaper, prior to the vessel arrival.

(1441)

165.1704 Prince William Sound, Alaska-regulated navigation area.

(1442) (a) The following is a regulated navigation area: The navigable waters of the United States north of a line

drawn from Cape Hinchinbrook Light to Schooner Rock Light, comprising that portion of Prince William Sound between 146°30'W. and 147°20'W. and includes Valdez Arm, Valdez Narrows, and Port Valdez.

(1443) (b) Within the regulated navigation area described in paragraph (a) of this section, §161.60 of this chapter establishes a VTS Special Area for the waters of Valdez Arm, Valdez Narrows, and Port Valdez northeast of a line bearing **307°** True from Tongue Point at 61°02'06"N., 146°40'W.; and southwest of a line bearing **307°** True from Entrance Island Light at 61°05'06N., 146°36'42W.

(1444) (c) *Regulations*. In addition to the requirements set forth in §161.13 and §161.60(c) of this chapter, a tank vessel of 20,000 deadweight tons or more that intends to navigate within the regulated navigation area must:

(1445) (1) Report compliance with Part 164 of this chapter, to the Vessel Traffic Center (VTC);

(1446) (2) Have at least two radiotelephones capable of operating on the designated VTS frequency, one of which is capable of battery operation;

(1447) (3) When steady wind conditions in the VTS Special Area or Port Valdez exceed, or are anticipated to exceed 40 knots, proceed as directed by the VTC (entry into the VTS Special Area and Port Valdez is prohibited);

(1448) (4) When transiting the VTS Special Area, limit speed to 12 knots; and

(1449) (5) If laden and intending to navigate the VTS Special Area, limit speed to 12 knots except between Middle Rock and Potato Point where the speed limit shall be 6 knots; and

(1450) **Note:** Regulations pertaining to Automatic Identification System Shipborne Equipment (AISSE) required capabilities are set forth in Part 164 of this chapter.

(1451)

§165.1709 [Removed]

(1452)

§165.1710 Port Valdez and Valdez Narrows, Valdez, Alaska–security zones.

(1453) (a) *Location*. The following areas are security zones:

(1454) (1) *Trans-Alaska Pipeline (TAPS) Valdez Terminal complex (Terminal), Valdez, Alaska and TAPS tank vessels.* All waters enclosed within a line beginning on the southern shoreline of Port Valdez at 61°05′03.6″ N, 146°25′42″ W; thence northerly to yellow buoy at 61°06′00″ N, 146°25′42″ W; thence east to the yellow buoy at 61°06′00″ N, 146°21′30″ W; thence south to 61°05′06″ N, 146°21′30″ W; thence west along the shoreline to the beginning point.

(1455) (2) *Tank vessel moving security zone*. All waters within 200 yards of any TAPS tank vessel maneuvering to approach, moor, unmoor or depart the TAPS terminal or transiting, maneuvering, laying to or anchored within the boundaries of the Captain of the Port, Prince William Sound Zone described in 33 CFR 3.85–20 (b).

(1456) (3) *Valdez Narrows, Port Valdez, Valdez, Alaska*. All waters 200 yards either side of the Valdez Narrows Tanker Optimum Track line bounded by a line beginning at

(1457) 61°05'15"N., 146°37'18"W.; thence southwest to

(1458) 61°04'00"N., 146°39'52"W.; thence southerly to

(1459) 61°02'32.5"N., 146°41'25"W.; thence northwest to

(1460) 61°02'40.5"N., 146°41'47"W.; thence northeast to

(1461) 61°04'07.5"N., 146°40'15"W.; thence northeast to

(1462) 61°05'22"N., 146°37'38"W.; thence southeast back to the starting point at 61°05'15"N., 146°37'18"W.

(1463) (b) *Regulations*. (1) The general regulations in 33 CFR 165.33 apply to the security zones described in paragraph (a) of this section.

(1464) (2) Tank vessels transiting directly to the TAPS terminal complex, engaged in the movement of oil from the terminal or fuel to the terminal, and vessels used to provide assistance or support to the tank vessels directly transiting to the terminal, or to the terminal itself, and that have reported their movements to the Vessel Traffic Service, as required under 33 CFR part 161 and §165.1704, may operate as necessary to ensure safe passage of tank vessels to and from the terminal.

(1465) (3) All persons and vessels must comply with the instructions of the Coast Guard Captain of the Port and the designated on-scene patrol personnel. These personnel comprise commissioned, warrant, and petty officers of the Coast Guard. Upon being hailed by a vessel displaying a U.S. Coast Guard ensign by siren, radio, flashing light, or other means, the operator of the vessel must proceed as directed. Coast Guard Auxiliary and local or state agencies may be present to inform vessel operators of the requirements of this section and other applicable laws.

(1466)

§165.1711 Security Zones; Waters of the Seventeenth Coast Guard District

(1467) (a) *Definitions*. As used in this section–

(1468) *Alaska Marine Highway System vessel ("AMHS vessel")* means any vessel owned or operated by the Alaska Marine Highway System, including, but not limited to: M/V AURORA, M/V CHENEGA, M/V COLUMBIA, M/V FAIRWEATHER, M/V KENNICOTT, M/V LECONTE, M/V LITUYA, M/V MALASPINA, M/V MATANUSKA, M/V TAKU, and the M/V TUSTUMENA.

(1469) *Designated on Scene Representative* means any U.S. Coast Guard commissioned, warrant or petty officer who has been authorized by the District Commander or local Captain of the Port (COTP), as defined in 33 CFR part 3, subpart 3.85, to act on his or her behalf, or other Federal, State or local law enforcement Officers designated by the COTP.

(1470) *Escorted HCPV or AMHS vessel* means a HCPV or AMHS vessel that is accompanied by one or more Coast Guard assets or Federal, State or local law enforcement agency assets as listed below:

(1471) (1) Coast Guard surface or air asset displaying the Coast Guard insignia.

(1472) (2) State, Federal or local law enforcement assets displaying the applicable agency markings and or equipment associated with the agency.

(1473) *Federal Law Enforcement Officer* means any Federal government law enforcement officer who has authority to enforce federal criminal laws.

(1474) *High Capacity Passenger Vessel ("HCPV")* means a passenger vessel greater than 100 feet in length that is authorized to carry more than 500 passengers for hire.

(1475) *State law enforcement Officer* means any State or local government law enforcement officer who has authority to enforce State or local criminal laws.

(1476) (b) *Location*. The following areas are security zones: all waters within 100 yards around escorted High Capacity Passenger Vessels or escorted Alaska Marine Highway System vessels in the navigable waters of the Seventeenth Coast Guard District as defined in 33 CFR 3.85-1, from surface to bottom.

(1477) (c) *Regulations*. (1) No vessel may approach within 100 yards of an escorted HCPV or escorted AMHS vessel during their transits within the navigable waters of the Seventeenth Coast Guard District.

(1478) (2) Moored or anchored vessels that are overtaken by this moving zone must remain stationary at their location until the escorted vessel maneuvers at least 100 yards away.

(1479) (3) The local Captain of the Port may notify the maritime and general public by marine information broadcast of the periods during which individual security zones have been activated by providing notice in accordance with 33 CFR 165.7.

(1480) (4) Persons desiring to transit within 100 yards of a moving, escorted HCPV or AMHS vessel in the Seventeenth Coast Guard District must contact the designated on scene representative on VHF channel 16 (156.800 MHz) or VHF channel 13 (156.650 MHz) to receive permission.

(1481) (5) If permission is granted to transit within 100 yards of an escorted HCPV or AMHS vessel, all persons and vessels must comply with the instructions of the designated on scene representative.

(1482) (6) All commercial fishing vessels as defined by 46 U.S.C. 2101(11a) while actively engaged in fishing are exempted from the provisions of this section.

(1483)

§165.1712 Safety Zones; Annual Independence Day Firework Displays, Skagway, Haines, and Wrangell, AK.

(1484) (a) Regulated areas. The following areas are permanent safety zones:

(1485) (1) All navigable waters of Taiya Inlet within a 300-yard radius of the fireworks launching point located on the White Pass and Yukon Railway Dock at approximate position 59°26.70′ N, 135°19.58′ W in the vicinity of the mouth of the Small Boat Harbor, Skagway, Alaska;

(1486) (2) All navigable waters of Portage Cove, Haines, AK within a 300-yard radius around the fireworks launch area, centered at approximate position 59°14′16.72″ N, 135°25′35.79″ W; (3) all navigable waters of Wrangell Harbor within a 300-yard radius of the fireworks launch platform centered at approximate position 56°28.223′ N and 132°23.285′ W.

(1487) (b) Effective date. This rule is effective from 10 p.m. until 2:30 a.m., July 3 through July 5, of each year.

(1488) (c) Definitions. The following definitions apply to this section:

(1489) Designated Representative—a "designated representative" is any Coast Guard commissioned, warrant or petty officer of the U.S. Coast Guard who has been designated by the Captain of the Port, to act on his or her behalf.

(1490) (d) Regulations. (1) The general regulations contained in 33 CFR 165.23, as well as the following regulations, apply.

(1491) (2) No vessels, except for fireworks barge and accompanying vessels, will be allowed to transit the safety zones without the permission of the COTP or the designated representative.

(1492) (3) Vessel operators desiring to enter or operate within any of the regulated areas shall contact the COTP or the designated representative via VHF channel 16 or 907-463-2990 (Sector Southeast Alaska command center) to obtain permission to do so.

(1493)

§165.1714 Safety Zone; Alaska Marine Highway System Port Valdez Ferry Terminal, Port Valdez, Valdez, AK.

(1494) (a) *Location*. The following area is a safety zone: All navigable waters of Port Valdez extending 200 yards in all directions from the edges of the Alaska Marine Highway System Terminal dock located in Port Valdez at 61°07′26″ N and 146°21′50″ W.

(1495) (b) *Enforcement period*. The rule will be enforced whenever there is an Alaska Marine Highway System Ferry vessel transiting within the area described in paragraph (a) of this section and there is a Commercial Salmon Fishery Opener that includes the navigable waters within the safety zone. Each enforcement period will be announced by a broadcast notice to mariners when the Commercial Salmon Fishery Opener is announced.

(1496) (c) *Definitions*. The following definitions apply to this section:

(1497) (1) The term ''designated representative'' means any Coast Guard commissioned, warrant or petty officer of the U.S. Coast Guard who has been designated by the Captain of the Port, Prince William Sound, to act on his or her behalf.

(1498) (2) The term ''official patrol vessel'' may consist of any Coast Guard, Coast Guard Auxiliary, state, or local law enforcement vessels assigned or approved by the COTP, Prince William Sound.

(1499) (3) The term ''AMHS vessel'' means any vessel owned or operated by the Alaska Marine Highway System, including, but not limited to: M/V AURORA, M/V

CHENEGA, M/V COLUMBIA, M/V FAIRWEATHER, M/V KENNICOTT, M/V LECONTE, M/V LITUYA, M/V MALASPINA, M/V MATANUSKA, M/V TAKU and M/V TUSTUMENA.

(1500) (d) *Regulations*. (1) The general regulations contained in **33 CFR 165.23**, as well as the requirements in paragraphs (d)(2) through (5) of this section, apply.

(1501) (2) No vessels, except for AMHS ferries and vessels owned or operated by AMHS will be allowed to transit the safety zone without the permission of the COTP Prince William Sound or the designated representative during periods of enforcement.

(1502) (3) All persons and vessels shall comply with the instructions of the COTP or the designated representative. Upon being hailed by a U.S. Coast Guard vessel or other official patrol vessel by siren, radio, flashing light or other means, the operator of the hailed vessel shall proceed as directed.

(1503) (4) Vessel operators desiring to enter or operate within the regulated area may contact the COTP or the designated representative via VHF channel 16 or 907–835–7205 (Prince William Sound Vessel Traffic Service) to request permission to do so.

(1504) (5) The COTP, Prince William Sound may be aided by other Federal, state, borough, and local law enforcement officials in the enforcement of this regulation. In addition, members of the Coast Guard Auxiliary may be present to inform vessel operators of this regulation.

(1505)

Subpart G–Protection of Naval Vessels

(1506)

§165.2010 Purpose.

(1507) This subpart establishes the geographic parameters of naval vessel protection zones surrounding U.S. naval vessels in the navigable waters of the United States. This subpart also establishes when the U.S. Navy will take enforcement action in accordance with the statutory guideline of 14 U.S.C. 91. Nothing in the rules and regulations contained in this subpart shall relieve any vessel, including U.S. naval vessels, from the observance of the Navigation Rules. The rules and regulations contained in this subpart supplement, but do not replace or supercede, any other regulation pertaining to the safety or security of U.S. naval vessels.

(1508)

§165.2015 Definitions.

(1509) The following definitions apply to this subpart:

(1510) *Atlantic Area* means that area described in 33 CFR 3.04–1 Atlantic Area.

(1511) *Large U.S. naval vessel* means any U.S. naval vessel greater than 100 feet in length overall.

(1512) *Naval defensive sea area* means those areas described in 32 CFR part 761.

(1513) *Naval vessel protection zone* is a 500-yard regulated area of water surrounding large U.S. naval vessels that is necessary to provide for the safety or security of these U.S. naval vessels.

(1514) *Navigable waters of the United States* means those waters defined as such in 33 CFR part 2.

(1515) *Navigation rules* means the Navigation Rules, International-Inland.

(1516) *Official patrol* means those personnel designated and supervised by a senior naval officer present in command and tasked to monitor a naval vessel protection zone, permit entry into the zone, give legally enforceable orders to persons or vessels within the zone, and take other actions authorized by the U.S. Navy.

(1517) *Pacific Area* means that area described in 33 CFR 3.04–3 Pacific Area.

(1518) *Restricted area* means those areas established by the Army Corps of Engineers and set out in 33 CFR part 334.

(1519) *Senior naval officer present in command* is, unless otherwise designated by competent authority, the senior line officer of the U.S. Navy on active duty, eligible for command at sea, who is present and in command of any part of the Department of Navy in the area.

(1520) *U.S. naval vessel* means any vessel owned, operated, chartered, or leased by the U.S. Navy; any pre-commissioned vessel under construction for the U.S. Navy, once launched into the water; and any vessel under the operational control of the U.S. Navy or a Combatant Command.

(1521) *Vessel* means every description of watercraft or other artificial contrivance used, or capable of being used, as a means of transportation on water, except U.S. Coast Guard or U.S. naval vessels.

(1522)

§165.2020 Enforcement authority.

(1523) (a) *Coast Guard*. Any Coast Guard commissioned, warrant or petty officer may enforce the rules and regulations contained in this subpart.

(1524) (b) *Senior naval officer present in command*. In the navigable waters of the United States, when immediate action is required and representatives of the Coast Guard are not present or not present in sufficient force to exercise effective control in the vicinity of large U.S. naval vessels, the senior naval officer present in command is responsible for the enforcement of the rules and regulations contained in this subpart to ensure the safety and security of all large naval vessels present. In meeting this responsibility, the senior naval officer present in command may directly assist any Coast Guard enforcement personnel who are present.

(1525)

§165.2030 Pacific Area.

(1526) (a) This section applies to any vessel or person in the navigable waters of the United States within the boundaries of the U.S. Coast Guard Pacific Area, which includes the Eleventh, Thirteenth, Fourteenth, and Seventeenth U.S. Coast Guard Districts.

(1527) **Note to paragraph (a):** The boundaries of the U.S. Coast Guard Pacific Area and the Eleventh, Thirteenth,

Fourteenth, and Seventeenth U.S. Coast Guard Districts are set out in 33 CFR part 3.

(1528) (b) A naval vessel protection zone exists around U.S. naval vessels greater than 100 feet in length overall at all times in the navigable waters of the United States, whether the large U.S. naval vessel is underway, anchored, moored, or within a floating dry dock, except when the large naval vessel is moored or anchored within a restricted area or within a naval defensive sea area.

(1529) (c) The Navigation Rules shall apply at all times within a naval vessel protection zone.

(1530) (d) When within a naval vessel protection zone, all vessels shall operate at the minimum speed necessary to maintain a safe course, unless required to maintain speed by the Navigation Rules, and shall proceed as directed by the Coast Guard, the senior naval officer present in command, or the official patrol. When within a naval vessel protection zone, no vessel or person is allowed within 100 yards of a large U.S. naval vessel unless authorized by the Coast Guard, the senior naval officer present in command, or official patrol.

(1531) (e) To request authorization to operate within 100 yards of a large U.S. naval vessel, contact the Coast Guard, the senior naval officer present in command, or the official patrol on VHF-FM channel 16.

(1532) (f) When conditions permit, the Coast Guard, senior naval officer present in command, or the official patrol should:

(1533) (1) Give advance notice on VHF-FM channel 16 of all large U.S. naval vessel movements;

(1534) (2) Permit vessels constrained by their navigational draft or restricted in their ability to maneuver to pass within 100 yards of a large U.S. naval vessel in order to ensure a safe passage in accordance with the Navigation Rules; and

(1535) (3) Permit commercial vessels anchored in a designated anchorage area to remain at anchor when within 100 yards of passing large U.S. naval vessels; and

(1536) (4) Permit vessels that must transit via a navigable channel or waterway to pass within 100 yards of a moored or anchored large U.S. naval vessel with minimal delay consistent with security.

(1537) **Note to paragraph (f):** The listed actions are discretionary and do not create any additional right to appeal or otherwise dispute a decision of the Coast Guard, the senior naval officer present in command, or the official patrol.

(1538)

Part 166–Shipping Safety Fairways

(1539)

Subpart A–General

(1540)

§166.100 Purpose.

(1541) The purpose of these regulations is to establish and designate shipping safety fairways and fairway anchorages to provide unobstructed approaches for vessels using U.S. ports.

(1542)

§166.103 Geographic Coordinates.

(1543) Geographic coordinates expressed in terms of latitude or longitude, or both, are not intended for plotting on maps or charts whose referenced horizontal datum is the North American Datum of 1983 (NAD 83), unless such geographic coordinates are expressly labeled NAD 83. Geographic coordinates without the NAD 83 reference may be plotted on maps or charts referenced to NAD 83 only after application of the appropriate corrections that are published on the particular map or chart being used.

(1544)

§166.105 Definitions.

(1545) (a) *Shippings safety fairway* or *fairway* means a lane or corridor in which no artificial island or fixed structure, whether temporary or permanent, will be permitted. Temporary underwater obstacles may be permitted under certain conditions described for specific areas in Subpart B. Aids to navigation approved by the U.S. Coast Guard may be established in a fairway.

(1546) (b) *Fairway anchorage* means an anchorage area contiguous to and associated with a fairway, in which fixed structures may be permitted within certain spacing limitations, as described for specific areas in Subpart B.

(1547)

§166.110 Modification of areas.

(1548) Fairways and fairway anchorages are subject to modification in accordance with 33 U.S.C. 1223(c); 92 Stat. 1473.

(1549)

§166.400 Areas along the coast of Alaska.

(1550) (a) *Purpose*. Fairways, as described in this section, are established to control the erection of structures therein to provide safe vessel routes along the coast of Alaska.

(1551) (b) *Designated Areas*. (1) *Prince William Sound Safety Fairway. (i) Hinchinbrook Entrance Safety Fairway*. The area enclosed by rhumb lines joining points at:

(1552) 59°59'00"N., 145°27'24"W.

(1553) 60°13'18"N., 146°38'06"W.

(1554) 60°11'24"N., 146°47'00"W.

(1555) 59°55'00"N., 145°42'00"W.

(1556) (ii) *Gulf to Hinchinbrook Safety Fairway* (recommended for inbound vessel traffic). The area enclosed by rhumb lines joining points at:

(1557) 59°15'42"N., 144°02'07"W.

(1558) 59°59'00"N., 145°27'24"W.

(1559) 59°58'00"N., 145°32'12"W.

(1560) 59°14'18"N., 144°04'53"W.

(1561) (iii) *Hinchinbrook to Gulf Safety Fairway* (recommended for outbound vessel traffic). The area enclosed by rhumb lines joining points at:

(1562) 59°15'41"N., 144°23'35"W.

(1563) 59°56'00"N., 145°37'39"W.

(1564) 59°55'00"N., 145°42'00"W.

(1565) 59°14'19"N., 144°26'25"W.

(1566) (2) *Unimak Pass Safety Fairway*. (i) *East/West Safety Fairway*. The area enclosed by rhumb lines joining points at:

(1567) 54°25'58"N., 165°42'24"W.

(1568) 54°22'50"N., 165°06'54"W.

(1569) 54°22'10"N., 164°59'29"W.

(1570) 54°07'58"N., 162°19'25"W.

(1571) 54°04'02"N., 162°20'35"W.

(1572) 54°22'02"N., 165°43'36"W.

(1573) (ii) *North/South Safety Fairway*. The area enclosed by rhumb lines joining points at:

(1574) 54°42'28"N., 165°16'19"W.

(1575) 54°43'32"N., 165°09'41"W;

(1576) 54°22'50"N., 165°06'54"W.

(1577) 54°22'10"N., 164°59'29"W.

(1578)

Part 167–Offshore Traffic Separation Schemes

(1579)

Subpart A–General

(1580)

§167.1 Purpose.

(1581) The purpose of the regulations in this part is to establish and designate traffic separation schemes and precautionary areas to provide access routes for vessels proceeding to and from U.S. ports.

(1582)

§167.3 Geographic coordinates.

(1583) Geographic coordinates are defined using North American 1927 Datum (NAD 27) unless indicated otherwise.

(1584)

§167.5 Definitions.

(1585) (a) *Area to be avoided* means a routing measure comprising an area within defined limits in which either navigation is particularly hazardous or it is exceptionally important to avoid casualties and which should be avoided by all ships or certain classes of ships.

(1586) (b) *Traffic separation scheme* (TSS) means a designated routing measure which is aimed at the separation of opposing streams of traffic by appropriate means and by the establishment of traffic lanes.

(1587) (c) *Traffic lane* means an area within defined limits in which one-way traffic is established. Natural obstacles, including those forming separation zones, may constitute a boundary.

(1588) (d) *Separation zone or line* means a zone or line separating the traffic lanes in which ships are proceeding in opposite or nearly opposite directions; or separating a traffic lane from the adjacent sea area; or separating traffic lanes designated for particular classes of ships proceeding in the same direction.

(1589) (e) *Precautionary area* means a routing measure comprising an area within defined limits where ships must navigate with particular caution and within which the direction of traffic flow may be recommended.

(1590) (f) *Deep-water route* means an internationally recognized routing measure primarily intended for use by ships that, because of their draft in relation to the available depth of water in the area concerned, require the use of such a route.

(1591) (g) *Two-way route* means a route within defined limits inside which two-way traffic is established, aimed at providing safe passage of ships through waters where navigation is difficult or dangerous.

(1592)

§167.10 Operating rules.

(1593) The operator of a vessel in a TSS shall comply with Rule 10 of the International Regulations for Preventing Collisions at Sea, 1972, as amended.

(1594)

§167.15 Modification of schemes.

(1595) (a) A traffic separation scheme or precautionary area described in this part may be permanently amended in accordance with 33 U.S.C. 1223 (92 Stat. 1473), and with international agreements.

(1596) (b) A traffic separation scheme or precautionary area in this part may be temporarily adjusted by the Commandant of the Coast Guard in an emergency, or to accommodate operations which would create an undue hazard for vessels using the scheme or which would contravene Rule 10 of the International Regulations for Preventing Collisions at Sea, 1972. Adjustment may be in the form of a temporary traffic lane shift, a temporary suspension of a section of the scheme, a temporary precautionary area overlaying a lane, or other appropriate measure. Adjustments will only be made where, in the judgment of the Coast Guard, there is no reasonable alternative means of conducting an operation and navigation safety will not be jeopardized by the adjustment. Notice of adjustments will be made in the appropriate Notice to Mariners and in the FEDERAL REGISTER. Requests by members of the public for temporary adjustments to traffic separation schemes must be submitted 150 days prior to the time the adjustment is desired. Such requests, describing the interference that would otherwise occur to a TSS, should

be submitted to the District Commander of the Coast Guard District in which the TSS is located.

(1597)

§167.1700 In Prince William Sound: General

(1598) The Prince William Sound Traffic Separation Scheme consists of four parts: Prince William Sound Traffic Separation Scheme, Valdez Arm Traffic Separation Scheme, and two precautionary areas. These parts are described in §§167.1701 through 167.1703. The geographic coordinates in §§167.1701 through 167.1703 are defined using North American Datum 1983 (NAD 83).

(1599)

§167.1701 In Prince William Sound: Precautionary areas.

(1600) (a) *Cape Hinchinbrook*. A precautionary area is established and is bounded by a line connecting the following geographical positions:

(1601) 60°20.59'N., 146°48.18'W.
(1602) 60°12.67'N., 146°40.43'W.
(1603) 60°11.01'N., 146°28.65'W.
(1604) 60°05.47'N., 146°00.01'W.
(1605) 60°00.81'N., 146°03.53'W.
(1606) 60°05.44'N., 146°27.58'W.
(1607) 59°51.80'N., 146°37.51'W.
(1608) 59°53.52'N., 146°46.84'W.
(1609) 60°07.76'N., 146°36.24'W.
(1610) 60°11.51'N., 146°46.64'W.
(1611) 60°20.60'N., 146°54.31'W.

(1612) (b) *Bligh Reef*. A precautionary area is established of radius 1.5 miles centered at geographical position 60°49.63'N., 147°01.33'W.

(1613) (c) *Pilot boarding area*. A pilot boarding area located near the center of the Bligh Reef precautionary area is established. Regulations for vessels operating in these areas are in §165.1109(d) of this chapter.

(1614)

§167.1702 In Prince William Sound: Prince William Sound Traffic Separation Scheme.

(1615) The Prince William Sound Traffic Separation Scheme consists of the following:

(1616) (a) A separation zone bounded by a line connecting the following geographic positions:

(1617) 60°20.77'N., 146°52.31'W.
(1618) 60°48.12'N., 147°01.78'W.
(1619) 60°48.29'N., 146°59.77'W.
(1620) 60°20.93'N., 146°50.32'W.

(1621) (b) A traffic lane for northbound traffic between the separation zone and a line connecting the following geographical positions:

(1622) 60°20.59'N., 146°48.18'W.
(1623) 60°49.49'N., 146°58.19'W.

(1624) (c) A traffic lane for southbound traffic between the separation zone and a line connecting the following geographical positions:

(1625) 60°49.10'N., 147°04.19'W.
(1626) 60°20.60'N., 146°54.31'W.

(1627)

§167.1703 In Prince William Sound: Valdez Arm Traffic Separation Scheme.

(1628) The Valdez Arm Traffic Separation Scheme consists of the following:

(1629) (a) A separation zone bounded by a line connecting the following geographical positions:

(1630) 60°51.08'N., 147°00.33'W.
(1631) 60°58.60'N., 146°48.10'W.
(1632) 60°58.30'N., 146°47.10'W.
(1633) 60°50.45'N., 146°58.75'W.

(1634) (b) A traffic lane for northbound traffic between the separation zone and a line connecting the following geographical positions:

(1635) 60°49.39'N., 146°58.19'W.
(1636) 60°58.04'N., 146°46.52'W.

(1637) (c) A traffic lane for southbound traffic between the separation zone and a line connecting the following geographical positions:

(1638) 60°58.93'N., 146°48.86'W.
(1639) 60°50.61'N., 147°03.60'W.

(1640)

Part 168–Escort Requirements for Certain Tankers.

(1641)

§168.01 Purpose.

(1642) (a) This part prescribes regulations in accordance with section 4116(c) of the Oil Pollution Act of 1990 (OPA 90) (Pub. L. 101-380), as amended by section 711 of the Coast Guard Authorization Act of 2010 (Pub. L. 111–281). The regulations will reduce the risk of oil spills from laden, single hull and double hull tankers over 5,000 GT by requiring that these tankers be escorted by at least two suitable escort vessels in applicable waters, as defined in §168.40. The escort vessels will be immediately available to influence the tankers' speed and course in the event of a steering or propulsion equipment failure, thereby reducing the possibility of groundings or collisions.

(1643) (b) The regulations in this part establish minimum escort vessel requirements. Nothing in these regulations should be construed as relieving the master of a tanker from the duty to operate the vessel in a safe and prudent manner, taking into account the navigational constraints of the waterways to be traversed, other vessel traffic, and anticipated weather, tide, and sea conditions, which may require reduced speeds, greater assistance from escort vessels, or other operational precautions.

(1644)

§168.05 Definitions.

(1645) As used in this part–

(1646) *Disabled tanker* means a tanker experiencing a loss of propulsion or steering control.

(1647) *Double hull tanker* means any self-propelled tank vessel that is constructed with both double bottom and

double sides in accordance with the provisions of 33 CFR 157.10d.

(1648) *Escort transit* means that portion of the tanker's voyage through waters where escort vessels are required.

(1649) *Escort vessel* means any vessel that is assigned and dedicated to a tanker during the escort transit, and that is fendered and outfitted with towing gear as appropriate for its role in an emergency response to a disabled tanker.

(1650) *Laden* means transporting in bulk any quantity of applicable cargo, except for clingage and residue in otherwise empty cargo tanks.

(1651) *Single hull tanker* means any self-propelled tank vessel that is not constructed with both double bottom and double sides in accordance with the provision of 33 CFR 157.10d.

(1652) *Tanker* master means the licensed onboard person in charge of the tanker.

(1653) *Tanker owner or operator* means the owner or shoreside organization (individual, corporation, partnership, or association), including a demise charterer, responsible for the overall management and operation of the tanker.

(1654)

§168.10 Responsibilities.

(1655) (a) The tanker owner or operator shall:

(1656) (1) select escort vessels that can meet the performance requirements of this part; and

(1657) (2) inform the tanker master of the performance capabilities of the selected escort vessels. This information must be provided to the master before beginning the escort transit.

(1658) (b) The tanker master shall operate the tanker within the performance capabilities of the escort vessels, taking into account speed, sea and weather conditions, navigational considerations, and other factors that may change or arise during the escort transit.

(1659) (c) In an emergency, the tanker master may deviate from the requirements of this part to the extent necessary to avoid endangering persons, property, or the environment, but shall immediately report the deviation to the cognizant Coast Guard Captain of the Port (COTP).

(1660)

§168.20 Applicable vessels.

(1661) The requirements of this part apply to the following laden tankers of 5,000 gross tons or more:

(1662) (a) All single hull tankers on the waters listed in §168.40(a) and (b); and

(1663) (b) All double hull tankers on the waters listed in §168.40(a).

(1664)

§168.30 Applicable cargoes.

(1665) The requirements of this part apply to any petroleum oil listed in 46 CFR Table 30.25-1 as a pollution category I cargo.

(1666)

§168.40 Applicable waters and number of escort vessels.

(1667) The requirements of this part apply to the following waters:

(1668) (a) *Prince William Sound:* Each tanker to which this part applies must be escorted by at least two escort vessels in those navigable waters of the United States within Prince William Sound, Alaska, and the adjoining tributaries, bays, harbors, and ports, including the navigable waters of the United States within a line drawn from Cape Hinchinbrook Light, to Seal Rocks Light, to a point on Montague Island at 60°14.6'N., 146°59'W., and the waters of Montague Strait east of a line between Cape Puget and Cape Cleare.

(1669) (b) *Puget Sound and certain associated waters:* Each tanker to which this part applies must be escorted by at least two escort vessels in those navigable waters of the United States and Washington State east of a line connecting New Dungeness Light with Discovery Island Light and all points in the Puget Sound area north and south of these lights. This area includes all the navigable waters of the United States within Haro Strait, Rosario Strait, the Strait of Georgia, Puget Sound, and Hood Canal, as well as those portions of the Strait of Juan de Fuca east of the New Dungeness-Discovery Island line.

(1670)

§168.50 Performance and operational requirements.

(1671) (a) Except as provided in paragraph (c) of §168.10, at all times during the escort transit each tanker to which this part applies:

(1672) (1) Must be accompanied by escort vessels that meet the performance requirements of paragraph (b) of this section (but not less than the number of escorts required by §168.40).

(1673) (2) Must have the escort vessels positioned relative to the tanker such that timely response to a propulsion or steering failure can be effected.

(1674) (3) Must not exceed a speed beyond which the escort vessels can reasonably be expected to safely bring the tanker under control within the navigational limits of the waterway, taking into consideration ambient sea and weather conditions, surrounding vessel traffic, hazards, and other factors that may reduce the available sea room.

(1675) (b) The escort vessels, acting singly or jointly in any combination as needed, and considering their applied force vectors on the tanker's hull, must be capable of–

(1676) (1) Towing the tanker at 4 knots in calm conditions, and holding it in steady position against a 45-knot headwind;

(1677) (2) [Reserved]

(1678) (3) Holding the tanker on a steady course against a 35-degree locked rudder at a speed of 6 knots; and

(1679) (4) Turning the tanker 90 degrees, assuming a free-swinging rudder and a speed of 6 knots, within the same

distance (advance and transfer) that it could turn itself with a hard-over rudder.

(1680)

§168.60 Pre-escort conference.

(1681) (a) Before commencing an escort transit, the tanker master shall confer, by radio or in person, with the tanker pilot and the masters of the escort vessels regarding the escort operation.

(1682) (b) The purpose of the pre-escort conference is for all parties to plan and discuss particulars of the escort transit.

(1683) (c) At a minimum, the following topics must be addressed during the pre-escort conference:

(1684) (1) The destination, route, planned speed, other vessel traffic, anticipated weather, tide, and sea conditions, and other navigational considerations;

(1685) (2) The type and operational status of communication, towing, steering, and propulsion equipment on the tanker and escort vessels;

(1686) (3) The relative positioning and reaction time for the escort vessels to move into assist positions, including, if appropriate, pre-tethering the escort vessels at crucial points along the route;

(1687) (4) The preparations required on the tanker and escort vessels, and the methods employed in making an emergency towline connection, including stationing of deck crews, preparation of messenger lines, bridles, and other towing gear, and energizing appropriate deck equipment;

(1688) (5) The manner in which an emergency towline connection would be made (which escort vessel will respond, how messengers and towlines will be passed, etc.);

(1689) (6) Other relevant information provided by the tanker master, pilot or escort vessel masters.

(1690)

Part 169–Ship Reporting Systems

(1691)

Subpart A–General

(1692)

§169.1 What is the purpose of this part?

(1693) This subpart prescribes the requirements for mandatory ship reporting systems. Ship reporting systems are used to provide, gather, or exchange information through radio reports. The information is used to provide data for many purposes including, but not limited to: navigation safety, maritime security and domain awareness, environmental protection, vessel traffic services, search and rescue, weather forecasting and prevention of marine pollution.

(1694)

§169.5 How are terms used in this part defined?

(1695) As used in this part–

(1696) *Administration* means the Government of the State whose flag the ship is entitled to fly.

(1697) *Cargo ship* means any ship which is not a passenger ship.

(1698) *Flag Administration* means the Government of a State whose flag the ship is entitled to fly.

(1699) *Gross tonnage* means tonnage as defined under the International Convention on Tonnage Measurement of Ships, 1969 (Incorporated by reference, see §169.15).

(1700) *Gross tons* means vessel tonnage measured in accordance with the method utilized by the flag state administration of that vessel.

(1701) *High speed craft* means a craft that is operable on or above the water and is capable of a maximum speed equal to or exceeding V=3.7xdispl.1667, where "V" is the maximum speed and "displ" is the vessel displacement corresponding to the design waterline in cubic meters.

(1702) *High speed passenger craft* means a high speed craft carrying more than 12 passengers.

(1703) *International voyage* means a voyage from a country to which the present International Convention for the Safety of Life at Sea (SOLAS), 1974 applies to a port outside such country, or conversely. For U.S. ships, such voyages will be considered to originate at a port in the United States, regardless of when the voyage actually began. Such voyages for U.S. ships will continue until the ship returns to the United States from its last foreign port.

(1704) *Long range identification and tracking (LRIT) information or position report* means report containing the following information:

(1705) (1) The identity of the ship;

(1706) (2) The position of the ship (latitude and longitude); and

(1707) (3) The date and time of the position provided.

(1708) *LRIT Data Center* means a center established by a SOLAS Contracting Government or a group of Contracting Governments, or in the case of International Data Center, by IMO, to request, receive, process, and archive LRIT information. An LRIT Data Center may be National, Regional, Co-operative or International.

(1709) *Mandatory ship reporting system* means a ship reporting system that requires the participation of specified vessels or classes of vessels, and that is established by a government or governments after adoption of a proposed system by the International Maritime Organization (IMO) as complying with all requirements of regulation V/8-1 of the International Convention for the Safety of Life at Sea, 1974, as amended (SOLAS), except paragraph (e) thereof.

(1710) *Mobile offshore drilling unit* means a self-propelled vessel capable of engaging in drilling operations for the exploration or exploitation of subsea resources.

(1711) *Passenger ship* means a ship that carries more than 12 passengers.

(1712) *Self-propelled ships* means ships propelled by mechanical means.

(1713) *Shore-based authority* means the government appointed office or offices that will receive the reports made by ships entering each of the mandatary ship

reporting systems. The office or offices will be responsible for the management and coordination of the system, interaction with participating ships, and the safe and effective operation of the system. Such an authority may or may not be an authority in charge of a vessel traffic service.

(1714) *United States* means the States of the United States, the District of Columbia, Guam, Puerto Rico, the Virgin Islands, American Samoa, the Northern Mariana Islands, and any other territory or possession of the United States.

(1715)

§169.10 What geographic coordinates are used?

(1716) Geographic coordinates expressed in terms of latitude or longitude, or both, are not intended for plotting on maps or charts where the referenced horizontal datum is the North American Datum of 1983 (NAD 83), unless such geographic coordinates are expressly labeled NAD 83. Geographic coordinates without the NAD 83 reference may be plotted on maps or charts referenced to NAD 83 only after application of the appropriate corrections that are published on the particular map or chart being used.

(1717)

§169.15 Incorporation by reference: Where can I get a copy of the publications mentioned in this part?

(1718) (a) Certain material is incorporated by reference into this part with the approval of the Director of the Federal Register under 5 U.S.C. 552(a) and 1 CFR part 51. To enforce any edition other than that specified in this section, the Coast Guard must publish notice of change in the Federal Register and the material must be available to the public. All approved material is available for inspection at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202–741–6030 or go to *http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html*. Also, it is available for inspection at Coast Guard Headquarters. Contact Commandant (CG-NAV), Attn: Office of Navigation Systems, 2703 Martin Luther King Jr. Avenue SE., Stop 7418, Washington, DC 20593-7418, and is available from the sources indicated in this section.

(1719) (b) *International Electrotechnical Commission (IEC) Bureau Central de la Commission Electrotechnique Internationale,* 3 rue de Varembé, P.O. Box 131, 1211 Geneva 20, Switzerland.

(1720) (1) IEC 60945, Fourth edition 2002-08, Maritime navigation and radiocommunication equipment and systems–General requirements–Methods of testing and required test results, incorporation by reference approved for §169.215.

(1721) (2) [Reserved]

(1722) (c) *International Maritime Organization (IMO),* 4 Albert Embankment, London SE1 7SR, U.K.

(1723) (1) IMO Resolution MSC.202(81), adopted on May 19, 2006, Adoption of Amendments to the International Convention for the Safety of Life at Sea, 1974, as Amended, incorporation by reference approved for §160.240.

(1724) (2) IMO Resolution MSC.210(81), adopted on May 19, 2006, Performance Standards and Functional Requirements for the Long-Range Identification and Tracking of Ships, incorporation by reference approved for §§169.215 and 169.240.

(1725) (3) IMO Resolution MSC.254(83), adopted on October 12, 2007, Adoption of Amendments to the Performance Standards and Functional Requirements for the Long-Range Identification and Tracking of Ships, incorporation by reference approved for §§169.215 and 169.240.

(1726) (4) IMO Resolution A.694(17), adopted on November 6, 1991, General Requirements for Shipborne Radio Equipment Forming Part of the Global Maritime Distress and Safety System (GMDSS) and for Electronic Navigational Aids, incorporation by reference approved for §165.215.

(1727) (5) International Convention on Tonnage Measurement of Ships, 1969, incorporation by reference approved for §169.5.

(1728)

Subpart C–Transmission of Long Range Identification and Tracking Information

(1729)

§169.200 What is the purpose of this subpart?

(1730) This subpart implements Regulation 19-1 of SOLAS chapter V (SOLAS V/19-1) and requires certain ships engaged on an international voyage to transmit vessel identification and position information electronically. This requirement enables the Coast Guard to obtain long range identification and tracking (LRIT) information and thus heightens our overall maritime domain awareness, enhances our search and rescue operations, and increases our ability to detect anomalies and deter transportation security incidents.

(1731)

§169.205 What types of ships are required to transmit LRIT information (position reports)?

(1732) The following ships, while engaged on an international voyage, are required to transmit position reports:

(1733) (a) A passenger ship, including high speed passenger craft.

(1734) (b) A cargo ship, including high speed craft, of 300 gross tonnage or more.

(1735) (c) A mobile offshore drilling unit while underway and not engaged in drilling operations.

(1736)

§169.210 Where during its international voyage must a ship transmit position reports?

(1737) The requirements for the transmission of position reports, imposed by the United States, vary depending on

the relationship of the United States to a ship identified in §169.205.

(1738) (a) *Flag State relationship*. A U.S. flag ship engaged on an international voyage must transmit position reports wherever they are located.

(1739) (b) *Port State relationship*. A foreign flag ship engaged on an international voyage must transmit position reports after the ship has announced its intention to enter a U.S. port or place under requirements in 33 CFR part 160, subpart C.

(1740) (c) *Coastal State relationship*. A foreign flag ship engaged on an international voyage must transmit position reports when the ship is within 1,000 nautical miles of the baseline of the United States, unless their Flag Administration, under authority of SOLAS V/19-1.9.1, has directed them not to do so.

(1741)

§169.215 How must a ship transmit position reports?

(1742) A ship must transmit position reports using Long Range Identification and Tracking (LRIT) equipment that has been type-approved by their Administration. To be type-approved by the Coast Guard, LRIT equipment must meet the requirements of IMO Resolutions A.694(17), MSC.210(81), and MSC.254(83), and IEC standard IEC 60945 (Incorporated by reference, see §169.15).

(1743)

§169.220 When must a ship be fitted with LRIT equipment?

(1744) A ship identified in §169.205 must be equipped with LRIT equipment–

(1745) (a) Before getting underway, if the ship is constructed on or after December 31, 2008.

(1746) (b) By the first survey of the radio installation after December 31, 2008, if the ship is–

(1747) (1) Constructed before December 31, 2008, and

(1748) (2) Operates within–

(1749) (i) One hundred (100) nautical miles of the United States baseline, or

(1750) (ii) Range of an Inmarsat geostationary satellite, or other Application Service Provider recognized by the Administration, with continuous alerting is available.

(1751) (c) By the first survey of the radio installation after July 1, 2009, if the ship is–

(1752) (1) Constructed before December 31, 2008, and

(1753) (2) Operates within the area or range specified in paragraph (b)(2) of this section as well as outside the range of an Inmarsat geostationary satellite with which continuous alerting is available. While operating in the area or range specified in paragraph (b)(2) of this section, however, a ship must install LRIT equipment by the first survey of the radio installation after December 31, 2008.

(1754)

§169.225 Which Application Service Providers may a ship use?

(1755) A ship may use an application Service Provider (ASP) recognized by its administration. Some Communication Service Providers may also serve as an ASP.

(1756)

§169.230 How often must a ship transmit position reports?

(1757) A ship's LRIT equipment must transmit position reports at 6-hour intervals unless a more frequent interval is requested remotely by an LRIT Data Center.

(1758)

§169.235 What exemptions are there from reporting?

(1759) A ship is exempt from this subpart if it is–

(1760) (a) Fitted with an operating automatic identification system (AIS), under 33 CFR 164.46, and operates only within 20 nautical miles of the United States baseline,

(1761) (b) A warship, naval auxiliaries or other ship owned or operated by a SOLAS Contracting Government and used only on Government non-commercial service, or

(1762) (c) A ship solely navigating the Great Lakes of North America and their connecting and tributary waters as far east as the lower exit of the St. Lambert Lock at Montreal in the Province of Quebec, Canada.

(1763)

§169.240 When may LRIT equipment be switched off?

(1764) A ship engaged on an international voyage may switch off its LRIT equipment only when it is permitted by its Flag Administration, in circumstances detailed in SOLAS V/19-1.7, or in paragraph 4.4.1, of resolution MSC.210(81), as amended by resolution MSC.254(83) (Incorporated by reference, see §169.15).

(1765)

§169.245 What must a ship master do if LRIT equipment is switched off or fails to operate?

(1766) (a) If a ship's LRIT equipment is switched off or fails to operate, the ship's master must inform his or her Flag Administration without undue delay.

(1767) (b) The master must also make an entry in the ship's logbook that states–

(1768) (1) His or her reason for switching the LRIT equipment off, or an entry that the equipment has failed to operate, and

(1769) (2) The period during which the LRIT equipment was switched off or non-operational.

(1770) Note to §169.245: for U.S. vessels, the U.S. Coast Guard serves as the Flag Administration for purposes of this section. All LRIT notifications for the U.S. Flag administration, in addition to requests or questions about LRIT, should be communicated to the U.S. Coast Guard by e-mail addressed to LRIT@uscg.mil.

(1771)

Part 207–Navigation Regulations

(1772)

§207.800 Collection of navigation statistics.

(1773) (a) *Definitions*. For the purpose of this regulation the following terms are defined:

(1774) (1) *Navigable waters of the United States* means those waters of the United States that are subject to the ebb and flow of the tide shoreward to the mean high water mark, and/or are presently used, or have been used in the past, or may be susceptible to use to transport interstate or foreign commerce. (See 33 CFR part 329 for a more complete definition of this term.)

(1775) (2) *Offenses and Violations* mean:

(1776) (i) Failure to submit a required report.

(1777) (ii) Failure to provide a timely, accurate, and complete report.

(1778) (iii) Failure to submit monthly listings of idle vessels or vessels in transit.

(1779) (iv) Failure to submit a report required by the lockmaster or canal operator.

(1780) (3) *Leased or chartered vessel* means a vessel that is leased or chartered when the owner relinquishes control of the vessel through a contractual agreement with a second party for a specified period of time and/or for a specified remuneration from the lessee. Commercial movements on an affreightment basis are not considered a lease or charter of a particular vessel.

(1781) (4) *Person or entity* means an individual, corporation, partnership, or company.

(1782) (5) *Timely* means vessel and commodity movement data must be received by the Waterborne Commerce Statistics Center within 30 days after the close of the month in which the vessel movement or nonmovement takes place.

(1783) (6) *Commercial vessel* means a vessel used in transporting by water, either merchandise or passengers for compensation or hire, or in the course of business of the owner, lessee, or operator of the vessel.

(1784) (7) *Reporting situation* means a vessel movement by an operator that is required to be reported. Typical examples are listed in the instructions on the various ENG Forms. Five typical movements that are required to be reported by vessel operating companies include the following examples: Company A is the barge owner, and the barge transports corn from Minneapolis, MN to New Orleans, LA, with fleeting at Cairo, IL.

(1785) (i) *Lease/Charter*: If Company A leases or charters the barge to Company B, then Company B is responsible for reporting the movements of the barge until the lease/charter expires.

(1786) (ii) *Interline movement*: A barge is towed from Minneapolis to Cairo by Company A, and from Cairo to New Orleans by Company B. Since Company A is the barge owner, and the barge is not leased. Company A reports the entire movement of the barge with an origin of Minneapolis and a destination of New Orleans.

(1787) (iii) *Vessel swap/trade*: Company A swaps barge with Company B to allow Company B to meet a delivery commitment to New Orleans. Since Company A has not leased/chartered the barge, Company A is responsible for filing the report. Company B is responsible for filing the report on the barge which is traded to Company A. The swap or trade will not affect the primary responsibility for reporting the individual vessel movements.

(1788) (iv) *Re-Consignment*: Barge is reconsigned to Mobile, AL. Company A reports the movements as originating in Minneapolis and terminating in Mobile. The point from which barge is reconsigned is not reported, only points of loading and unloading.

(1789) (v) *Fleeting*: Barge is deposited at a New Orleans fleeting area by Company A and towed by Company B from fleeting area to New Orleans area dock for unloading. Company A, as barge owner, reports entire movements from Minneapolis to the unloading dock in New Orleans. Company B does not report any barge movement.

(1790) (b) Implementation of the waterborne commerce statistics provisions of the River and Harbor Act of 1922, as amended by the Water Resources Development Act of 1986 (Pub. L. 99-662), mandates the following.

(1791) (1) *Filing requirements*. Except as provided in paragraph (b)(2) of this section, the person or entity receiving remuneration for the movement of vessels or for the transportation of goods or passengers on the navigable waters is responsible for assuring that the activity report of commercial vessels is timely filed.

(1792) (i) For vessels under lease/charter agreements, the lessee or charterer of any commercial vessel engaged in commercial transportation will be responsible for the filing of said reports until the lease/charter expires.

(1793) (ii) The vessel owner, or his designated agent, is always the responsible party for ensuring that all commercial activity of the vessel is timely reported.

(1794) (2) The following Vessel Information Reports are to be filed with the Army Corps of Engineers, at the address specified on the ENG Form, and are to include:

(1795) (i) *Monthly reports*. These reports shall be made on ENG Forms furnished upon written request of the vessel operating companies to the Army Corps of Engineers. The forms are available at the following address: U.S. Army Corps of Engineers, Waterborne Commerce Statistics Center, Post Office Box 61280, New Orleans, Louisiana 70161-1280.

(1796) (A) All movements of domestic waterborne commercial vessels shall be reported, including but not limited to: Dry cargo ship and tanker moves, loaded and empty barge moves, towboat moves, with or without barges in tow, fishing vessels, movements of crew boats and supply boats to offshore locations, tugboat moves and movements of newly constructed vessels from the shipyard to the point of delivery.

(1797) (B) Vessels idle during the month must also be reported.

(1798) (C) Notwithstanding the above requirements, the following waterborne vessel movements need not be reported:

(1799) (*1*) Movements of recreational vessels.

(1800) (*2*) Movements of fire, police, and patrol vessels.

(1801) (*3*) Movements of vessels exclusively engaged in construction (e.g., piledrivers and crane barges). Note: however, that movements of supplies, materials, and crews to or from the construction site must be timely reported.

(1802) (*4*) Movements of dredges to or from the dredging site. However, vessel movements of dredged material from the dredging site to the disposal site must be reported.

(1803) (*5*) Specific movements granted exemption in writing by the Waterborne Commerce Statistics Center.

(1804) (D) ENG Forms 3925 and 3925b shall be completed and filed by vessel operating companies each month for all voyages or vessel movements completed during the month. Vessels that did not complete a move during the month shall be reported as idle or in transit.

(1805) (E) The vessel operating company may request a waiver from the Army Corps of Engineers, and upon written approval by the Waterborne Commerce Center, the company may be allowed to provide the requisite information of the above paragraph (D), on computer printouts, magnetic tape, diskettes, or alternate medium approved by the Center.

(1806) (F) Harbor Maintenance Tax information is required on ENG Form 3925 for cargo movements into or out of ports that are subject to the provisions of section 1402 of the Water Resources Development Act of 1986 (Pub. L. 99-662).

(1807) (*1*) The name of the shipper of the commodity, and the shipper's Internal Revenue Service number or Social Security number, must be reported on the form.

(1808) (*2*) If a specific exemption applies to the shipper, the shipper should list the appropriate exemption code. The specific exemption codes are listed in the directions for ENG Form 3925.

(1809) (*3*) Refer to 19 CFR part 24 for detailed information on exemptions and ports subject to the Harbor Maintenance Tax.

(1810) (ii) *Annual reports*. Annually an inventory of vessels available for commercial carriage of domestic commerce and vessel characteristics must be filed on ENG Forms 3931 and 3932.

(1811) (iii) *Transaction reports*. The sale, charter, or lease of vessels to other companies must also be reported to assure that proper decisions are made regarding each company's duty for reporting vessel movements during the year. In the absence of notification of the transaction, the former company of record remains responsible until proper notice is received by the Corps.

(1812) (iv) *Reports to lockmasters and canal operators*. Masters of self-propelled non-recreational vessels which pass through locks and canals operated by the Army Corps of Engineers will provide the data specified on ENG Forms 3102b, 3102c, and/or 3102d to the lockmaster, canal operator, or his designated representative in the manner and detail dictated.

(1813) (c) *Penalties for noncompliance*. The following penalties for noncompliance can be assessed for offenses and violations.

(1814) (1) *Criminal penalties*. Every person or persons violating the provisions of this regulation shall, for each and every offenses, be liable to a fine of not more than $5,000, or imprisonment not exceeding two months, to be enforced in any district court in the United States within whose territorial jurisdiction such offense may have been committed.

(1815) (2) In addition, any person or entity that fails to provide timely, accurate, and complete statements or reports required to be submitted by the regulation in this section may also be assessed a civil penalty of up to $7,156 per violation under 33 U.S.C. 555, as amended.

(1816) (3) *Denial of passage*. In addition to these fines, penalties, and imprisonments, the lockmaster or canal operator can refuse to allow vessel passage.

(1817) (d) *Enforcement policy*. Every means at the disposal of the Army Corps of Engineers will be utilized to monitor and enforce these regulations.

(1818) (1) To identify vessel operating companies that should be reporting waterborne commerce data, The Corps will make use of, but is not limited to, the following sources.

(1819) (i) Data on purchase and sale of vessels.

(1820) (ii) U.S. Coast Guard vessel documentation and reports.

(1821) (iii) Data collected at Locks, Canals, and other facilities operated by the Corps.

(1822) (iv) Data provided by terminals on ENG Form 3926.

(1823) (v) Data provided by the other Federal agencies including the Internal Revenue Service, Customs Service, Maritime Administration, Department of Transportation, and Department of Commerce.

(1824) (vi) Data provided by ports, local facilities, and State or local governments.

(1825) (vii) Data from trade journals and publications.

(1826) (viii) Site visits and inspections.

(1827) (2) *Notice of violation*. Once a reporting violation is determined to have occurred, the Chief of the Waterborne Commerce Statistics Center will notify the responsible party and allow 30 days for the reports to be filed after the fact. If the reports are not filed within this 30-day notice period, then appropriate civil or criminal actions will be undertaken by the Army Corps of Engineers, including the proposal of civil or criminal penalties for noncompliance. Typical cases for criminal or civil action include, but are not limited to, those violations which are willful, repeated, or have a substantial impact in the opinion of the Chief of the Waterborne Commerce Statistics Center.

(1828) (3) *Administrative assessment of civil penalties*. Civil penalties may be assessed in the following manner.

(1829) (i) *Authorization*. If the Chief of the Waterborne Commerce Statistics Center finds that a person or entity has failed to comply with any of the provisions specified herein, he is authorized to assess a civil penalty in accordance with the Class I penalty provisions of 33 CFR part 326. Provided, however, that the procedures in 33 CFR part 326 specifically implementing the Clean Water Act (33 U.S.C. 1319(g)(4)), public notice, comment period, and state coordination, shall not apply.

(1830) (ii) *Initiation*. The Chief of the Waterborne Commerce Statistics Center will prepare and process a proposed civil penalty order which shall state the amount of the penalty to be assessed, describe by reasonable specificity the nature of the violation, and indicate the applicable provisions of 33 CFR part 326.

(1831) (iii) *Hearing requests*. Recipients of a proposed civil penalty order may file a written request for a hearing or other proceeding. This request shall be as specified in 33 CFR part 326 and shall be addressed to the Director of the Water Resources Support Center, Casey Building, Fort Belvoir, Virginia 22060-5586, who will provide the requesting person or entity with a reasonable opportunity to present evidence regarding the issuance, modification, or revocation of the proposed order. Thereafter, the Director of the Water Resources Center shall issue a final order.

(1832) (4) *Additional remedies*. Appropriate cases may also be referred to the local U.S. Attorney for prosecution, penalty collection, injunctive, and other relief by the Chief of the Waterborne Commerce Statistics Center.

(1833)

Part 334–Danger Zone and Restricted Area Regulations

(1834)

§334.1 Purpose.

(1835) The purpose of this part is to:

(1836) (a) Prescribe procedures for establishing, amending and disestablishing danger zones and restricted areas;

(1837) (b) List the specific danger zones and restricted areas and their boundaries; and

(1838) (c) Prescribe specific requirements, access limitations and controlled activities within the danger zones and restricted areas.

(1839)

§334.2 Definitions

(1840) (a) *Danger zone*. A defined water area (or areas) used for target practice, bombing, rocket firing or other especially hazardous operations, normally for the armed forces. The danger zones may be closed to the public on a full-time or intermittent basis, as stated in the regulations.

(1841) (b) *Restricted area*. A defined water area for the purpose of prohibiting or limiting public access to the area. Restricted areas generally provide security for Government property and/or protection to the public from the risks of damage or injury arising from the Government's use of that area.

(1842)

§334.3 Special policies.

(1843) (a) *General*. The general regulatory policies stated in 33 CFR part 320 will be followed as appropriate. In addition, danger zone and restricted area regulations shall provide for public access to the area to the maximum extent practicable.

(1844) (b) *Food fishing industry*. The authority to prescribe danger zone and restricted area regulations must be exercised so as not to unreasonably interfere with or restrict the food fishing industry. Whenever the proposed establishment of a danger zone or restricted area may affect fishing operations, the District Engineer will consult with the Regional Director, U.S. Fish and Wildlife Service, Department of the Interior and the Regional Director, National Marine Fisheries Service, National Oceanic & Atmospheric Administration (NOAA).

(1845) (c) *Temporary, occasional or intermittent use*. If the use of the water area is desired for a short period of time, not to exceed thirty days in duration, and that planned operations can be conducted safely without imposing unreasonable restrictions on navigation, and without promulgating restricted area regulations in accordance with the regulations in this section, applicants may be informed that formal regulations are not required. Activities of this type shall not reoccur more often than biennially (every other year), unless danger zone/restricted area rules are promulgated under this Part. Proper notices for mariners requesting that vessels avoid the area will be issued by the Agency requesting such use of the water area, or if appropriate, by the District Engineer, to all known interested persons. Copies will also be sent to appropriate State agencies, the Commandant, U.S. Coast Guard, Washington, DC 20590, and Director, Defense Mapping Agency, Hydrographic Center, Washington, DC 20390, ATTN: Code NS 12. Notification to all parties and Agencies shall be made at least two weeks prior to the planned event, or earlier, if required for distribution of Local Notice to Mariners by the Coast Guard.

(1846)

§334.4 Establishment and amendment procedures.

(1847) (a) *Application*. Any request for the establishment, amendment or revocation of a danger zone or restricted area must contain sufficient information for the District Engineer to issue a public notice, and as a minimum must contain the following:

(1848) (1) Name, address and telephone number of requestor including the identity of the command and DoD facility and the identity of a point of contact with phone number.

(1849) (2) Name of waterway and if a small tributary, the name of a larger connecting waterbody.

(1850) (3) Name of closest city or town, county/parish and state.

(1851) (4) Location of proposed or existing danger zone or restricted area with a map showing the location, if possible.

(1852) (5) A brief statement of the need for the area, its intended use and detailed description of the times, dates and extent of restriction.

(1853) (b) *Public notice*. (1) The Corps will normally publish public notices and **Federal Register** documents concurrently. Upon receipt of a request for the establishment, amendment or revocation of a danger zone or restricted area, the District Engineer should forward a copy of the request with his/her recommendation, a copy of the draft public notice and a draft **Federal Register** document to the Office of the Chief of Engineers, ATTN: CECW-OR. The Chief of Engineers will publish the proposal in the **Federal Register** concurrent with the public notice issued by the District Engineer.

(1854) (2) *Content*. The public notice and **Federal Register** documents must include sufficient information to give a clear understanding of the proposed action and should include the following items of information:

(1855) (i) Applicable statutory authority or authorities; (40 Stat. 266; 33 U.S.C. 1) and (40 Stat. 892; 33 U.S.C. 3)

(1856) (ii) A reasonable comment period. The public notice should fix a limiting date within which comments will be received, normally a period not less than 30 days after publication of the notice.

(1857) (iii) The address of the District Engineer as the recipient of any comments received.

(1858) (iv) The identity of the applicant/proponent;

(1859) (v) The name or title, address and telephone number of the Corps employee from whom additional information concerning the proposal may be obtained;

(1860) (vi) The location of the proposed activity accompanied by a map of sufficient detail to show the boundaries of the area(s) and its relationship to the surrounding area.

(1861) (3) *Distribution*. Public notice will be distributed in accordance with 33 CFR 325.3(d)(1). In addition to this general distribution, public notices will be sent to the following Agencies:

(1862) (i) The Federal Aviation Administration (FAA) where the use of airspace is involved.

(1863) (ii) The Commander, Service Force, U.S. Atlantic Fleet, if a proposed action involves a danger zone off the U.S. Atlantic coast.

(1864) (iii) Proposed danger zones on the U.S. Pacific coast must be coordinated with the applicable commands as follows:

(1865) Alaska, Oregon and Washington:

(1866) Commander, Naval Base, Seattle

(1867) California:

(1868) Commander, Naval Base, San Diego

(1869) Hawaii and Trust Territories:

(1870) Commander, Naval Base, Pearl Harbor

(1871) (c) *Public hearing*. The District Engineer may conduct a public hearing in accordance with 33 CFR part 327.

(1872) (d) *Environmental documentation*. The District Engineer shall prepare environmental documentation in accordance with Appendix B to 33 CFR part 325.

(1873) (e) *District Engineer's recommendation*. After closure of the comment period, and upon completion of the District Engineer's review he/she shall forward the case through channels to the Office of the Chief of Engineers, ATTN: CECW-OR with a recommendation of whether or not the danger zone or restricted area regulation should be promulgated. The District Engineer shall include a copy of environmental documentation prepared in accordance with Appendix B to 33 CFR part 325, the record of any public hearings, if held, a summary of any comments received and a response thereto, and a draft of the regulation as it is to appear in the **Federal Register.**

(1874) (f) *Final decision*. The Chief of Engineers will notify the District Engineer of the final decision to either approve or disapprove the regulations. The District Engineer will notify the applicant/proponent and publish a public notice of the final decision. Concurrent with issuance of the public notice the Office of the Chief of Engineers will publish the final decision in the **Federal Register** and either withdraw the proposed regulation or issue the final regulation as appropriate. The final rule shall become effective no sooner than 30 days after publication in the **Federal Register** unless the Chief of Engineers finds that sufficient cause exists and publishes that rationale with the regulations.

(1875)

§334.5 Disestablishment of a danger zone.

(1876) (a) Upon receipt of a request from any agency for the disestablishment of a danger zone, the District Engineer shall notify that agency of its responsibility for returning the area to a condition suitable for use by the public. The agency must either certify that it has not used the area for a purpose that requires cleanup or that it has removed all hazardous materials and munitions, before the Corps will disestablish the area. The agency will remain responsible for the enforcement of the danger zone regulations to prevent unauthorized entry into the area until the area is deemed safe for use by the public and the area is disestablished by the Corps.

(1877) (b) Upon receipt of the certification required in paragraph (a) of this section, the District shall forward the request for disestablishment of the danger zone through channels to CECW-OR, with its recommendations. Notice of proposed rulemaking and public procedures as outlined in §334.4 are not normally required before publication of the final rule revoking a restricted area or danger zone regulation. The disestablishment/revocation of the danger zone or restricted area regulation removes a restriction on a waterway.

(1878)

§334.6 Datum.

(1879) (a) Geographic coordinates expressed in terms of latitude or longitude, or both, are not intended for plotting on maps or charts whose reference horizontal datum is the North American Datum of 1983 (NAD 83), unless such geographic coordinates are expressly labeled NAD 83.

Geographic coordinates without the NAD 83 reference may be plotted on maps or charts referenced to NAD 83 only after application of the appropriate corrections that are published on the particular map or chart being used.

(1880) (b) For further information on NAD 83 and National Service nautical charts please contact:

(1881) Director, Coast Survey (N/CG2)

(1882) National Ocean Service, NOAA

(1883) 1315 East-West Highway, Station 6147

(1884) Silver Spring, MD 20910-3282.

(1885)

§334.1280 Bristol Bay, Alaska; air-to-air weapon range, Alaskan Air Command, U.S. Air Force.

(1886) (a) *The danger zone*. An area in Bristol Bay beginning at latitude 58°24'N., longitude 159°10'W.; thence to latitude 57°58'N., longitude 158°30'W.; thence to latitude 57°07'N., longitude 160°20'W.; thence to latitude 58°02'N., longitude 161°40'W.; and thence to the point of beginning.

(1887) (b) *The regulations*. (1) Intermittent firing will be conducted over two to three day periods about 2 hours a day between the hours of 10:00 a.m. and 4:00 p.m. during the months of May through August.

(1888) (2) The fact that practice firing is to take place over the designated area shall be advertised to the public 72 hours in advance through the usual media for the dissemination of such information. Notice to the U.S. Coast Guard and NOTAM shall be issued at least 48 hours before firing is to be conducted on the range. Information as to the dates, time, and characteristics of the firing shall be advertised in advance of each session of firing.

(1889) (3) Prior to conducting each practice firing, the danger zone shall be patrolled by aircraft to note the location of all vessels within the area. The practice firing exercise shall be conducted in the portion of the danger zone not occupied by surface craft.

(1890) (4) This section shall be enforced by the Commander, Alaskan Air Command, U.S. Air Force, Seattle, Washington, or such agencies as he may designate.

(1891)

§334.1300 Blying Sound area, Gulf of Alaska, Alaska; air-to-air gunnery practice area, Alaskan Air Command, U.S. Air Force.

(1892) (a) *The danger zone*. A rhomboidal area beginning at

(1893) 59°51'30"N., 148°42'00"W.; thence to

(1894) 59°22'30"N., 147°00'00"W.; thence to

(1895) 58°52'00"N., 148°03'00"W.; thence to

(1896) 59°20'00"N., 149°45'00"W., and thence to point of beginning.

(1897) (b) *The regulations*. (1) 20-mm cannon will be fired at towed targets in the air. One firing mission will be conducted every 2 weeks during daylight hours only and weather permitting.

(1898) (2) The fact that practice firing is to take place over the designated area shall be advertised to the public 7 days in advance through the usual media for the dissemination of such information. Notice to the U.S. Coast Guard and NOTAM shall be issued at least 48 hours before firing is to be conducted on the range. Information as to the dates, time, and characteristics of the firing shall be advertised in advance of each session of firing.

(1899) (3) Prior to conducting each practice firing, the danger zone shall be patrolled by aircraft to note the location of all vessels within the area. The practice firing exercise shall be conducted in the portion of the danger zone not occupied by surface craft.

(1900) (4) The regulations in this section shall be enforced by the Commander, Alaskan Air Command, U.S. Air Force, Anchorage, Alaska, or such agencies as he may designate.

(1901)

§ 334.1303 Navigable waters of Knik Arm within the explosive arc of the Six Mile Munitions Storage Area off the northeastern side of Joint Base Elmendorf-Richardson; restricted area.

(1902) (a) *The area.* The restricted area consists of the waters with an area defined as beginning at a point on shore at latitude 61°17′35″ N, longitude 149°50′3″ W; thence northward in an arc to the mid-arc point at latitude 61°18′19″ N, longitude 149°50′6″ W; continuing northward in an arc to the end point on shore at latitude 61°18′36″ N, longitude 149°49′1″ W. The datum for these coordinates is NAD–83.

(1903) (b) *The regulation.* The restricted area described in paragraph (a) of this section is permanently closed for public use at all times. No persons, watercrafts, or vessels shall enter, or remain, in the area except for those authorized by the enforcing agency.

(1904) (c) *Enforcement.* This regulation will be enforced by USAF PACAF 673rd Air Base Wing.

(1905) **§334.1305 Eagle River from Bravo Bridge to its mouth at Eagle Bay in Knik Arm, Richardson Training Area on Joint Base Elmendorf-Richardson, Alaska; restricted area.**

(1906) (a) *Restricted area*. The restricted area consists of navigable waters within an area defined as beginning a point on shore at latitude 61°19′40.1″N, longitude 149°44′20.336″W; thence easterly to latitude 61°19′41.59″N, longitude 149°44′6.825″W; 3.06 nautical miles southerly along the river to latitude 61°18′40.13″N, longitude 149°41′16.12″W; thence southerly to latitude 61°18′38.404″N, to longitude 149°41′14.73″W. The datum for these coordinates is North American Datum of 1983 (NAD–83).

(1907) (b) *The regulation*. The restricted area is permanently closed for public use at all times. No persons, watercraft, or vessels shall enter or remain in the area except for those authorized by the enforcing agency.

(1908) (c) *Enforcement*. The regulations in this section will be enforced by the Commander, United States Army Alaska.

(1909)

§334.1320 Kuluk Bay, Adak, Alaska; naval restricted area.

(1910) (a) *The area*. The northwest portion of Kuluk Bay bounded as follows: Beginning on shore at

(1911) 51°55'00"N., 176°33'09"W.; thence due east to

(1912) 51°55'00"N., 176°33'09"W.; thence due south to

(1913) 51°51'55"N., 176°31'09"W.; thence due west to the shore at

(1914) 51°51'00"N., 176°37'43"W.; thence along the shoreline to the point of beginning.

(1915) (b) *The regulations*. (1) Except in great emergency, no vessel shall anchor in the restricted area described above.

(1916) (2) The dragging of anchors in or across the restricted area is prohibited and no object attached to a vessel shall be placed on or near the bottom.

(1917) (3) Fishing and trawling activities in the restricted area are prohibited.

(1918) (4) The regulation of this restricted area shall be enforced by the Commander, Patrol Wing, U.S. Pacific Fleet, Naval Air Station Moffett Field, California, and such agencies and he/she may designate.

(1919)

§334.1325 United States Army Restricted Area, Kuluk Bay, Adak, Alaska.

(1920) (a) *The area*. The area within a radius 1,000 yards around the Sea Base Radar mooring site in all directions from 51°53'05.4"N., 176°33'47.4"W. (NAD 83).

(1921) (b) *The regulation*. (1) No vessel, person, or other craft shall enter or remain in the restricted area except as may be authorized by the enforcing agency.

(1922) (2) A ring of eight lighted and marked navigation buoys marking the perimeter of the mooring anchor system will provide a visible distance reference at a radius of approximately 800 yards from 51°53'05.4"N., 176°33'47.4"W. (NAD 83). Each buoy has a white light, flashing at 3 second intervals with a 2 nautical mile range. Vessels, persons or other craft must stay at least 200 yards outside the buoys.

(1923) (3) The regulation in this section shall be enforced by personnel attached to the Missile Defense Agency and/or by such other agencies as the Director, MDA–AK, Fort Richardson, Alaska, may designate.

(1924)

§334.1330 Bering Strait, Alaska; naval restricted area off Cape Prince of Wales.

(1925) (a) *The area*. An area 2,000 feet wide extending from a point on Cape Prince of Wales marked by a triangular cable marker located approximately midway between the village of Wales and Cape Prince of Wales Light to a point four statute miles due west of the cable marker with the axis of the area passing through the two points.

(1926) (b) *The regulations*. (1) No vessel shall anchor in the restricted area described in paragraph (a) of this section.

(1927) (2) Dragging of anchors in or across the restricted area is prohibited and no object attached to a vessel shall be placed on or near the bottom.

(1928) (3) The regulations in this section shall be enforced by the Commander, Third Fleet, Pearl Harbor, Hawaii, and such agencies as he may designate.

(1929)

TITLE 40–PROTECTION OF ENVIRONMENT

(1930)

Part 140–Marine Sanitation Device Standard

(1931)

§140.1 Definitions

(1932) For the purpose of these standards the following definitions shall apply:

(1933) (a) *Sewage* means human body wastes and the wastes from toilets and other receptacles intended to receive or retain body wastes;

(1934) (b) *Discharge* includes, but is not limited to, any spilling, leaking, pumping, pouring, emitting, emptying, or dumping;

(1935) (c) *Marine sanitation device* includes any equipment for installation onboard a vessel and which is designed to receive, retain, treat, or discharge sewage and any process to treat such sewage;

(1936) (d) *Vessel* includes every description of watercraft or other artificial contrivance used, or capable of being used, as a means of transportation on waters of the United States;

(1937) (e) *New vessel* refers to any vessel on which construction was initiated on or after January 30, 1975;

(1938) (f) *Existing vessel* refers to any vessel on which construction was initiated before January 30, 1975;

(1939) (g) *Fecal coliform bacteria* are those organisms associated with the intestines of warm-blooded animals that are commonly used to indicate the presence of fecal material and the potential presence of organisms capable of causing human disease.

(1940)

§140.2 Scope of standard.

(1941) The standard adopted herein applies only to vessels on which a marine sanitation device has been installed. The standard does not require the installation of a marine sanitation device on any vessel that is not so equipped. The standard applies to vessels owned and operated by the United States unless the Secretary of Defense finds that compliance would not be in the interest of national security.

(1942)

§140.3 Standard.

(1943) (a) (1) In freshwater lakes, freshwater reservoirs or other freshwater impoundments whose inlets or outlets are such as to prevent the ingress or egress by vessel traffic subject to this regulation, or in rivers not capable of navigation by interstate vessel traffic subject to this

regulation, marine sanitation devices certified by the U.S. Coast Guard (see 33 CFR part 159, published in 40 FR 4622, January 30, 1975), installed on all vessels shall be designed and operated to prevent the overboard discharge of sewage, treated or untreated, or of any waste derived from sewage. This shall not be construed to prohibit the carriage of Coast Guard-certified flow-through treatment devices which have been secured so as to prevent such discharges.

(1944) (2) In all other waters, Coast Guard-certified marine sanitation devices installed on all vessels shall be designed and operated to either retain, dispose of, or discharge sewage. If the device has a discharge, subject to paragraph (d) of this section, the effluent shall not have a fecal coliform bacterial count of greater than 1,000 per 100 milliliters nor visible floating solids. Waters where a Coast Guard-certified marine sanitation device permitting discharge is allowed include coastal waters and estuaries, the Great Lakes and inter-connected waterways, fresh-water lakes and impoundments accessible through locks, and other flowing waters that are navigable interstate by vessels subject to this regulation.

(1945) (b) This standard shall become effective on January 30, 1977 for new vessels and on January 30, 1980 for existing vessels (or, in the case of vessels owned and operated by the Department of Defense, two years and five years, for new and existing vessels, respectively, after promulgation of implementing regulations by the Secretary of Defense under section 312(d) of the Act).

(1946) (c) Any vessel which is equipped as of the date of promulgation of this regulation with a Coast Guard-certified flow-through marine sanitation device meeting the requirements of paragraph (a)(2) of this section, shall not be required to comply with the provisions designed to prevent the overboard discharge of sewage, treated or untreated, in paragraph (a)(1) of this section, for the operable life of that device.

(1947) (d) After January 30, 1980, subject to paragraphs (e) and (f) of this section, marine sanitation devices on all vessels on waters that are not subject to a prohibition of the overboard discharge of sewage, treated or untreated, as specified in paragraph (a)(1) of this section, shall be designed and operated to either retain, dispose of, or discharge sewage, and shall be certified by the U.S. Coast Guard. If the device has a discharge, the effluent shall not have a fecal coliform bacterial count of greater than 200 per 100 milliliters, nor suspended solids greater than 150 mg/1.

(1948) (e) Any existing vessel on waters not subject to a prohibition of the overboard discharge of sewage in paragraph (a)(1) of this section, and which is equipped with a certified device on or before January 30, 1978, shall not be required to comply with paragraph (d) of this section, for the operable life of that device.

(1949) (f) Any new vessel on waters not subject to the prohibition of the overboard discharge of sewage in paragraph (a)(1) of this section, and on which construction is initiated before January 31, 1980, which is equipped with a marine sanitation device before January 31, 1980, certified under paragraph (a)(2) of this section, shall not be required to comply with paragraph (d) of this section, for the operable life of that device.

(1950) (g) The degrees of treatment described in paragraphs (a) and (d) of this section are "appropriate standards" for purposes of Coast Guard and Department of Defense certification pursuant to section 312(g)(2) of the Act.

(1951)

§140.4 Complete prohibition.

(1952) (a) Prohibition pursuant to CWA section 312(f)(3): a State may completely prohibit the discharge from all vessels of any sewage, whether treated or not, into some or all of the waters within such State by making a written application to the Administrator, Environmental Protection Agency, and by receiving the Administrator's affirmative determination pursuant to section 312(f)(3) of the Act. Upon receipt of an application under section 312(f)(3) of the Act, the Administrator will determine within 90 days whether adequate facilities for the safe and sanitary removal and treatment of sewage from all vessels using such waters are reasonably available. Applications made by States pursuant to section 312(f)(3) of the Act shall include:

(1953) (1) A certification that the protection and enhancement of the waters described in the petition require greater environmental protection than the applicable Federal standard;

(1954) (2) A map showing the location of commercial and recreational pump-out facilities;

(1955) (3) A description of the location of pump-out facilities within waters designated for no discharge;

(1956) (4) The general schedule of operating hours of the pump-out facilities;

(1957) (5) The draught requirements on vessels that may be excluded because of insufficient water depth adjacent to the facility;

(1958) (6) Information indicating that treatment of wastes from such pump-out facilities is in conformance with Federal law; and

(1959) (7) Information on vessel population and vessel usage of the subject waters.

(1960) (b) Prohibition pursuant to CWA section 312(f)(4)(A): a State may make a written application to the Administrator, Environmental Protection Agency, under section 312(f)(4)(A) of the Act, for the issuance of a regulation completely prohibiting discharge from a vessel of any sewage, whether treated or not, into particular waters of the United States or specified portions thereof, which waters are located within the boundaries of such State. Such application shall specify with particularly the waters, or portions thereof, for which a complete prohibition is desired. The application shall include identification of water recreational areas, drinking water intakes, aquatic sanctuaries, identifiable fish-spawning and nursery areas, and areas of intensive boating activities. If, on the basis of the State's application and any other

information available to him, the Administrator is unable to make a finding that the waters listed in the application require a complete prohibition of any discharge in the waters or portions thereof covered by the application, he shall state the reasons why he cannot make such a finding, and shall deny the application. If the Administrator makes a finding that the waters listed in the application require a complete prohibition of any discharge in all or any part of the waters or portions thereof covered by the State's application, he shall publish notice of such findings together with a notice of proposed rule making, and then shall proceed in accordance with 5 U.S.C. 553. If the Administrator's finding is that applicable water quality standards require a complete prohibition covering a more restricted or more expanded area than that applied for by the State, he shall state the reasons why his finding differs in scope from that requested in the State's application.

(1961) (1) For the following waters the discharge from a vessel of any sewage (whether treated or not) is completely prohibited pursuant to CWA section 312(f)(4)(A):

(1962) (i) Boundary Waters Canoe Area, formerly designated as the Superior, Little Indian Sioux, and Caribou Roadless Areas, in the Superior National Forest, Minnesota, as described in 16 U.S.C. 577–577d1.

(1963) (ii) Waters of the State of Florida within the boundaries of the Florida Keys National Marine Sanctuary as delineated on a map of the Sanctuary at *http://www.fknms.nos.noaa.gov/*.

(1964) (2)(i) For the marine waters of the State of California, the following vessels are completely prohibited from discharging any sewage (whether treated or not):

(1965) (A) A large passenger vessel;

(1966) (B) A large oceangoing vessel equipped with a holding tank which has not fully used the holding tank's capacity, or which contains more than *de minimis* amounts of sewage generated while the vessel was outside of the marine waters of the State of California.

(1967) (ii) For purposes of paragraph (b)(2) of this section:

(1968) (A) "Marine waters of the State of California" means the territorial sea measured from the baseline as determined in accordance with the Convention on the Territorial Sea and the Contiguous Zone and extending seaward a distance of three miles, and all enclosed bays and estuaries subject to tidal influences from the Oregon border (41.999325 North Latitude, 124.212110 West Longitude, decimal degrees, NAD 1983) to the Mexican border (32.471231 North Latitude, 117.137814 West Longitude, decimal degrees, NAD 1983). A map illustrating these waters can be obtained from EPA or viewed at *http://www.epa.gov/region9/water/no-discharge/overview.html*.

(1969) (B) A "large passenger vessel" means a passenger vessel, as defined in section 2101(22) of title 46, United States Code, of 300 gross tons or more, as measured under the International Convention on Tonnage Measurement of Ships, 1969, measurement system in 46 U.S.C. 14302, or the regulatory measurement system of 46 U.S.C. 14502 for vessels not measured under 46 U.S.C. 14302, that has berths or overnight accommodations for passengers.

(1970) (C) A "large oceangoing vessel" means a private, commercial, government, or military vessel of 300 gross tons or more, as measured under the International Convention on Tonnage Measurement of Ships, 1969, measurement system in 46 U.S.C. 14302, or the regulatory measurement system of 46 U.S.C. 14502 for vessels not measured under 46 U.S.C.14302, that is not a large passenger vessel.

(1971) (D) A "holding tank" means a tank specifically designed, constructed, and fitted for the retention of treated or untreated sewage, that has been designated and approved by the ship's flag Administration on the ship's stability plan; a designated ballast tank is not a holding tank for this purpose.

(1972) (c)(1) *Prohibition pursuant to CWA* section 312(f)(4)(B): A State may make written application to the Administrator of the Environmental Protection Agency under section 312(f)(4)(B) of the Act for the issuance of a regulation establishing a drinking water intake no discharge zone which completely prohibits discharge from a vessel of any sewage, whether treated or untreated, into that zone in particular waters, or portions thereof, within such State. Such application shall:

(1973) (i) Identify and describe exactly and in detail the location of the drinking water supply intake(s) and the community served by the intake(s), including average and maximum expected amounts of inflow;

(1974) (ii) Specify and describe exactly and in detail, the waters, or portions thereof, for which a complete prohibition is desired, and where appropriate, average, maximum and low flows in million gallons per day (MGD) or the metric equivalent;

(1975) (iii) Include a map, either a USGS topographic quadrant map or a NOAA nautical chart, as applicable, clearly marking by latitude and longitude the waters or portions thereof to be designated a drinking water intake zone; and

(1976) (iv) Include a statement of basis justifying the size of the requested drinking water intake zone, for example, identifying areas of intensive boating activities.

(1977) (2) If the Administrator finds that a complete prohibition is appropriate under this paragraph, he or she shall publish notice of such finding together with a notice of proposed rulemaking, and then shall proceed in accordance with 5 U.S.C. 553. If the Administrator's finding is that a complete prohibition covering a more restricted or more expanded area than that applied for by the State is appropriate, he or she shall also include a statement of the reasons why the finding differs in scope from that requested in the State's application.

(1978) (3) If the Administrator finds that a complete prohibition is inappropriate under this paragraph, he or she shall deny the application and state the reasons for such denial.

(1979) (4) For the following waters the discharge from a vessel of any sewage, whether treated or not, is completely prohibited pursuant to CWA section 312(f)(4)(B):

(1980) (i) Two portions of the Hudson River in New York State, the first is bounded by an east-west line through the most northern confluence of the Mohawk River which will be designated by the Troy-Waterford Bridge (126th Street Bridge) on the south and Lock 2 on the north, and the second of which is bounded on the north by the southern end of Houghtaling Island and on the south by a line between the Village of Roseton on the western shore and Low Point on the eastern shore in the vicinity of Chelsea, as described in Items 2 and 3 of 6 NYCRR Part 858.4.

(1981) (ii) [Reserved]

(1982)

§140.5 Analytical procedures.

(1983) In determining the composition and quality of effluent discharge from marine sanitation devices, the procedures contained in 40 CFR part 136, "Guidelines Establishing Test Procedures for the Analysis of Pollutants," or subsequent revisions or amendments thereto, shall be employed.

(1984)

TITLE 50–WILDLIFE AND FISHERIES

(1985)

Part 216–Regulations Governing the Taking and Importing of Marine Mammals

(1986)

Subpart G–Pribilof Islands Administration

(1987)

§216.81 Visits to fur seal rookeries.

(1988) From June 1 to October 15 of each year, no person, except those authorized by a representative of the National Marine Fisheries Service, or accompanied by an authorized employee of the National Marine Fisheries Service, shall approach any fur seal rookery or hauling grounds nor pass beyond any posted sign forbidding passage.

(1989)

§216.82 Dogs prohibited.

(1990) In order to prevent molestation of fur seal herds, the landing of any dogs at Pribilof Islands is prohibited.

(1991)

§216.83 Importation of birds or mammals.

(1992) No mammals or birds, except household cats, canaries, and parakeets, shall be imported to the Pribilof Islands without permission of an authorized representative of the National Marine Fisheries Service.

(1993)

§216.84 [Reserved]

(1994)

§216.85 Walrus and Otter Islands.

(1995) By Executive Order 1044, dated February 27, 1909, Walrus and Otter Islands were set aside as bird reservations. All persons are prohibited to land on these islands except those authorized by the appropriate representative of the National Marine Fisheries Service.

(1996)

§216.86 Local regulations.

(1997) Local regulations will be published from time to time and will be brought to the attention of local residents and persons assigned to duty on the Islands by posting in public places and brought to the attention of tourists by personal notice.

(1998)

§216.87 Wildlife research.

(1999) (a) Wildlife research, other than research on North Pacific fur seals, including specimen collection, may be permitted on the Pribilof Islands subject to the following conditions:

(2000) (1) Any person or agency, seeking to conduct such research shall first obtain any Federal or State of Alaska permit required for the type of research involved.

(2001) (2) Any person seeking to conduct such research shall obtain prior approval of the Director, Pribilof Islands Program, National Marine Fisheries Service, National Oceanic and Atmospheric Administration, 1700 Westlake Avenue North, Seattle, Wash. 98109, by filing with the Director an application which shall include:

(2002) (i) Copies of the required Federal and State of Alaska permits; and

(2003) (ii) A resume of the intended research program.

(2004) (3) All approved research shall be subject to all regulations and administrative procedures in effect on the Pribilof Islands, and such research shall not commence until approval from the Director is received.

(2005) (4) Any approved research program shall be subject to such terms and conditions as the Director, Pribilof Islands Program deems appropriate.

(2006) (5) Permission to utilize the Pribilof Islands to conduct an approved research program may be revoked by the Director, Pribilof Islands Program at any time for noncompliance with any terms and conditions, or for violations of any regulation or administrative procedure in effect on the Pribilof Islands.

(2007)

Part 224–Endangered Marine and Anadromous Species

(2008)

§224.103 Special prohibitions for endangered marine mammals.

(2009) (a) [Reserved]

(2010) (b) *Approaching endangered humpback whales in Alaska—*

(2011) (1) *Prohibitions*. Except as provided under paragraph (b)(2) of this section, it is unlawful for any person subject to the jurisdiction of the United States to commit, to attempt to commit, to solicit another to commit, or to cause to be committed, within 200 nautical miles (370.4 km) of Alaska, or within inland waters of the state, any of the acts in paragraphs (b)(1)(i) through (b)(1)(iii) of this section with respect to endangered humpback whales (*Megaptera novaeangliae*):

(2012) (i) Approach, by any means, including by interception (i.e., placing a vessel in the path of an oncoming humpback whale so that the whale surfaces within 100 yards (91.4 m) of the vessel), within 100 yards (91.4 m) of any humpback whale;

(2013) (ii) Cause a vessel or other object to approach within 100 yards (91.4 m) of a humpback whale; or

(2014) (iii) Disrupt the normal behavior or prior activity of a whale by any other act or omission. A disruption of normal behavior may be manifested by, among other actions on the part of the whale, a rapid change in direction or speed; escape tactics such as prolonged diving, underwater course changes, underwater exhalation, or evasive swimming patterns; interruptions of breeding, nursing, or resting activities, attempts by a whale to shield a calf from a vessel or human observer by tail swishing or by other protective movement; or the abandonment of a previously frequented area.

(2015) (2) *Exceptions*. The following exceptions apply to this paragraph (b), but any person who claims the applicability of an exception has the burden of proving that the exception applies:

(2016) (i) Paragraph (b)(1) of this section does not apply if an approach is authorized by the National Marine Fisheries Service through a permit issued under part 222, subpart C, of this chapter (General Permit Procedures) or through a similar authorization.

(2017) (ii) Paragraph (b)(1) of this section does not apply to the extent that a vessel is restricted in its ability to maneuver and, because of the restriction, cannot comply with paragraph (b)(1) of this section.

(2018) (iii) Paragraph (b)(1) of this section does not apply to commercial fishing vessels lawfully engaged in actively setting, retrieving or closely tending commercial fishing gear. For purposes of this paragraph (b), commercial fishing means taking or harvesting fish or fishery resources to sell, barter, or trade. Commercial fishing does not include commercial passenger fishing operations (i.e. charter operations or sport fishing activities).

(2019) (iv) Paragraph (b)(1) of this section does not apply to state, local, or Federal government vessels operating in the course of official duty.

(2020) (v) Paragraph (b)(1) of this section does not affect the rights of Alaska Natives under 16 U.S.C. 1539(e).

(2021) (vi) Paragraph (b) of this section shall not take precedence over any more restrictive conflicting Federal regulation pertaining to humpback whales, including the regulations at 36 CFR 13.1102–13.1188 that pertain specifically to the waters of Glacier Bay National Park and Preserve.

(2022) (3) *General measures*. Notwithstanding the prohibitions and exceptions in paragraphs (b)(1) and (2) of this section, to avoid collisions with endangered humpback whales, vessels must operate at a slow, safe speed when near a humpback whale. ''Safe speed'' has the same meaning as the term is defined in 33 CFR 83.06 and the International Regulations for Preventing Collisions at Sea 1972 (see 33 U.S.C. 1602) with respect to avoiding collisions with humpback whales.

(2023) (c) *Approaching right whales*—(1) *Prohibitions*. Except as provided under paragraph (c)(3) of this section, it is unlawful for any person subject to the jurisdiction of the United States to commit, attempt to commit, to solicit another to commit, or cause to be committed any of the following acts:

(2024) (i) Approach (including by interception) within 500 yards (460 m) of a right whale by vessel, aircraft, or any other means;

(2025) (ii) Fail to undertake required right whale avoidance measures specified under paragraph (c)(2) of this section.

(2026) (2) *Right whale avoidance measures*. Except as provided under paragraph (c)(3) of this section, the following avoidance measures must be taken if within 500 yards (460 m) of a right whale:

(2027) (i) If underway, a vessel must steer a course away from the right whale and immediately leave the area at a slow safe speed.

(2028) (ii) An aircraft must take a course away from the right whale and immediately leave the area at a constant airspeed.

(2029) (3) *Exceptions*. The following exceptions apply to this section, but any person who claims the applicability of an exception has the burden of proving that the exception applies:

(2030) (i) Paragraphs (c)(1) and (c)(2) of this section do not apply if a right whale approach is authorized by the National Marine Fisheries Service through a permit issued under part 222, subpart C, of this chapter (General Permit Procedures) or through a similar authorization.

(2031) (ii) Paragraphs (c)(1) and (c)(2) of this section do not apply where compliance would create an imminent and serious threat to a person, vessel, or aircraft.

(2032) (iii) Paragraphs (c)(1) and (c)(2) of this section do not apply when approaching to investigate a right whale entanglement or injury, or to assist in the disentanglement or rescue of a right whale, provided that permission is received from the National Marine Fisheries Service or designee prior to the approach.

(2033) (iv) Paragraphs (c)(1) and (c)(2) of this section do not apply to an aircraft unless the aircraft is conducting whale watch activities.

(2034) (v) Paragraph (c)(2) of this section does not apply to the extent that a vessel is restricted in her ability to maneuver and, because of the restriction, cannot comply with paragraph (c)(2) of this section.

(2055)

TABLE 1 TO §224.103—LISTED STELLER SEA LION ROOKERY SITES[1]

Island		From		To		NOAA Chart	Notes
		Latitude	Longitude	Latitude	Longitude		
1	Outer I.	59°20.5'N	150°23.0'W	59°21.0'N	150°24.5'W	16680	S quadrant
2	Sugarloaf I.	58°53.0'N	152°02.0'W			16580	Whole island
3	Marmot I.	58°14.5'N	151°47.5'W	58°10.0'N	151°51.0'W	16580	SE quadrant
4	Chirikof I.	55°46.5'N	155°39.5'W	55°46.5'N	155°43.0'W	16580	S quadrant
5	Chowiet I.	56°00.5'N	156°41.5'W	56°00.5'N	156°42.0'W	16013	S quadrant
6	Atkins I.	55°03.5'N	159°18.5'W			16540	Whole island
7	Chernabura I.	54°47.5'N	159°31.0'W	54°45.5'N	159°33.5'W	16540	SE corner
8	Pinnacle Rock	54°46.0'N	161°46.0'W			16540	Whole island
9	Clubbing Rks (N)	54°43.0'N	162°26.5'W			16540	Whole island
	Clubbing Rks (S)	54°42.0'N	162°26.5'W			16540	Whole Island
10	Sea Lion Rks	55°28.0'N	163°12.0'W			16520	Whole island
11	Ugamak I.	54°14.0'N	164°48.0'W	54°13.0'N	164°48.0'W	16520	E end of island
12	Akun I.	54°18.0'N	165°32.5'W	54°18.0'N	165°31.5'W		Billings Head Bight
13	Akutan I.	54°03.5'N	166°00.0'W	54°05.5'N	166°05.0'W	16520	SW corner, Cape Morgan
14	Bogoslof I.	53°56.0'N	168°02.0'W			16500	Whole island
15	Ogchul I.	53°00.0'N	168°24.0'W			16500	Whole island
16	Adugak I.	52°55.0'N	169°10.5'W			16500	Whole island
17	Yunaska I.	52°42.0'N	170°38.5'W	52°41.0'N	170°34.5'W	16500	NE end
18	Seguam I.	52°21.0'N	172°35.0'W	52°21.0'N	172°33.0'W	16480	N coast, Saddleridge Point
19	Agligadak I.	52°06.5'N	172°54.0'W			16480	Whole island
20	Kasatochi I.	52°10.0'N	175°31.5'W	52°10.5'N	175°29.0'W	16480	N half of island
21	Adak I.	51°36.5'N	176°59.0'W	51°38.0'N	176°59.5'W	16460	SW Point, Lake Point
22	Gramp rock	51°29.0'N	178°20.5'W			16460	Whole island
23	Tag I.	51°33.5'N	178°34.5'W			16460	Whole island
24	Ulak I.	51°20.0'N	178°57.0'W	51°18.5'N	178°59.5'W	16460	SE corner, Hasgox Point
25	Semisopochnoi	51°58.5'N	179°45.5'E	51°57.0'N	179°46.0'E	16440	E quadrant, Pochnoi Point
	Semisopochnoi	52°01.5'N	179°37.5'E	52°01.5'N	179°39.0'E	16440	N quadrant, Petrel Point
26	Amchitka I.	51°22.5'N	179°28.0'E	51°21.5'N	179°25.0'E	16440	East Cape
27	Amchitka I.	51°32.5'N	178°49.5'E			16440	Column Rocks
28	Ayugadak Point	51°45.5'N	178°24.5'E			16440	SE coast of Rat Island
29	Kiska I.	51°57.5'N	177°21.0'E	51°56.5'N	177°20.0'E	16440	W central, Lief Cove
30	Kiska I.	51°52.5'N	177°13.0'E	51°53.5'N	177°12.0'E	16440	Cape St. Stephen
31	Walrus I.	57°11.0'N	169°56.0'W			16380	Whole island
32	Buldir I.	52°20.5'N	175°57.0'E	52°23.5'N	175°51.0'E	16420	Se point to NW point
33	Agattu I.	52°24.0'N	173°21.5'E			16420	Gillion Point
34	Agattu I.	52°23.5'N	173°43.5'E	52°22.0'N	173°41.0'E	16420	Cape Sabak
35	Attu I.	52°54.5'N	172°28.5'E	52°57.5'N	172°31.5'E	16480	S Quadrant

[1]Each site extends in a clockwise direction from the first set of geographic coordinates along the shoreline at mean lower low water to the second set of coordinates; or, if only one set of geographic coordinates is listed, the site extends around the entire shoreline of the island at mean lower low water.

(2035) (d) *Special prohibitions relating to endangered Steller sea lion protection*.—

(2036) (1) *General Prohibitions*. The following regulatory provisions shall apply to the western population of Steller sea lions:

(2037) (i) *No discharge of firearms*. Except as provided in paragraph (d)(2) of this section, no person subject to the jurisdiction of the United States may discharge a firearm at or within 100 yards (91.4 meters) of a Steller sea lion west of 144°W longitude. A firearm is any weapon, such as a pistol or rifle, capable of firing a missile using an explosive charge as a propellant.

(2038) (ii) *No approach in buffer areas*. Except as provided in paragraph (d)(2) of this section:

(2039) (A) No owner or operator of a vessel may allow the vessel to approach within 3 nautical miles (5.5 kilometers) of a Steller sea lion rookery site listed in paragraph (d)(1)(iii) of this section;

(2040) (B) No person may approach on land not privately owned within one-half statutory mile (0.8 kilometers) or within sight of a Steller sea lion rookery site listed in paragraph (d)(1)(iii) of this section, whichever is greater, except on Marmot Island; and

(2041) (C) No person may approach on land not privately owned within one and one-half statutory miles (2.4 kilometers) or within sight of the eastern shore of Marmot Island, including the Steller sea lion rookery site listed in paragraph (d)(1)(iii) of this section, whichever is greater.

(2042) (iii) *Listed sea lion rookery sites*. Listed Steller sea lion rookery sites consist of the rookeries in the Aleutian Islands and the Gulf of Alaska listed in Table 1.

(2043) (iv) *Commercial Fishing Operations*. The incidental mortality and serious injury of endangered Steller sea lions in commercial fisheries can be authorized in compliance with sections 101(a)(5) and 118 of the Marine Mammal Protection Act.

(2044) (2) *Exceptions*—(i) *Permits*. The Assistant Administrator may issue permits authorizing activities that would otherwise be prohibited under paragraph (d)(1) of this section in accordance with and subject to the provisions of part 222, subpart C of this chapter—General Permit Procedures.

(2045) (ii) *Official activities*. The taking of Steller sea lions must be reported within 30 days to the Regional Administrator, Alaska Region. Paragraph (d)(1) of this section does not prohibit or restrict a Federal, state or local government official, or his or her designee, who is acting in the course of official duties from:

(2046) (A) Taking a Steller sea lion in a humane manner, if the taking is for the protection or welfare of the animal, the protection of the public health and welfare, or the nonlethal removal of nuisance animals; or

(2047) (B) Entering the buffer areas to perform activities that are necessary for national defense, or the performance of other legitimate governmental activities.

(2048) (iii) *Subsistence takings by Alaska natives*. Paragraph (d)(1) of this section does not apply to the taking of Steller sea lions for subsistence purposes under section 10(e) of the Act.

(2049) (iv) *Emergency situations*. Paragraph (d)(1)(ii) of this section does not apply to an emergency situation in which compliance with that provision presents a threat to the health, safety, or life of a person or presents a significant threat to the vessel or property.

(2050) (v) *Exemptions*. Paragraph (d)(1)(ii) of this section does not apply to any activity authorized by a prior written exemption from the Regional Administrator, Alaska Region, National Marine Fisheries Service. Concurrently with the issuance of any exemption, the Assistant Administrator will publish notice of the exemption in the **Federal Register**. An exemption may be granted only if the activity will not have a significant adverse effect on Steller sea lions, the activity has been conducted historically or traditionally in the buffer zones, and there is no readily available and acceptable alternative to or site for the activity.

(2051) (vi) *Navigational transit*. Paragraph (d)(1)(ii) of this section does not prohibit a vessel in transit from passing through a strait, narrows, or passageway listed in this paragraph if the vessel proceeds in continuous transit and maintains a minimum of 1 nautical mile from the rookery site. The listing of a strait, narrows, or passageway does not indicate that the area is safe for navigation. The listed straits, narrows, or passageways include the following:

(2052)

Rookery	Straits, Narrows or Pass
Akutan Island	Akutan Pass between Cape Morgan and Unalga Island
Clubbing Rocks	Between Clubbing Rocks and Cherni Island
Outer Island	Wildcat Pass between Rabbit and Ragged Islands

(2053) (3) *Penalties*. (i) Any person who violates this section or the Act is subject to the penalties specified in section 11 of the Act, and any other penalties provided by law.

(2054) (ii) Any vessel used in violation of this subsection or the Endangered Species Act is subject to forfeiture under section 11(e)(4)(B) of the Act.

(2056)

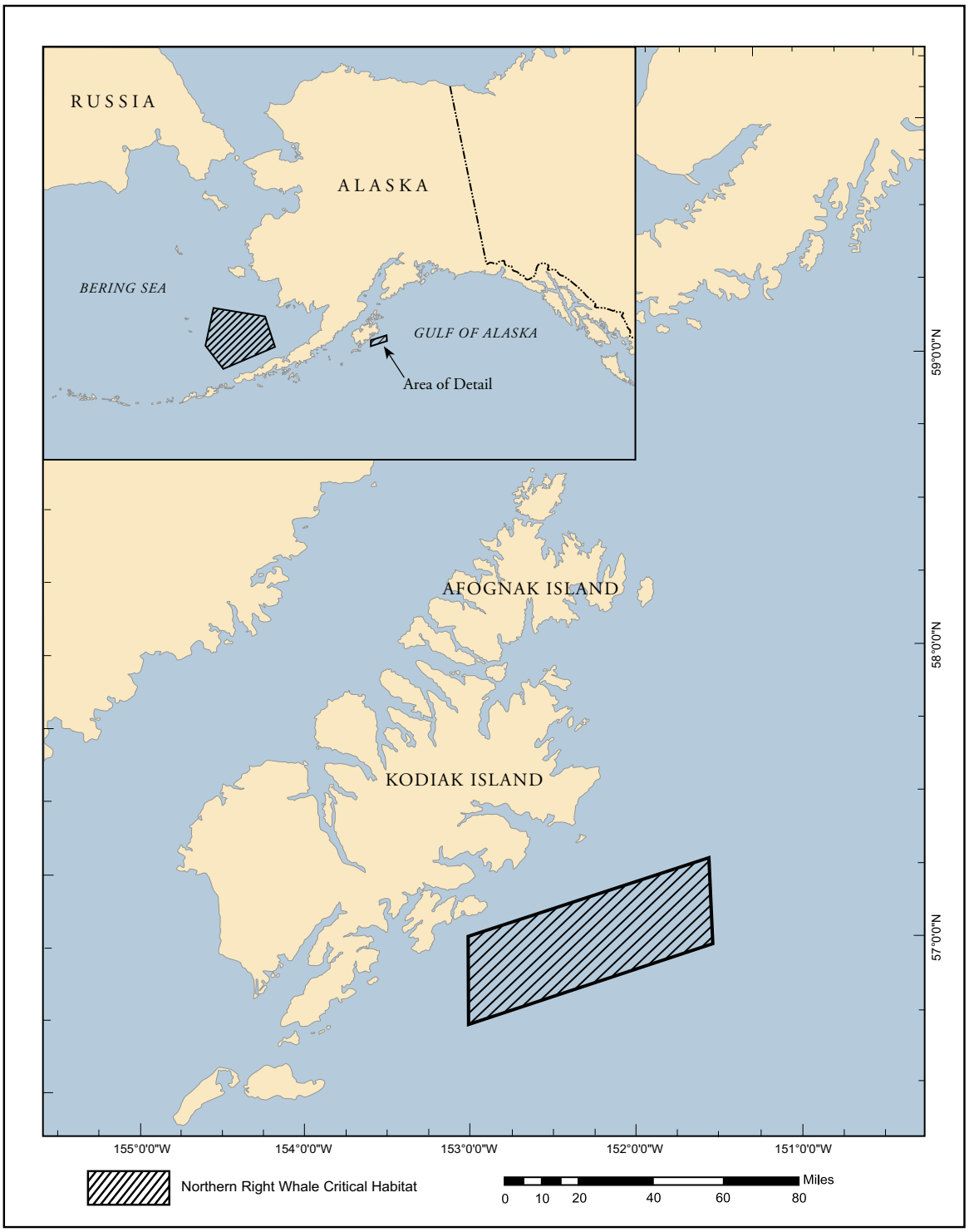
Part 226-Designated Critical Habitat

(2057)

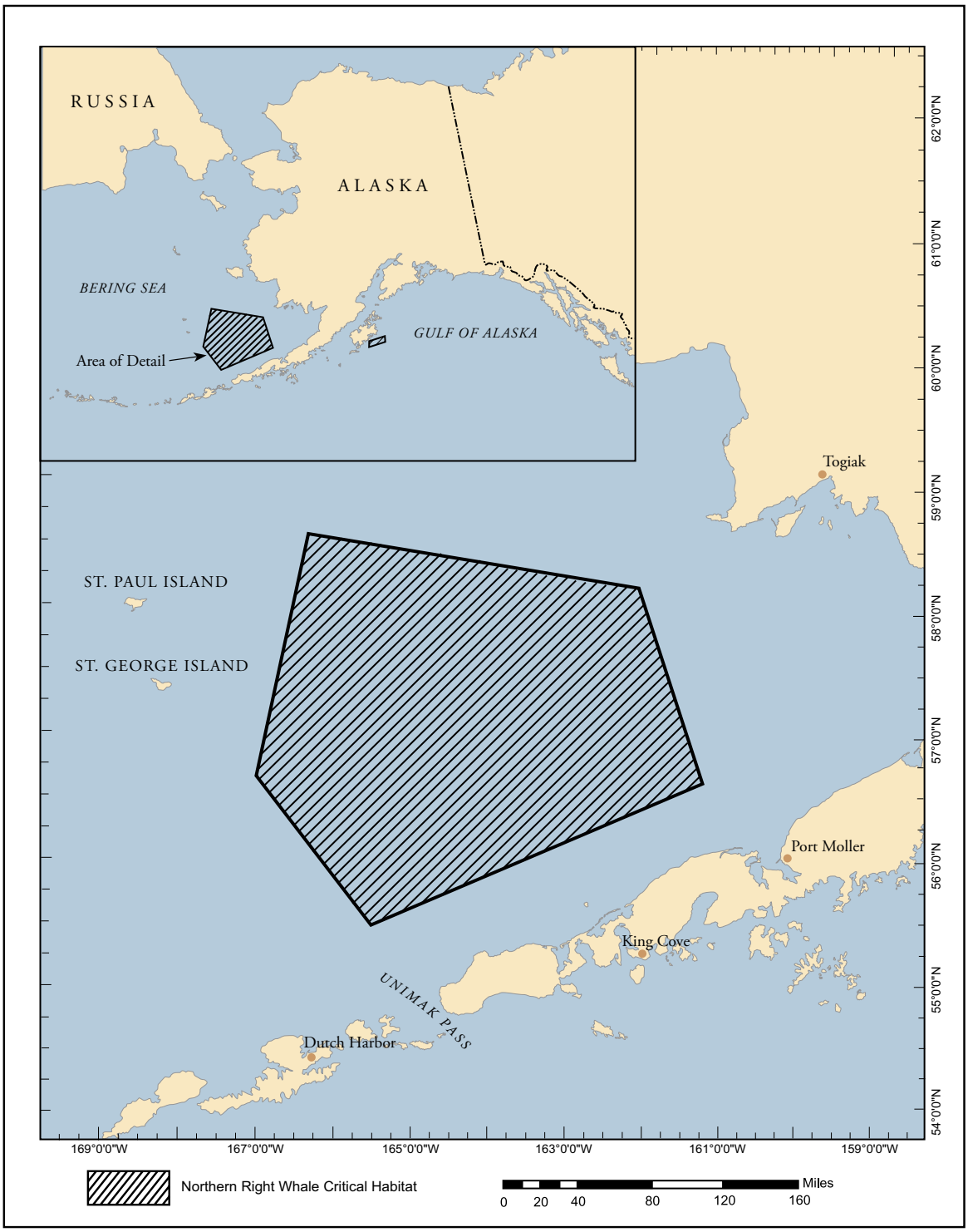
§226.101 Purpose and scope.

(2058) The regulations contained in this part identify those habitats designated by the Secretary of Commerce as critical, under section 4 of the Act, for endangered and threatened species under the jurisdiction of the Secretary of Commerce. Those species are enumerated at §223.102 of this chapter if threatened and at §224.101 of this chapter if endangered. For regulations pertaining to the designation of critical habitat, see part 424 of this title; for regulations pertaining to prohibitions against the adverse modification or destruction of critical habitat, see

(2090)


RUSSIA
ALASKA
BERING SEA
GULF OF ALASKA
Area of Detail
AFOGNAK ISLAND
KODIAK ISLAND
59°0'0"N
58°0'0"N
57°0'0"N
155°0'0"W
154°0'0"W
153°0'0"W
152°0'0"W
151°0'0"W
Northern Right Whale Critical Habitat
Miles
0 10 20 40 60 80

(2091)


RUSSIA
ALASKA
BERING SEA
GULF OF ALASKA
Area of Detail
Togiak
ST. PAUL ISLAND
ST. GEORGE ISLAND
Port Moller
King Cove
UNIMAK PASS
Dutch Harbor
62°0'0"N
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58°0'0"N
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56°0'0"N
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169°0'0"W
167°0'0"W
165°0'0"W
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161°0'0"W
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Northern Right Whale Critical Habitat
Miles
0 20 40 80 120 160

(2092)

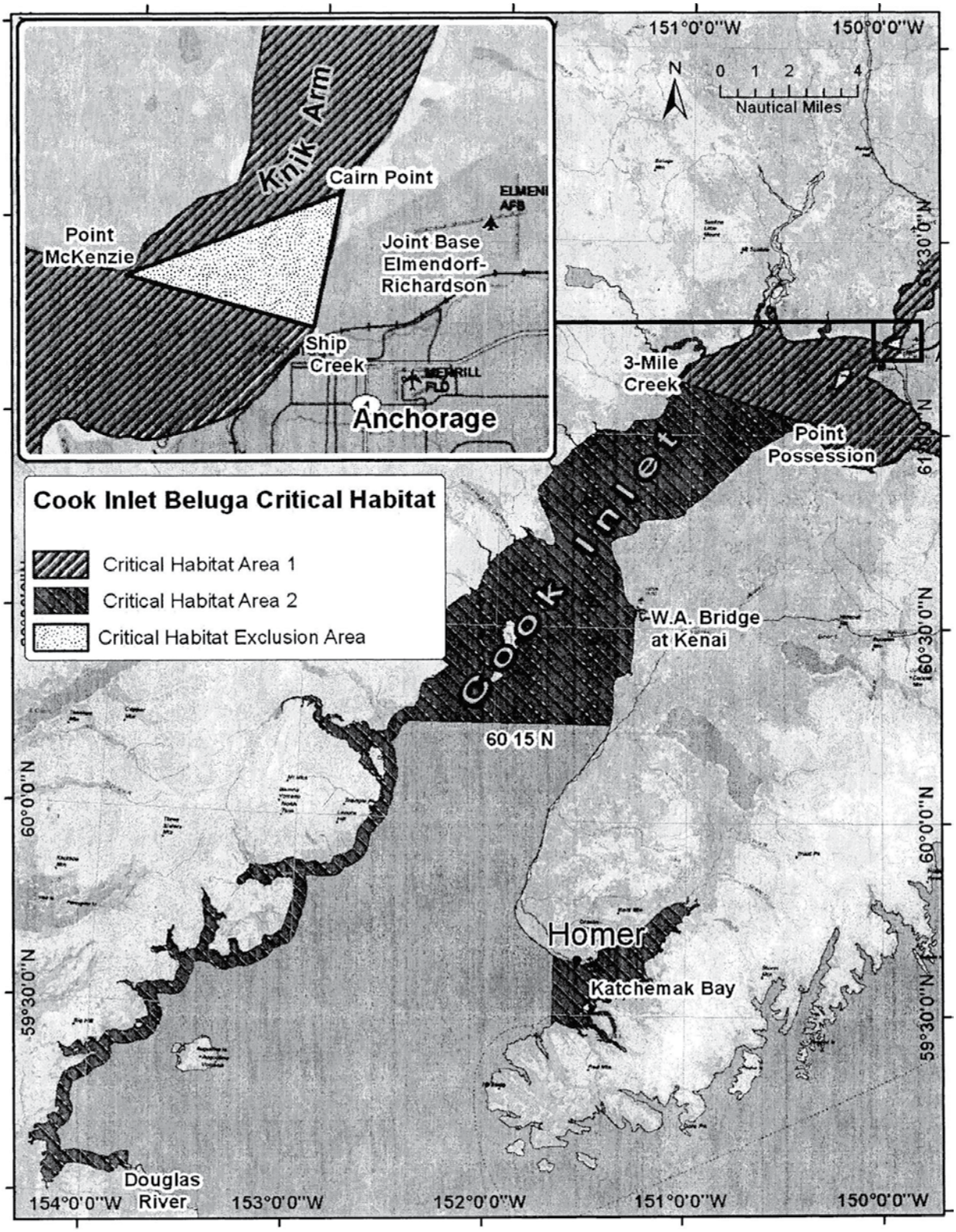


Figure 1. Cook Inlet beluga whale critical habitat.

part 402 of this title. Additional information regarding designated critical habitats that is not provided in this section may be obtained upon request to the Office of Protected Resources (*see* §222.102, definition of "Office of Protected Resources").

(2059)

§226.215 Critical habitat for the North Pacific Right Whale (Eubalaena japonica).

(2060) (a) *Primary Constituent Elements*. The primary constituent elements of the North Pacific right whale are the copepods *Calanus marshallae*, *Neocalanus cristatus*, and *N. plumchris*, and the euphausiid *Thysanoessa raschii*, in areas of the North Pacific Ocean in which North Pacific right whales are known or believed to feed, as described in paragraphs (b) and (c) of this section.

(2061) (b) *Bering Sea*. An area described by a series of straight lines connecting the following coordinates in the order listed:

(2062) 58°00'N., 168°00'W.

(2063) 58°00'N., 163°00'W.

(2064) 56°30'N., 161°45'W.

(2065) 55°00'N., 166°00'W.,

(2066) 56°00'N., 168°00'W.

(2067) 58°00'N., 168°00'W.

(2068) (c) *Gulf of Alaska*. An area described by a series of straight lines connecting the following coordinates in the order listed.

(2069) 57°03'N., 153°00'W.

(2070) 57°18'N., 151°30'W.

(2071) 57°00'N., 151°30'W.

(2072) 56°45'N., 153°00'W.

(2073) 57°03'N., 153°00'W.

(2074) (d) Maps of critical habitat for the North Pacific right whale follow:

(2075)

§ 226.220 Critical habitat for the Cook Inlet beluga whale (Delphinapterus leucas).

(2076) Critical habitat is designated in Cook Inlet, Alaska, for the Cook Inlet beluga whale as described in paragraphs (a) and (b) of this section. The textual description of this critical habitat is the definitive source for determining the critical habitat boundaries. General location maps are provided for general guidance purposes only, and not as a definitive source for determining critical habitat boundaries. Critical habitat does not include manmade structures and the land on which they rest within the designated boundaries described in paragraphs (a)(1) and (2) of this section that were in existence as of May 11, 2011.

(2077) (a) *Critical Habitat Boundaries*. Critical habitat includes two specific marine areas in Cook Inlet, Alaska. These areas are bounded on the upland by Mean High Water (MHW) datum, except for the lower reaches of four tributary rivers. Critical habitat shall not extend into the tidally-influenced channels of tributary waters of Cook Inlet, with the exceptions noted in the descriptions of each critical habitat area.

(2078) (1) *Area 1*. All marine waters of Cook Inlet north of a line from the mouth of Threemile Creek (61°08.5'N., 151°04.4'W.) connecting to Point Possession (61°02.1'N., 150°24.3'W.), including waters of the Susitna River south of 61°20.0'N., the Little Susitna River south of 61°18.0'N., and the Chickaloon River north of 60°53.0'N.

(2079) (2) *Area 2*. All marine waters of Cook Inlet south of a line from the mouth of Threemile Creek (61°08.5'N., 151°04.4'W.) to Point Possession (61°02.1'N., 150°24.3'W.) and north of 60°15.0'N., including waters within 2 nautical miles seaward of MHW along the western shoreline of Cook Inlet between 60°15.0'N. and the mouth of the Douglas River (59°04.0'N., 153°46.0'W.); all waters of Kachemak Bay east of 151°40.0'W.; and waters of the Kenai River below the Warren Ames bridge at Kenai, Alaska.

(2080) (b) A map of the designated critical habitat for Cook Inlet beluga whale follows (Figure 1).

(2081) (c) *Primary constituent elements*. The primary constituent elements essential to the conservation of the Cook Inlet beluga whale are:

(2082) (1) Intertidal and subtidal waters of Cook Inlet with depths <30 feet (MLLW) and within 5 miles of high and medium flow anadromous fish streams.

(2083) (2) Primary prey species consisting of four species of Pacific salmon (Chinook, sockeye, chum, and coho), Pacific eulachon, Pacific cod, walleye pollock, saffron cod, and yellowfin sole.

(2084) (3) Waters free of toxins or other agents of a type and amount harmful to Cook Inlet beluga whales.

(2085) (4) Unrestricted passage within or between the critical habitat areas.

(2086) (5) Waters with in-water noise below levels resulting in the abandonment of critical habitat areas by Cook Inlet beluga whales.

(2087) (d) *Sites owned or controlled by the Department of Defense, or of interest to national security*. Critical habitat does not include the following areas owned by the Department of Defense or for which the Secretary has determined to exclude for reasons of national security:

(2088) (1) All property and overlying waters of Joint Base Elmendorf-Richardson between Mean Higher High Water and Mean High Water; and

(2089) (2) All waters off the Port of Anchorage which are east of a line connecting Cairn Point (61°15.4'N., 149°52.8'W.) and Point MacKenzie (61°14.3'N., 149°59.2'W.) and north of a line connecting Point MacKenzie and the north bank of the mouth of Ship Creek (61°13.6'N., 149°53.8'W.).

Cape Spencer to Beaufort Sea

(1) **Alaska**, the largest of the United States, occupies the northwest part of the North American continent. The State is bordered on the east and south by Canada and on the west and north by the Pacific and Arctic Oceans. The northernmost point of Alaska is Point Barrow (71°23'N., 156°28'W.); the westernmost point is Cape Wrangell (52°55'N., 172°26'E.) on Attu Island; and the southernmost point is Nitrof Point (51°13.0'N., 179°07.7'W.), on Amatignak Island. Cape Muzon (54°40'N., 132°41'W.) is on the historic parallel that is the coastal boundary between Alaska and Canada's British Columbia. Cape Muzon is on the north side of Dixon Entrance and is 480 miles northwest of Cape Flattery, Washington; between the two United States capes is the coastal area of British Columbia.

(2) Alaska was purchased from Russia in 1867 and became an organized territory of the United States in 1912. By Presidential proclamation of January 3, 1959, Alaska officially became the 49th state of the United States. Principal resources are oil, timber, fish and coal. Alaska has a general ocean coastline of 5,770 nautical miles and a tidal shoreline of 29,462 miles. The state is so huge that its description requires two complete volumes of the National Ocean Service's ten-volume series of United States Coast Pilots.

(3) Coast Pilot 9 deals with the Pacific and Arctic coasts of Alaska from Cape Spencer to Beaufort Sea; general ocean coastline totals 5,520 nautical miles, and tidal shoreline totals 18,377 miles. Included are the Gulf of Alaska coast and islands, the Alaska Peninsula, the Aleutian Islands and the United States coasts and islands of the Bering Sea, Chukchi Sea and Beaufort Sea.

(4) Between Cape Spencer and Cape St. Elias, the coast is fairly regular. Along this stretch are Lituya Bay, Yakutat Bay and Icy Bay. The great Malaspina Glacier comes to within 3 miles of the ocean west of Yakutat Bay.

(5) From Cape St. Elias to Cook Inlet, the characteristic formation is generally rocky; the waters are mostly deep, but there are also great variations in depth. The visible topographic features, such as the mountains and the rugged islands, probably are duplicated underwater.

(6) In Cook Inlet, the characteristic formation is the result of glacial action. The shores are strewn with boulders, some of great size, and soundings indicate the existence underwater of similar boulders, particularly in areas of hard bottom where the boulders have not been buried by silt.

(7) West from Cook Inlet, and throughout the islands off the southeast side of the Alaska Peninsula, rock formation is again found. The principal harbors are Kodiak on Kodiak Island, Sand Point in the Shumagin Islands and King Cove and False Pass on the southeast side of the peninsula.

(8) The Aleutian Islands are rugged and mountainous, with numerous off-lying islets, rocks and reefs. Some of the larger islands provide more or less sheltered anchorage.

(9) The Bering Sea is characterized in general by shallow waters, with extensive sand and mud flats along the shores, particularly in the approaches to the various bays and rivers. There is little rock formation, and its occurrence, where found, is limited in area.

(10) The Arctic coast is mostly low, especially to the north of Cape Lisburne. The principal landing places are Kotzebue and Barrow.

(11)

Disposal Sites and Dumping Grounds

(12) These areas are rarely mentioned in the Coast Pilot but are shown on the nautical charts. (See Disposal Sites and Dumping Grounds, chapter 1, and charts for limits.)

(13)

Aids to navigation

(14) Lights, although infrequent along much of this coast, do mark the important headlands and passages; sound signals are at most of the principal lights. Many of the buoys in the important passages are equipped with radar reflectors, which greatly increase the range at which the buoys may be detected. Many of the aids to navigation in Alaska are seasonal. There are aerolights in Alaska that are useful for navigation purposes, but these should not be confused with marine lights. (See the Light List for a complete description of navigational aids.)

(15)

Electronic navigation

(16) Radar, radar beacons (Racons), GPS/DGPS, and the radio direction finder have given the navigator means of determining his position in any weather. The mariner should, however, appreciate the limitations and sources of error of the various systems. Radar should be properly calibrated and tuned. Radio direction finders must be calibrated, and the operator should become experienced in the use of the equipment. Radar, radio direction finder - GPS/DGPS shipboard equipment are subject to malfunctions that may not be immediately apparent to the operator, and there are conditions when radio signals may be subject to error when the shipboard receiver is operating properly. Soundings should always be taken in critical places, and the position should be checked by visual bearings when possible.

(17) Navigation by **radar** is facilitated along the coast of Alaska and in the various passages by the generally high relief of the coastline. The rugged coast provides many points, headland, large offshore rocks and islands that give accurate radar ranges and bearings. Radar ranges are more accurate than radar bearings. When two or more suitable targets can be positively identified, a better fix is obtained by radar ranges alone than by radar ranges and bearings. When visibility permits, visual bearings should always be taken. When positioning by a bearing and a radar range of a single object, the identification of the target must be positive. Floating aids to navigation should not be used as targets for fixing position.

(18) The U.S. Coast Guard no longer maintains radiobeacons. However, commercial radio stations can be used instead. Radio direction finder equipment is subject to several kinds of errors. Bearings obtained at twilight or at night or bearings that are almost parallel to the coast should be accepted with reservations, due to "night effect" and to the distortion of the radio waves if traveling overland. Other sources of error in the system may be avoided by the proper calibration of the shipboard receiver.

(19) The frequent occurrence of fog along this coast makes radar an invaluable aid in detecting other traffic and obtaining a line of position and/or fix. Bridge-to-bridge radio communication (VHF-FM) is another useful aid, regardless of weather, in waters where maneuvering room is limited or restricted. The use of VHF-FM equipment for short-range communication is increasing, and so are the number of vessels equipped with this equipment. The primary advantages of this radio system are its line-of-sight characteristic and relative freedom from static interference.

(20)

COLREGS Demarcation Lines

(21) The International Regulations for Preventing Collisions at Sea, 1972 (72 COLREGS) apply on all the sounds, bays, harbors and inlets of Alaska. (See **33 CFR Part 80**, chapter 2.)

(22)

Shipping Safety Fairways

(23) A system of shipping safety fairways has been established in the approaches to Prince William Sound and through Unimak Pass. The Prince William Sound Safety Fairway, extending southeast from Hinchinbrook Entrance, has separate inbound and outbound traffic lanes that merge in the northwest part. The Unimak Pass Safety Fairway is comprised of an east-west fairway with a connecting north-south fairway in the west section. (See **33 CFR 166.100** through **166.110**and**166.400**, chapter 2, for limits and regulations.)

(24)

Ports and Waterways Safety

(25) (See **33 CFR Part160**, chapter 2, for regulations governing vessel operations and requirements for notification of arrivals, departures, hazardous conditions and certain dangerous cargoes to the Captain of the Port.)

(26) A **Traffic Separation Scheme** has been established in Prince William Sound. (See chapter 4, for details.)

(27) A **Vessel Traffic Service (VTS)** has been established in the Prince William Sound area. The Service has been established to prevent collisions and groundings and to protect the navigable waters from environmental harm.

(28) The VTS provides for a **Vessel Traffic Center (VTC)** that regulates the routing and movement of vessels by radar surveillance, movement reports of vessels, VHF-FM radio communications and specific reporting points. The system consists of traffic lanes, a separation zone and reporting points.

(29) The Service is mandatory. (See **33 CFR 161.1** through **161.23** and **161.60**, chapter 2, for rules and regulations, and chapter 4 for details.)

(30)

Areas to be Avoided

(31) Along the Aleutian Islands are areas that require specific attention. These areas are noted on charts as **Areas to be Avoided** and are adopted by the International Maritime Organization in an effort to reduce the risk of a marine casualty and resulting pollution and damage to the environment. See chapter 7—Aleutian Islands, for additional information.

(32)

Anchorages

(33) Many of the harbors in the mountainous areas are subject to violent williwaws. These severe gusts may come from any direction and should be considered when selecting an anchorage.

(34)

Marine Protected Areas (MPAs)

(35) The chapters that follow may contain references to Federally designated Marine Protected Areas (MPAs) occurring in navigable coastal waters of the United States mid-Atlantic coast. The critical environmental information is intended to inform readers about the location, purpose and legal restrictions of coastal MPAs, with an emphasis on activities of interest to the maritime community. Extensive MPAs are listed here. Selected regional MPAs are included in subsequent chapters. For a complete inventory of MPAs go to *marineprotectedareas.noaa.gov.*

(36) **Alaska Maritime National Wildlife Refuge**, spread along most of Alaska's 47,300-mile coastline, is the most extensive MPA in Alaska.

(37) **Steller Sea Lion Protection Areas** are numerous sites throughout Alaska that are centered around Stellar sea lion rookeries and haul-out sites.

(38) **Alaska Peninsula National Wildlife Refuge** extends in a 200-mile arc from 57°26.1'N., 156°02.9'W, southwest to 55°43.2'N., 160°08.3'W. Also included is a small coastal section on the Bering Sea at Port Mollar.

(39)

Dangers

(40) Offshore drilling and exploration operations are increasing in the waters of Alaska, especially in Cook Inlet.

(41) Obstructions in these waters consist of submerged wells and oil well structures (platforms), including appurtenances thereto, such as mooring piles, anchor and mooring buoys, pipes and stakes.

(42) In general, the oil well structures (platforms), depending on their size, depth of water in which located, proximity of vessel routes, nature and amount of vessel traffic and the effect of background lighting may be marked in one of the following ways:

(43) Quick flashing white light(s) visible at least 5 miles: sound signal sounded when visibility is less than 5 miles.

(44) Quick flashing white light(s) visible at least 3 miles: sound signal sounded when visibility is less than 3 miles.

(45) Quick flashing white or red lights visible at least 1 mile: may or may not be equipped with sound signal.

(46) Structures on or adjacent to the edges of navigable channels and fairways, regardless of location, may be required to display lights and sound signals for the safety of navigation.

(47) Associated structures within 100 yards of the main structure, regardless of location, are not normally lighted but are marked with red or white retro-reflective material. Mariners are cautioned that uncharted submerged pipelines and cables may exist in the vicinity of these structures or between such structures and the shore.

(48) During construction of a well or during drilling operations, and until such time as the platform is capable of supporting the required aids, fixed white lights on the attending vessel or drilling rig may be shown in lieu of the required quick flashing lights on the structure. The attending vessel's foghorn may also be used as a substitute.

(49) Submerged wells may or may not be marked depending on their location and depth of water over them.

(50) All obstruction lights and sound signals, used to mark the various structures, are operated as privately maintained aids to navigation. (See **33 CFR 67**, for detailed regulations for the marking of offshore structures.)

(51) Information concerning the establishment, change, or discontinuance of offshore oil-well structures and their appurtenances is published in the Local Notice to Mariners or by Broadcast Notice. Additional information may also be obtained from the Coast Guard Commander. Mariners are advised to navigate with caution in the vicinity of these structures and in those waters where oil exploration is in progress and to use the latest and largest scale chart of the area.

(52) During the continuing program of establishing, changing and discontinuing oil-well structures, special caution should be exercised when navigating the inshore and offshore waters of the affected areas in order to avoid collision with any of the structures.

(53) Information concerning seismographic operations is not published in Notice to Mariners unless such operations create a menace to navigation in waters used by general navigation. Where seismographic operations are being conducted, casings (pipes), buoys, stakes and detectors are installed. Casings are marked with flags by day and fixed red lights by night, buoys are colored international orange and white horizontal bands, and stakes are marked with flags.

(54)

Pipelaying barges

(55) With the increased number of pipeline laying operations, operators of all types of vessels should be aware of the dangers of passing close aboard, close ahead or close astern of a jetbarge or pipelaying barge. Pipelaying barges and jetbarges usually move at 0.5 knot or less and have anchors that extend out about 3,500 to 5,000 feet in all directions and that may be marked by lighted anchor buoys. The exposed pipeline behind the pipelaying barge and the area in the vicinity of anchors are hazardous to navigation and should be avoided. The pipeline and anchor cables also represent a submerged hazard to navigation. It is suggested, if safe navigation permits, for all types of vessels to pass well ahead of the pipelaying barge or well astern of the jetbarge. The pipelaying barge, jetbarge and attending vessels may be contacted on VHF-FM channel 16 for passage instructions.

(56) **Kelp** grows on nearly every danger with a rocky bottom and is particularly heavy in many places in the Aleutian Islands. It will be seen on the surface of the water during the summer and autumn; during the winter and spring it is not always to be seen, especially where it is exposed to a heavy sea. Many rocks are not marked by kelp, because a heavy sea will occasionally tear it away and a moderate current will draw it under water so that it will not be seen. When passing on the side of a kelp patch from which the stems stream away with the current, care should be taken to give it a good berth. Dead, detached kelp floats on the water curled in masses, while live kelp, attached to rocks, streams away level with the surface. Live kelp is usually an indication of depths less than 10 fathoms.

(57)

Logs and deadheads

(58) Mariners are cautioned that a large number of logs and deadheads are adrift in the navigable waters of Alaska at all times, particularly after storms and unusually high tides. Mariners are urged to be alert for the presences of such logs and deadheads, as they constitute a serious menace to craft of small and moderate size.

(59) **Danger zones** and **restricted areas** are along the Alaskan coast. (See **33 CFR Part 334**, chapter 2, for limits and regulations.)

(60)

Tides

(61) The greatest diurnal range of tide in the United States is the 33.3 feet in Turnagain Arm, Cook Inlet. In contrast, Point Barrow has a diurnal range of only 0.4 foot. Real-time water levels, tide predictions and tidal current predictions are available at *tidesandcurrents.noaa.gov*. Links to a user guide for this service can be found in chapter 1 of this book.

(62)

Caution

(63) In using the Tide Tables, high or low water should not be confused with slack water. For ocean stations there is usually little difference between the time of high or low water and the beginning of ebb or flood currents, but for places in narrow channels, landlocked harbors or on tidal rivers the time of slack water may differ by several hours from the time of high or low water stand. The relation of the times of high and low water to the turning of the current depends upon a number of factors, hence no simple rule can be given.See the Tidal Current prediction service at *tidesandcurrents.noaa.gov* for specific information about times, directions, and velocities of the current at numerous locations throughout the area. Links to a user guide for this service can be found in chapter 1 of this book.

(64)

Currents

(65) The nontidal current that sets north and west along the coasts of British Columbia and Alaska is greatly affected by strong winds and may reach velocities of 1.5 knots; the offshore extent of this current is not known but it is believed to be strongest between the 100-fathom curve and the coast. See the Tidal Current prediction service at *tidesandcurrents.noaa.gov* for specific information about times, directions, and velocities of the current at numerous locations throughout the area. Links to a user guide for this service can be found in chapter 1 of this book.

(66) **Tide rips** and **swirls** in regions of strong currents usually are encountered in the vicinities of shoals, islands or points and are, therefore, generally positive indications of danger. The backwash from seas striking steep cliffs often is felt at a considerable distance. In thick weather, any change in the feel of a moving vessel should be considered a warning of possible danger.

(67)

Earthquakes

(68) The March 27, 1964, earthquake had wide effect on Prince William Sound, Cook Inlet, and Kodiak Island. Post-earthquake tidal observations indicate bottom changes ranging from a sinkage of 6 feet to a rise of 32 feet. Caution is advised in the affected areas because many of the depths and rocks yet to be resurveyed may be considerably different than represented on the nautical charts or in this Coast Pilot.

(69)

Tsunamis (seismic sea waves)

(70) There is no record of any destructive seismic sea wave along the Bering Sea coast of the Alaska mainland. The rest of Alaska, especially the area from Attu Island to Cape Spencer, occasionally is subject to severe waves that cause widespread damage to waterfront areas and shipping. One of the world's most active seismic belts parallels the south sides of the Aleutian Islands and the Alaska Peninsula. Another active belt parallels southeast Alaska and Canada. Earthquakes are frequent in both these areas but only a very few generate seismic waves.

(71) In 1967, the West Coast and Alaska Tsunami Warning System (WC&ATWC) was established in Palmer to mitigate the tsunami hazard. The primary mission of the WC&ATWC is to provide tsunami warnings for Alaska, California, Oregon, Washington and British Columbia in Canada. When a warning is received, persons should vacate waterfront areas and seek high ground. The safest procedure for ships will depend on their location and the amount of time available to take action. See chapter 1 for further tsunami information.

(72) Because of the long length of Alaskan coastline and the vulnerability of communication facilities to major earthquakes, any unexplained withdrawal or advance of the sea within an hour or so after an earthquake is felt should be considered nature's warning of an approaching wave.

(73) When a warning is received, persons should vacate waterfront areas and seek high ground. The safest procedure for ships will depend on the amount of time available, and this may not always be known. A ship well out at sea would ride such waves safely, and hence if time is available to put to sea, that would be the safest action. On the other hand, the crew of a ship in harbor may have a difficult time averting serious damage. The ship may be washed ashore by incoming waves or grounded because of excessive withdrawal of water between crests. Much of the damage in the Los Angeles area during the 1960 Chilean tsunami was caused by rapid currents and the swift rise and fall of the water level that parted mooring lines and set floating docks and ships adrift.

(74)

Weather, Cape Spencer to Beaufort Sea

(75) This section presents an overall, seasonal picture of the weather that can be expected in the offshore waters along the entire coast of Alaska as well as coastal and near-coastal sites. Detailed information, particularly concerning navigational weather hazards, can be found in the weather articles in the following chapters.

(76) All weather articles in this volume are the product of the National Oceanographic Data Center (NODC) and the National Climatic Data Center (NCDC). The meteorological and climatological tables are the product of the NCDC. Both centers are entities of the National Environmental Satellite, Data, and Information Service (NESDIS) of the National Oceanic and Atmospheric

Administration (NOAA). If further information is needed in relation to the content of the weather articles, meteorological tables or climatological tables, please contact the National Climatic Data Center, Attn: Customer Service Division, Federal Building, 151 Patton Avenue, Room 120, Asheville, NC 28801-5001. You may also contact the CSD at 704-271-4994 or fax your request to 704-271-4876.

(77) Climatological tables for coastal locations, meteorological tables for the coastal ocean areas, a table of dates for ice breakup and freeze up and a table of mean surface water temperatures and densities relevant to locations discussed within this volume are located in Appendix B. The climatological tables are a special extraction from the International Station Meteorological Climate Summary (ISMCS). The ISMCS is a CD-ROM jointly produced by the National Climatic Data Center, Fleet Numerical Meteorology and Oceanography Detachment-Asheville and the U.S. Air Force Environmental Technical Applications Center, Operating Location-A. The meteorological tables for the ocean areas are compiled from observations made by ships in passage and extracted from the National Climatic Data Center's Tape Deck-1129, Surface Marine Observations. Listed in Appendix A are National Weather Service offices and radio stations that transmit weather information.

(78)

Winter (October–March)

(79) The Aleutian Low looms over the North Pacific as a climatic warning to mariners navigating the Alaskan waters. This semipermanent feature is made up of the day-to-day storms that traverse these seas in a seemingly endless procession. With these storms come the rain, sleet, snow, the howling winds and the mountainous seas that make the northern Gulf of Alaska and the southern Bering Sea among the most treacherous winter waters in the Northern Hemisphere.

(80) The broad expanse of the Aleutian Low covers the Pacific Basin from the Arctic Ocean to 30°N and from the North American coast to Japan. From one center located in the northern Gulf of Alaska in October, two centers form by December; one remains in the northern Gulf while the other is located in the western Bering Sea. By January, the Bering Sea center has totally replaced the Gulf of Alaska center and remains until March when the gradient weakens and once again the Gulf of Alaska cell reappears. While this migration indicates a shift in storm activity, particularly intensity, on average three or four storms per month still move through the area. Winter or extra tropical storms from the Asian mainland and the waters around Japan generally move northeast toward the Aleutians and then into either the Bering Sea or the Gulf of Alaska. Once they reach the Alaskan coast, they have a tendency to stall and dissipate, particularly in the Gulf, where there are mountain barriers to the north and east. Early winter storms are often intense and are more likely to make it into the Bering Sea than mid-and late-season storms. This makes the early part of the winter the roughest part of a rough season in the Gulf and the southern Bering Sea. As winter progresses, more storms remain south of the Aleutians, which results in a noticeable difference in wind, wave and weather conditions in the navigable Alaskan waters.

(81) Winter winds are variable and no one direction prevails. In the northern Gulf, easterlies, southeasterlies and westerlies are common. In the southern Bering Sea, including the Aleutian waters, southwest through northwest winds, common early in the season, give way to north through east winds by January. This is a reflection of the more southerly route of the storms. Gales, which blow 10 to 20 percent of the time, are most likely in November and December. Windspeeds average 16 to 20 knots; peak values occur in October, November, and December. Wave heights climb to 10 feet (3 m) or more throughout the winter. In situations that occur on the average of once every five years, severe wind and wave conditions may be encountered. Along the Aleutians, sustained winds may reach 65 to 70 knots; significant wave heights can climb to 40 to 50 feet (12.2 to 15.2 m), with an extreme wave height reaching 80 to 90 feet (24.4 to 27.4 m). In the northern and western Gulf of Alaska and in Bristol Bay, sustained winds may reach 60 to 70 knots; significant wave heights can climb to 30 to 40 feet (9.1 to 12.2 m), with an extreme wave height of 60 to 75 feet (18.3 to 22.9 m). These extremes are most likely to occur during the winter season.

(82) In winter, precipitation occurs 20 to 35 percent of the time. It is most likely along the Aleutians, where it falls as snow more than one-half of the time in midwinter. In the Gulf, it snows about 5 to 10 percent of the time. Since snow is the primary restriction to visibility in the winter, restrictions are most likely to occur along the Aleutians. Visibilities less than two miles occur 5 to 15 percent of the time. Cold winter temperatures are a result of winds blowing off land or off the ice sheet. Temperatures drop to freezing or below about 20 to 30 percent of the time in January. Rare polar outbreaks from the Arctic can drop temperatures into the teens F° (-7 ° to -11 °C).

(83) Heavy swells out of the south through southwest in Aleutian waters are often forerunners of intense storms from the waters around Japan. They can climb to 20 to 30 feet (6.1 to 9.1 m). As storms from the south or west approach the Aleutians, they bring clouds and either rain or snow. Winds blow out of the northeast through southeast. They can reach gale force and whip up 30-foot (9.1 m) seas. Gales and high seas can occur before and after the storm passes.

(84) Lows running east with their centers south of the Aleutians, as is common in midwinter, usually bring east winds backing through north to west over the southern Bering Sea. These winds can reach 60 knots, with seas to 30 feet (9.1 m). As these storms and storms from the mid-Pacific approach the Gulf of Alaska, they are sometimes preceded by heavy swells from the southeast through the southwest. Then winds strengthen out of the northeast

through south as clouds and rain begin to move in. Gales and 30-foot (9.1 m) seas are not unusual with intense storms. Sometimes they will stall in the Gulf and prolong these rough conditions for several days. When a low is centered in the eastern Gulf, winds are generally out of the east off Sitka, out of the north off Seward, and out of the northwest off Kodiak.

(85) Storms that move east or northeast, remaining north of the Aleutians, as is common early and late in the season, are followed by a southwest through north flow that can reach gale force, raise high seas, and bring snow. If these storms move into Bristol Bay, they can create a strong southeast to southwest flow in the northern Gulf of Alaska that can raise 20-foot (6 m) seas.

(86) In the Gulf of Alaska, conditions are often roughest in the waters south of Seward and east of Kodiak Island. The long fetch to the east and southeast allows a buildup of sea and swell from that quarter. Wave heights reach 20 feet (6.1 m) or more up to eight percent of the time in November, the roughest month. This is as rough as it gets in the Aleutians. Gales are most frequent here, blowing 15 to 17 percent of the time early in the season. While they blow most often out of the east, they are also common from the west and northwest.

(87)

Summer (April–September)

(88) The changeover from winter to summer is subtle. The Aleutian Low slowly weakens and retreats, and by July has been totally replaced by the North Pacific High. The storms still come, but they are less intense. Winds get strong, but become gales less often. Rough seas are encountered, but less frequently. Clouds and rain remain a persistent weather feature, but snow and cold retreat northward. Winds blow more often from a southerly quadrant, bringing warmth and the most dangerous and frequent summer-weather navigational hazard, fog.

(89) Fog hampers navigation most often during June, July and August. It is an advection or sea fog that forms when warm moist air blows across cooler water. The southwesterlies and westerlies that blow across the cold Oyashio Current, which runs south along Kamchatka and the Kurils, often bring a dense, widespread fog to the Aleutians and the southern Bering Sea. This fog can engulf a ship traversing these waters for several days. Sea fog is also common, but a little less frequent, in the northern Gulf of Alaska and along the northwest and north coasts of Alaska. Off the west coast of Alaska and along the Aleutians, visibilities drop below two miles about 20 to 40 percent of the time and one-half mile or below up to 20 percent of the time. Elsewhere, fog is about one-half as frequent.

(90) During May and June, summer weather features become more apparent. While the low pressure systems that move through the area cause variable winds, south through west winds are the most common. Gales occur less than ten percent of the time everywhere; they are least likely in June, July and August. Seas of 20 feet (6.1 m) or more are unlikely from May through August, when seas of 10 to 20 feet (3 to 6.1 m) occur 5 to 15 percent of the time; they are most likely in the northwestern Gulf and the Aleutians. Off the north coast, they have been observed less than five percent of the time. Freezing temperatures are rare from June through September except off the north coast.

(91) The weather-producing storm systems are gradually forced northward by the North Pacific High. Some still move over the old winter routes, but they are usually weak. By midsummer, numerous weak lows find their way through the Bering Sea and Strait. This results in a maximum of cloudiness and precipitation off the northwest and north coasts of Alaska and a minimum in the Gulf of Alaska and along the Aleutians. The more restricted movements of these storms and the clockwise flow around the North Pacific High to the south help make south through west winds the most common in the Alaskan coastal waters, except off the north coast where northeasterlies and easterlies prevail.

(92) September weather is often a harbinger of winter. This transition is usually more abrupt than the change from winter to summer. More storms begin moving into Bristol Bay and the Gulf of Alaska; some are intense. Gales blow up to five percent of the time, and 20- to 30-foot (6 to 9 m) seas are occasionally encountered in the northwestern Gulf and southern Bering Sea. Waves of ten feet (3 m) or more occur up to 20 percent of the time. Breezy, warm days alternate with cool, stormy ones. Winter is approaching.

(93)

Waves

(94) The table below (extracted from Marine Weather of Western Washington. Kenneth E. Lilly, Jr., Commander, NCAA, Starpath School of Navigation, 1983) shows the relationship between significant and other wave heights.

(95)

Wave Heights from Significant Wave Heights (SWH)	
Most frequent wave heights	0.5 x SWH
Average wave heights	0.6 x SWH
Significant wave height (average height of highest 33%)	1.0 x SWH
Height of highest 10% of the waves	1.3 x SWH
One wave in 1,175 waves	1.9 x SWH
One wave in 300,000 waves	2.5 x SWH

(96) This table can be used to project a range of wave heights that might be expected in deep water. If significant wave heights of 10 feet (3 m) are forecast then the most frequently observed waves should be 5- to 6-foot (1.5 to 1.8 m) range while one wave in 100 should reach 17 feet (5.2 m).

(97) A giant or rogue wave might reach 25 feet (7.6 m) in these circumstances. These rogue or "killer" waves occur when the large number of different waves that make up a sea occasionally reinforce each other. This action creates a wave that is much steeper and higher

than the surrounding waves. These rogue waves often occur in a stormy sea and are described by mariners who have experienced them, as coming out of nowhere and disappearing just as quickly. If significant wave heights are observed at 20 feet (6.1 m) then a rogue wave could reach 50 feet (15.3 m) if the water depth could support it.

(98) Steep waves are often more dangerous than high waves with a gentle slope. Waves appear menacing when the ratio of wave height to length reach about 1/18. They begin to break when this ratio is about 1/10. Steepest waves develop when strong winds first begin to blow or early in a storm's life. The ship no longer rides easily but is slammed. Steep waves are particularly dangerous to small craft. When wave heights are greater than 5 feet (1.5 m), periods of less than 6 seconds can create problems for boats under 100 feet (31 m) in length. Waves of 10 feet (3 m) or more with periods of 6 to 10 seconds can affect comfort in 100- to 200-foot vessels (31 to 61 m). When wind waves reach 20 feet (6.1 m) they become hazardous to vessels under 200 feet (61 m) in length and provide a rough ride for larger ships. Waves moving into shallow water become steeper and break when the depth is about 1.3 times the wave height. Wave steepness is also increased by tidal currents, particularly when they oppose the wind.

(99) Swells can create problems for larger vessels. About one-half of the waves of 10 feet (3 m) or more, in these waters, are swells from distant storms. They are uncomfortable to ships that roll or pitch in sympathy. Swells with 500- to 1000-foot (153 to 305 m) wave lengths affect ships of these lengths. When steaming into such swells a resonance is set up until the bow digs into the waves. The resulting pitch will cause more of a power loss than a roll caused by a sea. Swells with wave lengths that range from about three-fourths to twice the ships length can have this effect. Pitching is heaviest when the ship's speed produces synchronism between the period of encounter and the ships natural pitching period–this often occurs at or near normal ship speeds.

(100) When in running before a following sea, the greatest danger arises when speed is equal to that of the waves or when the waves overtake the ship so slowly that an almost static situation is created with the vessel lying on the wave crest. In this latter case stability is so reduced that a small vessel could capsize. Waves on the quarter or astern can also result in very poor steering quality. As seas move along the vessel from aft to forward the rudder is less effective and the boat may be slewed across the face of a sea, filling the decks with water as she broaches. She could lose her stability and capsize, particularly if the boat is trimmed by the head.

(101)

Superstructure icing

(102) Ice accretion on ships can occur in cold water seas. It is caused by freezing spray, freezing rain or steam fog. On large merchant ships, it often results in only slippery decks, since they have a high freeboard and often pass quickly through icing conditions. Fishing trawlers, small merchant ships and Coast Guard cutters have other problems. Their freeboard is relatively low. A trawler often has a large top hamper and is usually confined to one area for long periods. On a small ship, icing can greatly increase the weight. It elevates the center of gravity, which decreases the metacentric height. It increases the sail area and heeling moment due to wind action. The trim is altered because of the non-uniform distribution of ice. Icing hampers steerability and lowers ship speed. Icing may also affect communications, especially by icing of antennas.

(103) Freezing sea spray is by far the most common and dangerous form of icing and accounts for about 86% of the reported cases. It can occur when the air temperature falls below the freezing temperature of seawater (usually about 28 °F, -2.2 °C) and sea-surface temperatures are below about 41 °F (5 °C). If air temperature falls below about 0 °F, (-17.8 °C), wind-induced spray may freeze before striking the ship and not adhere. In general, however, the lower the temperature and the stronger the wind, the more rapid the accumulation of ice.

(104) Tests by the Russians, Japanese and British have shown that when air temperatures are just below the freezing point of the seawater, ice buildup is slow and will not accumulate at more than one ton (1.1 t) per hour on a 300- to 500-ton vessel, in any wind. On a vessel of this size, a moderate buildup of less than four tons (4.4 t) per hour will generally occur with air temperatures between 27 °F and 18 °F (-2.8 °C and -7.8 °C), in winds of 16 to 30 knots. When winds exceed 30 knots and temperatures drop below 18 °F (-7.8 °C), conditions are right for an accumulation rate of more than four tons (4.4 t) per hour on a 300- to 500-ton vessel. These figures are somewhat subjective and represent a compromise of opinions of the major maritime nations.

(105) Freezing rain can coat a ship with a freshwater glaze of ice the same way it covers trees and roads on land. The weight picked up is usually not enough to endanger a ship, but this ice can make topside conditions dangerous. Steam fog can occur when the air temperature is considerably colder than the sea surface temperature. It is usually confined to a layer a few feet thick. Trawler men call it "white frost" when the top of the layer is below the observer's eye level, and "black frost" when it extends above the observer. If the air temperature is considerably below freezing, the small water droplets in this fog are supercooled (exist as water even though the temperature is below freezing) and freeze on contact with the cold ship. Usually, ice accretion by this method is small. However, there are exceptions. The ERNEST HOLT, about 100 miles (185 km) east of Bjornoya Island (an island north of Norway) and 20 miles (37 km) from the ice edge, ran into a dense steam fog. She took four inches (102 mm) of rime ice on the deck, with up to 12 inches (305 mm) on the ship's side at the level of the rail, within a 12-hour period.

(106) The two categories of potential icing are somewhat subjective but give a relative idea of which areas are dangerous. Moderate icing potential exists when temperatures fall to 28 °F (-2.2 °C) or below, and winds blow at 13 knots or more. This means a probable accumulation of up to about two inches (51 mm) per hour. The potential for severe icing (greater than two inches (51 mm) per hour) exists when temperatures are 16 °F (-8.9 °C) or lower and winds are 30 knots or more.

(107) Superstructure icing is a threat in the northern Gulf of Alaska and along the Aleutians, from about November through April. In the Gulf, the waters around Kodiak Island are the worst. Here the potential for moderate icing exists 10 to 20 percent of the time from December through March, compared to a 3- to 10-percent potential in the other Gulf coastal waters. There is also a slight chance of severe icing in Kodiak waters during this period. The December-through-March period is also the roughest along the Aleutians, where the potential for moderate superstructure icing exists 10 to 25 percent of the time; severe icing is unlikely since temperatures rarely get down into the teens. In the ice-free waters of the southern Bering Sea and Bristol Bay, the potential for moderate superstructure icing exists 20 percent or more of the time from December through March and up to 50 percent of the time in February. Severe icing is also a threat in February, when the conditions for it occur 5 to 10 percent of the time. Icing in the navigable northern Bering Sea waters can be a threat as early as September and as late as May.

(108) Icing rates can be cut by slowing down to reduce ship-generated spray. A course change to reduce spray, however, should be secondary to getting away from the icing, except in critical conditions. Another precaution is to remove the ice, if possible. When icing becomes a problem, it is important first to free the aerials, freeing ports, stays, shrouds, masts, rigging davits, running and navigational lights, windlass and hawsepipes. If the ice is unevenly distributed, it should be removed from the listing side first.

(109) The Russians are well experienced with superstructure icing, as they do a lot of coldwater fishing. From a proposal they made to the International Maritime Organization (IMO), here are some excellent suggestions of what to do in an icing situation.

(110)

Tips to keep icing hazards to a minimum aboard fishing vessels:

(111) 1. Head for warm water or protected coastal areas.

(112) 2. All fishing gear, barrels, and deck gear should be placed below deck or fastened to the deck as low as possible.

(113) 3. Cargo booms should be lowered and fastened.

(114) 4. Deck machinery and boats should be covered.

(115) 5. Storm rails should be fastened.

(116) 6. Gratings should be removed from scuppers, and all objects that might prevent water drainage from the deck should be moved.

(117) 7. Ship should be as watertight as possible.

(118) 8. If freeboard is high enough, all empty bottom tanks containing ballast piping can be filled with seawater.

(119) 9. Reliable two-way radio communication should be established either with a shore station or another ship.

(120)

Williwaws

(121) These dangerous winds occur mainly along the Aleutian chain and Gulf of Alaska shores, and are influenced by local topography. They are most frequent in winter and are usually the result of air damming up on the windward slopes of mountains. This air spills over in strong gusts on the lee side; that lasts as long as the dammed-up cold air lasts, which frequently is only a matter of minutes. However, such winds are violent, often reaching hurricane force, and their onset is sudden, often interrupting periods of near-calm conditions. Some locations sheltered from the normal winds of the area may be extremely vulnerable to williwaws.

(122)

Ice

(123) Ports in the Aleutian Islands and in the Gulf of Alaska, except at the upper end of Cook Inlet, are ice free and open to navigation the year around. Ports north. of Unimak Pass are icebound in varying degrees. (See the Cook Inlet introductory section and specific port description for more information.) Ice can be a problem in the Cook Inlet from Ninichik to Anchorage, from the combination of temperature, currents and ice floe encounters. Propulsion and machinery have special equipment and operating requirements, as do cargo operations, moorage and vessel draft. See Winter Operating Guidelines (indexed as such), chapter 4 and contact the USCG Captain of the Port, Western Alaska, for more information.

(124)

Routes

(125) These are the usually traveled routes in western Alaska. In laying out courses to pass through the geographic positions of the turning points listed, allowance must be made for wind and current. Departure from these routes may become necessary because of weather conditions and ice in the more northern latitudes. Special attention should be given to the continual current setting north and west along the coast of Alaska. Where necessary, directions for entering a port are given in the text for the place concerned, including information about dangers, prominent features and other pertinent information.

(126)

Strait of Juan de Fuca to Prince William Sound ports (Cordova, Valdez, Whittier)

(127) Rhumb lines through:

(128) 48°31'N., 125°00'W.; Swiftsure Bank, Washington.

(129) 48°50'N., 125°39'W.; of Amphitrite Point, Canada.

(130) 50°01'N., 128°03'W.; off Solander Island, Canada.

(131) 51°49'N., 131°12'W.; off Cape St. James, Canada.
(132) 60°13'N., 146°41'W.; off Cape Hinchinbrook, Alaska.
(133)

Strait of Juan de Fuca to Seward

(134) Same as to Prince William Sound ports to
(135) 51°49'N., 131°12'W., thence great circle to
(136) 59°51'N., 149°17'W., south of Barwell Island off Cape Resurrection.
(137)

Strait of Juan de Fuca to Cook Inlet ports (Seldovia, Homer, Nikishka, Drift River, Anchorage)

(138) Same as to Prince William Sound ports to
(139) 50°01'N., 128°03'W., thence great circle to
(140) 59°03'N., 151°26'W., off East Chugach Island.
(141)

Strait of Juan de Fuca to Kodiak

(142) Same as to Prince William Sound ports to
(143) 50°01'N., 128°03'W., thence great circle to
(144) 57°42'N., 152°09'W., north of Cape Chiniak.
(145)

Strait of Juan de Fuca to Unimak Pass

(146) Great circle from
(147) 48°31'N., 125°00'W., to
(148) 54°00'N., 163°00'W., thence rhumb line to
(149) 54°20'N., 164°45'W., off Scotch Cap.
(150)

Cape Spencer to Prince William Sound ports

(151) Rhumb lines through:
(152) 58°10'N., 136°38'W.; off Cape Spencer.
(153) 59°43'N., 144°38'W.; south of buoy off Cape St. Elias.
(154) 60°13'N., 146°41'W.; off Cape Hinchinbrook.
(155)

Cape Spencer to Seward

(156) Rhumb lines through:
(157) 58°10'N., 136°38'W.; off Cape Spencer.
(158) 59°21'N., 146°19'W.; south of Middleton Island.
(159) 59°51'N., 149°17'W.; south of Barwell Island off Cape Resurrection.
(160)

Cape Spencer to Cook Inlet ports

(161) Rhumb line from
(162) 58°10'N., 136°38'W. to
(163) 59°03'N., 151°26'W.
(164)

Cape Spencer to Kodiak

(165) Rhumb line from
(166) 58°10'N., 136°38'W. to
(167) 57°42'N., 152°09'W.
(168)

Prince William Sound ports to Seward

(169) From Elrington Passage clear Cape Puget and Cape Junken by 1 mile, thence to 59°51'N., 149°17'W., south of Barwell Island off Cape Resurrection.
(170)

Prince William Sound ports to Cook Inlet

(171) From Elrington Passage, rhumb lines through:
(172) 59°33'N., 149°38'W.; north of Seal Rocks.
(173) 59°21'N., 150°14'W.; off Outer Island.
(174) 59°09'N., 150°57'W.; off Gore Point.
(175) 59°03'N., 151°26'W.; off East Chugach Island.
(176)

Prince William Sound ports to Kodiak

(177) From Elrington Passage, rhumb line to 57°50'N., 152°17'W.; off Spruce Cape.
(178)

Prince William Sound ports to Unimak Pass

(179) Same as to Cook Inlet, thence Shelikof Strait route.
(180)

Seward to Cook Inlet

(181) Rhumb lines through:
(182) 59°45'N., 149°26'W.; off Pilot Rock.
(183) 59°36'N., 149°32'W.; off Chiswell Island.
(184) 59°31'N., 149°40'W.; off Seal Rocks.
(185) 59°21'N., 150°14'W.; off Outer Island.
(186) 59°09'N., 150°57'W.; off Gore Point.
(187) 59°03'N., 151°26'W.; off East Chugach Island.
(188)

Seward to Kodiak

(189) Same as to Cook Inlet to 59°31'N., 149°40'W., thence rhumb lines through:
(190) 58°21'N., 151°54'W.; off Tonki Cape.
(191) 58°13'N., 151°56'W.; Marmot Strait.
(192) 57°50'N., 152°17'W.; off Spruce Cape.
(193)

Seward to Unimak Pass

(194) Same as to Cook Inlet, thence Shelikof Strait route.
(195)

Cook Inlet to Kodiak

(196) Rhumb lines through:
(197) 59°03'N., 151°53'W.; south of Cape Elizabeth Island.
(198) 58°21'N., 151°54'W.; off Tonki Cape.
(199) 58°13'N., 151°56'W.; Marmot Strait.
(200) 57°50'N., 152°17'W.; off Spruce Cape.
(201)

Cook Inlet to Unimak Pass

(202) Shelikof Strait route.
(203)

Shelikof Strait route–Cook Inlet to Unimak Pass

(204) Rhumb lines through:
(205) 59°03'N., 151°26'W.; off East Chugach Island.
(206) 59°01.6'N., 152°19.0'W.; north of Ushagat Island.
(207) 57°38.5'N., 154°33.8'W.; off Cape Uyak.
(208) 56°27.0'N., 156°48.0'W.; off Foggy Cape.
(209) 55°46.0'N., 158°37.8'W.; southeast of Mitrofania Island.
(210) 55°21.6'N., 160°03.6'W.; north of Andronica Island.
(211) 55°22.8'N., 160°21.7'W.; north of Popof Island.

(212) 55°26.0'N., 160°43.5'W.; off Unga Spit.
(213) 55°17.5'N., 161°15.2'W.; off Seal Cape Light.
(214) 55°17.2'N., 161°39.5'W.; north of Ukolnoi Island.
(215) 55°10.9'N., 161°54.2'W.; off Arch Point.
(216) 55°07.5'N., 161°55.6'W.; off Moss Cape.
(217) 55°06.7'N., 161°56.2'W.; northwest of Goloi Island.
(218) 55°02.6'N., 161°54.5'W.; east of Iliasik Islands Light.
(219) 55°02.0'N., 161°55.5'W.; southeast of Iliasik Islands Light.
(220) 55°00.5'N., 162°20.1'W.; north of Deer Island.
(221) 54°57.4'N., 162°27.6'W.; west of Fox Island.
(222) 54°48.1'N., 162°44.6'W.; west of Umga Island.
(223) 54°37.8'N., 163°03.6'W.; off Cape Pankof.
(224) 54°20'N., 164°45'W.; off Scotch Cap.

(225)

Kodiak to Unimak Pass

(226) Proceed via Narrow Strait, Whale Passage, Kupreanof Strait and Shelikof Strait route.

(227)

Unimak Pass to Aleutian Islands ports

(228) Rhumb lines along the north coast of the Aleutian chain through:

(229)

To Dutch Harbor and Unalaska

(230) 54°20'N., 164°45'W.; off Scotch Cap.
(231) 54°20'N., 165°38'W.; off Akun Head.
(232) 54°16'N., 166°00'W.; off North Head.
(233) 54°02'N., 166°24'W.; off Priest Rock.
(234) 53°55'N., 166°29'W.; off Ulakta Head.

(235)

To Kuluk Bay

(236) 54°20'N., 164°45'W.; off Scotch Cap.
(237) 54°20'N., 165°38'W.; off Akun Head.
(238) 54°08'N., 166°40'W.; off Cape Cheerful.
(239) 53°36'N., 168°14'W.; north of Umnak Island.
(240) 52°28'N., 172°26'W.; north of Seguam Island.
(241) 52°28'N., 174°09'W.; off North Cape (Atka Island).
(242) 52°10'N., 176°09'W.; off Swallow Head (Great Sitkin Island).
(243) 51°54'N., 176°30'W.; east of Kuluk Shoal.

(244)

To Kiska

(245) Same as to Kuluk Bay to 52°10'N., 176°09'W., thence rhumb lines through:
(246) 52°07'N., 179°46'E.; north of Semisopochnoi Island.
(247) 52°08'N., 178°05'E.; north of Segula Island.
(248) 52°05'N., 177°46'E.; east of Haycock Rock.
(249) 51°58'N., 177°35'E.; off North Head.

(250)

To Alcan Harbor

(251) Same as to Kiska to 52°08'N., 178°05'E., thence rhumb lines through:
(252) 52°13'N., 177°38'E.; off Sirius Point (Kiska Island).
(253) 52°47'N., 174°05'E.; north of Shemya Island.

(254)

To Massacre Bay

(255) Same as to Alcan Harbor, thence rhumb lines through:
(256) 52°49'N., 173°53'E.; north of Alaid Island.
(257) 52°47'N., 173°19'E.; off Alexai Point.
(258) Vessels may also proceed from Unimak Pass to Massacre Bay by great circle.

(259)

Unimak Pass to Bering Sea ports

(260) Rhumb lines through:
(261) **To Port Moller**
(262) 54°20'N., 164°45'W.; south of Scotch Cap Light.
(263) 54°24'N., 164°59'W.; west of Scotch Cap Light.
(264) 54°36'N., 165°04'W.; off Cape Sarichef Light.
(265) 55°00'N., 164°36'W.; off Cape Mordvinof.
(266) 55°31'N., 163°18'W.; off Sea Lion Rock.
(267) 55°53'N., 162°15'W.; off Black Hill.
(268) 56°06'N., 160°50'W.; thence to entrance buoy.
(269) **To Kvichak Bay**
(270) Same as to Port Moller to 55°00'N., 164°36'W.; thence rhumb lines through:
(271) 57°44'N., 157°53'W.; off Cape Greig Light.
(272) 58°14'N., 157°53'W.; off Red Bluff.
(273) 58°27'N., 157°41'W.; off Middle Bluff; thence to the anchorage off the entrance to Naknek River.
(274) **To Nushagak Bay**
(275) Same as to Port Moller to
(276) 55°00'N., 164°36'W.; thence rhumb line to
(277) 57°44'N., 157°53'W. (off Cape Greig Light); thence to entrance buoy.
(278) **To St. Michael**
(279) 54°20'N., 164°45'W.; south of Scotch Cap Light.
(280) 54°24'N., 164°59'W.; west of Scotch Cap Light.
(281) 54°36'N., 165°04'W.; off Cape Sarichef Light.
(282) 60°14'N., 168°04'W.; off Cape Mohican Light (Nunivak Island).
(283) 63°00'N., 167°40'W.; 32 miles east of St. Lawrence Island.
(284) 63°41'N., 165°18'W.; Norton Sound.
(285) 63°41'N., 162°21'W.; north of Stuart Island.
(286) 63°32'N., 161°55'W.; off St. Michael.
(287) **To Golovnin Bay**
(288) Same as to St. Michael to
(289) 63°00'N., 167°40'W. thence rhumb line to
(290) 64°20'N., 163°00'W.
(291) **To Nome**
(292) Same as to St. Michael to
(293) 63°00'N., 167°40'W., thence rhumb line to
(294) 64°29'N., 165°26'W.
(295) **To Port Clarence**
(296) Same as to St. Michael to 63°00'N., 167°40'W., thence rhumb lines through:
(297) 64°58'N., 167°40'W.; east of King Island.
(298) 65°19'N., 167°40'W.; off Cape York.
(299) 65°19'N., 166°51'W.; off Point Spencer.
(300) 65°17'N., 166°25'W.

(301)

Unimak Pass to Arctic Ocean ports:

(302) **To Point Hope**

(303) Same as to St. Michael to 63°00'N., 167°40'W., thence rhumb lines through:

(304) 64°58'N., 167°40'W.; east of King Island.

(305) 65°38'N., 168°31'W.; east of Fairway Rock.

(306) 68°21'N., 167°18'W.

(307) **To Point Barrow**

(308) Same as to Point Hope to 68°21'N., 167°18'W., thence rhumb lines through:

(309) 68°58'N., 166°40'W.; off Cape Lisburne.

(310) 70°34'N., 162°25'W.; off Icy Cape.

(311) 71°20'N., 156°55'W.

(312)

Offshore Vessel Traffic Management Recommendations

(313) Based on the **West Coast Offshore Vessel Traffic Risk Management Project**, which was co-sponsored by the **Pacific States/British Columbia Oil Spill Task Force and U.S. Coast Guard Pacific Area**, it is recommended that, where no other traffic management areas exist such as Traffic Separation Schemes, Vessel Traffic Services, or recommended routes, vessels 300 gross tons or larger transiting along the coast anywhere between Cook Inlet and San Diego should voluntarily stay a minimum distance of 25 nautical miles offshore. It is also recommended that tank ships laden with persistent petroleum products and transiting along the coast between Cook Inlet and San Diego should voluntarily stay a minimum distance of 50 nautical miles offshore. Vessels transiting short distances between adjacent ports should seek routing guidance as needed from the local Captain of the Port or VTS authority for that area. This recommendation is intended to reduce the potential for vessel groundings and resulting oil spills in the event of a vessel casualty.

(314)

Principal ports

(315) The principal deep-draft commercial ports within the area of this Coast Pilot are: Cordova, Valdez, Whitter, Seward, Homer, Kenai, Nikiski, Drift River, Anchorage, Kodiak, Sand Point, Unalaska and Adak.

(316)

Pilotage, General

(317) State requirements for pilotage, except for certain exempted vessels, are compulsory for all vessels navigating the waters of the State of Alaska. Exempted from state requirements are:

(318)

§08.62.180. Exemptions

(319) (1) vessels subject to federal pilot requirements under 46 U.S.C. 8502 except as provided in AS 08.62.185 [included in this topic];

(320) (2) fishing vessels, including fish processing and fish tender vessels, registered in the United States or in British Columbia, Canada;

(321) (3) vessels propelled by machinery and not more than 65 feet in length over deck, except tugboats and towboats propelled by steam;

(322) (4) vessels of United States registry of less than 300 gross tons and towboats of United States registry and vessels owned by the State of Alaska, engaged exclusively

(323) (A) on the rivers of Alaska; or

(324) (B) in the coastwise trade on the west or north coast of the United States including Alaska and Hawaii, and including British Columbia, Yukon Territory, and Northwest Territories, Canada;

(325) (5) vessels of Canada, built in Canada and manned by Canadian citizens, engaged in frequent trade between

(326) (A) British Columbia and Southeastern Alaska on the inside water of Southeastern Alaska south of 59 degrees, 29 minutes North latitude, if reciprocal exemptions are granted by Canada to vessels owned by the State of Alaska and those of United States registry; or

(327) (B) northern Alaska north of 68 degrees, 7 minutes North latitude and Yukon Territory or Northwest Territories;

(328) (6) pleasure craft of United States registry;

(329) (7) pleasure craft of foreign registry of 65 feet or less in overall length; and

(330) (8) vessels of the Canadian Navy or Canadian Coast Guard that have a home port in British Columbia, Canada, while navigating the inside water of Southeast Alaska.

(331) (b) The operator of a pleasure craft of foreign registry of more than 65 feet overall length but less than 175 feet overall length may apply for an exemption from the pilotage requirement of this chapter. If an exemption is applied for and the fee prescribed under AS 08.62.140(b) [not in this text] is paid, the board may issue the exemption to the operator of the vessel. The exemption is valid for one year from the date on which the exemption is issued. The application for an exemption must be submitted to the board at least 30 days before the vessel enters the state. The board shall approve or deny an application for the exemption within 10 working days after the application is received by the board. If the board does not approve or disapprove the application within 10 working days, the exemption is considered to be approved, and the board shall issue the exemption. The 10-day period for action by the board is suspended while the board is waiting for a response to a request by the board for additional information from the applicant. An exemption issued under this subsection may be revoked by the board if the vessel is not operated in a manner that is appropriate to protect human life, property, and the marine environment or if the vessel does not comply with all applicable local, state, and federal laws. The exemption must remain on the vessel while the vessel is in state water. An exemption issued under this subsection does not exempt a vessel from the requirement to employ a pilot licensed under this chapter while the vessel is in Wrangell Narrows or

in the water between Chatham Strait and Sitka via Peril Strait.

(332) (c) The operator of a pleasure craft of foreign registry of more than 65 feet overall length but not more than 125 feet overall length that has received an exemption under (b) of this section shall proceed upon initial entry into state water to the first port of call to receive navigational and safety information from an agent registered under AS 08.62.040(a)(3) [not in this text] who is employed by the operator of the vessel. The navigational and safety information provided by the agent must be approved by the marine pilot coordinator and annually reviewed, revised, and approved as appropriate by the board at its spring meeting.

(333) (d) The operator of a pleasure craft of foreign registry of more than 125 feet overall length but less than 175 feet overall length that has received an exemption under (b) of this section shall employ a pilot licensed under this chapter from initial entry into compulsory pilotage water of the state to the first port of call. The marine pilot shall provide navigational and safety information relating to the pilotage region to the operator of the vessel.

(334) (e) In (b) – (d) of this section,

(335) (1) "for hire" means for consideration contributed as a condition of carriage on a vessel, whether directly or indirectly flowing to the owner, charterer, operator, agent, or other person having an interest in the vessel;

(336) (2) "pleasure craft" means a vessel that does not carry passengers or freight for hire.

(337)

§08.62.185. Certain licensed pilots required for oil tankers.

(338) (a) Any oil tanker, whether enrolled or registered, of 50,000 dead weight tons or greater, shall, when navigating in state water beyond Alaska pilot stations employ a pilot licensed by the state under this chapter.

(339) (b) The pilot required in (a) of this section shall control the vessel during all docking operations.

(340)

12 AAC 56.100. Established Boundaries of Compulsory Pilotage Waters of Alaska.

(341) Specific boundaries of the compulsory pilotage waters of Alaska are as follows:

(342) (1) all waters inside a line drawn from Cape Spencer Light due south to a point of intersection which is due west of the southern extremity of Cape Cross; then to Cape Edgecumbe Light; then through Cape Bartolome Light and extended to a point of intersection which is due west of Cape Muzon Light; then due east to Cape Muzon Light; then to a point which is one mile, 180° true, from Cape Chacon Light; then to Barren Island Light; then to Lord Rock Light; then to the southern extremity of Garnet Point, Kanagunut Island; then to the southeastern extremity of Island Point, Sitklan Island; then from the northeastern extremity of Point Mansfield, Sitklan Island, 40° true, to the mainland;

(343) (2) all waters of Prince William Sound and environs inside a line drawn from Cape Puget to Point Elrington; then to Cape Cleare; then Zaikof Point to Cape Hinchinbrook Light; then Point Bentinck to Okalee Spit;

(344) (3) all waters of Resurrection Bay inside a line extending from the southern tip of Aialik Cape to the southern tip of Cape Resurrection;

(345) (4) all waters of Cook Inlet inside a line extending from Cape Douglas to the western tip of Perl Island then northward to the shoreline of the Kenai Peninsula;

(346) (5) all waters of Chiniak Bay inside a line extending from Cape Chiniak to the eastern tip of Long Island then to Spruce Cape;

(347) (6) all waters of Marmot Bay and environs including eastern approaches, inside a line extending from Spruce Cape to the southern tip of Pillar Cape and western approaches, inside a line extending from Cape Nuniliak to the northern tip of Raspberry Island and also inside a line extending from Raspberry Cape to Miners Point;

(348) (7) all waters of Chignik Bay inside a line extending from the eastern tip of Castle Cape to the western tip of Nakchamik Island then to the eastern tip of Cape Kumhun;

(349) (8) all waters of Unalaska Bay inside a line extending from the tip of the west headland of Constantine Bay to Eider Point;

(350) (9) all waters of Port Moller and Herendeen Bay inside a line extending from Lagoon Point to Cape Kutuzof;

(351) (10) all waters of Bristol Bay inside a line extending from Cape Newenham to Cape Pierce, then to Cape Constantine, then to the southern extremity of Egegik Bay;

(352) (11) all waters of Kuskokwim Bay inside a line extending from Cape Newenham to Cape Avinof;

(353) (12) all waters of Norton Sound inside a line extending from the western tip of Stuart Island to Cape Darby, then to Cape Nome;

(354) (13) all waters of Port Clarence inside a line extending from Pt. Spencer Lt. North to the Seward Peninsula shore;

(355) (14) all waters of the Chukchi Sea and Kotzebue Sound inside a line extending from Cape Prince of Wales three miles due west (270° true) to a point approximately 65°38' north latitude, 168°15' west longitude; then due north (0° true) to a point approximately 66°27' north latitude, 168°15' west longitude; then 59° true to a point approximately 66°45' north latitude, 167°02' west longitude; then due east (90° true) to a point approximately 12 miles off the coast of Cape Espenberg at the intersection with a line drawn from Cape Espenberg to Cape Krusenstern, approximate position 66°45' north latitude, 163°40' west longitude; then to Cape Krusenstern; then to Point Hope;

(356) (15) all waters surrounding the Pribilof Islands of St. Paul and St. George from the shoreline seaward to the outer limit of the three-mile territorial seas;

(357) (16) all waters surrounding the Bering Sea Islands from shoreward to the outer limit of the three-mile

territorial seas, including St. Lawrence Island, Nunivak Island, St. Matthew Island, and Little Diomede Island;

(358) (17) all waters encompassing the Aleutian Islands from the shoreline to the outer limit of the three-mile territorial seas, including any and all islands around the Fox Islands, Rat Islands, Near Islands, Andreanof Islands, and the Islands of Four Mountains;

(359) (18) all waters encompassing the south coast of the Alaska Peninsula from Cape Kanatak (Portage Bay) to Cape Pankof to the outer limit of the three-mile territorial seas, including any and all islands around the Shumagin Islands, Semedi Islands, Pavlof Islands, Sutwik Island, Sanak Island, and the Sandman Reefs;

(360) (19) all waters of the north coast of the Alaska Peninsula from Cape Krenzin to the southern extremity of Egegik Bay to the outer limit of the three-mile territorial seas, including Amak Island and Sea Lion Rocks.

(361)

12 AAC 56.110. Exclusions For Entering Compulsory Pilotage Waters of Alaska.

(362) Vessels are excluded from the use of a state licensed marine pilot in compulsory pilotage waters when proceeding directly between points outside Alaska and an established pilot station for the express purpose of embarking or disembarking a pilot in the following situations:

(363) (1) travel via Revillagigedo Channel to Twin Islands Pilot Station; in transiting Revillagigedo Channel, ships must stay west of longitude 131°05';

(364) (2) travel via Clarence Strait to the following:

(365) (A) Guard Island Pilot Station;

(366) (B) Point McCartey Pilot Station;

(367) (C) Chasina Point Pilot Station;

(368) (3) *repealed 10/18/2001*;

(369) (4) travel via Cape Muzon in Cordova Bay;

(370) (A) to Shoe Island Pilot Station for vessels proceeding to Long Island;

(371) (B) to Mellen Rock Pilot Station for vessels proceeding to Hydaburg;

(372) (5) travel via Cape Bartolome in Bucareli Bay to Cabras Island Pilot Station;

(373) (6) travel via Cape Ommaney in Chatham Strait to Frederick Sound Pilot Station;

(374) (7) travel via Sitka Sound to Sitka Sound Pilot Station;

(375) (8) travel via Prince William Sound to the Cordova Pilot Station;

(376) (9) travel via Prince William Sound to the Valdez Pilot Station;

(377) (10) travel via Prince William Sound to the Whittier Pilot Station;

(378) (11) travel via Resurrection Bay to Seward Pilot Station;

(379) (12) travel via Cook Inlet to the Homer Pilot Station;

(380) (13) travel to the Kodiak City or Womens Bay Pilot Station without transiting Whale Passage;

(381) (14) travel by the most direct safe route to a pilot station or pickup point arranged under 12 AAC 56.120(b) [see pilot boarding stations or pickup points which follows in this chapter];

(382) (15) travel via Yakutat Bay to Yakutat Pilot Station.

(383)

12 AAC 56.021. Pilotage Regions.

(384) (a) Pilotage regions for which a marine pilot license may be issued are as follows:

(385) (1) Southeastern Alaska Region—covering the compulsory pilotage waters of Alaska commencing at the southern border with Canada, then west to and north on 141° west longitude;

(386) (2) Southcentral Alaska Region—covering the compulsory pilotage waters of Alaska commencing at the western boundary of the Southeastern Alaska pilotage region, then generally west to 156° west longitude;

(387) (3) Western Alaska Region—covering the compulsory pilotage waters of Alaska commencing at the western boundary of the Southcentral pilotage region, then west, north, and east to the northern border with Canada.

(388) (4) *repealed 10/25/2002*.

(389) (b) Each exemption or endorsement to a marine pilot license must be identified on the license.

(390) The Southeastern Alaska Region is served by the Southeast Alaska Pilots. The main office is 1621 Tongass Avenue, Suite 300, Ketchikan, AK 99901, telephone 907–225–9696, FAX 907–247–9696.

(391) The Southcentral Alaska Region is served by the Southwest Alaska Pilots Association (swpilots.com). The main office address is 1230 Ocean Drive, P.O. Box 977, Homer AK, 99603; telephone 907–235–8783, cell 907–299–7513 (24 hrs/day), email: Dispatch@swpilots.net, FAX 907–235–6119. The Valdez address is 224 Kobuk St, P.O. Box 869, Valdez AK, 99686; cell 907–255–0869, FAX 907–835–5372. The major ports served by the Southwest Alaska Pilots Association include, but are not limited to, all Cook Inlet ports; all Kodiak Island ports; all Prince William Sound ports, Resurrection Bay and Icy Bay. A 36-hour notice is required.

(392) The Western Alaska Region is served by the Alaska Marine Pilots Association. Alaska Marine Pilots Association's main office is 176 Kashega Drive, P.O. Box 920226, Dutch Harbor, AK 99692, telephone 907–581–1240, FAX 907–581–1372, radio call KBK-383. The pilot office, Dutch Harbor, monitors VHF-FM channel 16 and 4125.0 kHz, daily 24 hours. The Alaska Marine Pilots provide extensive pilot service to all ports west of Kodiak Island through the Alaska Peninsula and Aleutian Islands, thence north to Bristol Bay and north regions through the Arctic Ocean to Demarcation Point. The major ports served include but are not limited to Chignik, Sand Point, King Cove, Akutan, Dutch Harbor, Captains Bay, Atka, Adak, Port Moller, Naknek, Dillingham and Togiak.

(393) During times of frequent vessel movements, Alaska Marine Pilots station resident pilots in locations

convenient to shipping activity to eliminate much of the detention that can occur due to inclement weather and limited transportation common to the area. These locations include but are not limited to Sand Point, King Cove, Port Moller, False Pass, Bristol Bay and Togiak. Contact Alaska Marine Pilots, Dutch Harbor, for current resident pilot locations.

(394) Pilot services should be arranged in advance through ship's agents or otherwise, in sufficient time to enable the pilot to travel to the area where the service is required. The State of Alaska requires a 36-hour notification for pilots in the Southcentral Alaska Region and a 48-hour notification in the Southeastern Alaska Region and Western Alaska Region. In the Aleutian Island ports that are west of Atka Island in the Western Alaska Region, a 96-hour notification is required.

(395) [Delete]

(396) [Delete]

(397)

12 AAC 56.120. Pilot Stations or Pickup Points.

(398) (a) The established pilot stations for the state are as follows:

(399) (1) Guard Island – 1.0 mile 315° true from Guard Island Light; approximate position 55°27.5' north latitude, 131°53.9' west longitude;

(400) (2) Point McCartey – 1.0 mile 090° true from Point McCartey Light; approximate position 55°06.8' north latitude, 131°40.5' west longitude;

(401) (3) Cabras Island – 1.0 mile 315° true from Cabras Island; approximate position 55°22.0' north latitude, 133°24.8' west longitude;

(402) (4) Sitka Sound – 0.25 mile 000° true from the Eckholms Light; approximate position 57°00.9' north latitude, 135°21.4' west longitude;

(403) (5) Twin Island – 2.0 miles 045° true from Twin Islands Light; approximate position 55° 10.0' north latitude, 131° 10.4' west longitude; this is a seasonal station open only during the period May 1 through September 30;

(404) (6) Petersburg Bar Range – not west of 132° 58.0' west longitude; this is a seasonal station open only during the period from June 1 through August 31 for the embarkation and disembarkation of pilots for vessels with valid exemptions under AS 08.62.180(b) – (e), and for the purpose of transiting Wrangell Narrows between Petersburg and Point Alexander, as follows:

(405) (A) transit may occur only during

(406) (i) the period 30 minutes before and after slack water at the Port of Petersburg;

(407) (ii) daylight or civil twilight hours; and

(408) (iii) periods of visibility that allow the Petersburg Bar Range to be viewed visually from Buoy WN;

(409) (B) during transit, a minimum of five foot under-keel clearance must be maintained between Buoy WN and Buoy 60;

(410) (7) Point Alexander – not north of Point Alexander Light at 56° 30.33' north latitude; this is a seasonal station open only during the period from June 1 through August 31 for the embarkation and disembarkation of pilots for vessels with valid exemptions under AS 08.62.180(b) – (e) and for the purpose of transiting Wrangell Narrows between Petersburg and Point Alexander;

(411) (8) Yakutat – 1.0 mile 315° true from Yakutat Bay Lighted Whistle Buoy 4; approximate position 59°36.3' north latitude, 139°52.5' west longitude;

(412) (9) Icy Bay – 9.0 miles 180° true from Claybluff Point Light; approximate position 59°49.0' north latitude, 141°35.0' west longitude;

(413) (10) Cordova – 2.0 miles 180° true from Sheep Point; approximate position 60°35' north latitude, 146°00' west longitude;

(414) (11) Valdez and Whittier – approximately 3.6 miles 246° true from Bligh Reef Buoy; approximate position 60°49' north latitude, 147°01' west longitude;

(415) (12) Seward – 1.1 miles 152° true from Caines Head Light; approximate position 59°58' north latitude, 149°22' west longitude;

(416) (13) Cook Inlet – 1.0 mile 180° true from Lands End Light; approximate position 59°35' north latitude, 151°25' west longitude;

(417) (14) Kodiak (City) or Womens Bay – 2.0 miles 100° true from St. Paul Harbor Entrance Light; approximate position 57°44' north latitude, 152°22' west longitude;

(418) (15) Discoverer Bay – 2.0 miles 000° true from Posliedni Point; approximate position 58°28' north latitude, 152°20' west longitude;

(419) (16) Port Wakefield – 1.0 mile 298° true from Kekur Point; approximate position 57°52' north latitude, 152°49' west longitude;

(420) (17) Port Bailey – 1.5 miles 000° true from Dry Spruce Bay Light; approximate position 57°59' north latitude, 153°06' west longitude;

(421) (18) Uganik – 2.0 miles 284° true from East Point; approximate position 57°51' north latitude, 153°32' west longitude;

(422) (19) Larsen Bay – 1.0 mile 090° true from Harvester Island; approximate position 57°39' north latitude, 153°57' west longitude;

(423) (20) Alitak – 2.4 miles 131° true from Cape Alitak Light; approximate position 56°49' north latitude, 154°15' west longitude;

(424) (21) Old Harbor – 1.0 mile 082° true from Cape Liakik; approximate position 57°07' north latitude, 153°25' west longitude;

(425) (22) Chignik – 1.5 miles 020° true from Chignik Spit Light; approximate position 56°20' north latitude, 158°22' west longitude;

(426) (23) Sand Point – 2.7 miles 235° true from Popof Head; approximate position 55°13' north latitude, 160°24' west longitude;

(427) (24) King Cove – 1.5 miles 157° true from Morgan Point Light; approximate position 55°01' north latitude, 162°19' west longitude;

(428) (25) Cold Bay – 4.3 miles 177° true from Kaslokan Point Light; approximate position 55°02' north latitude, 162°31' west longitude;

(429) (26) False Pass – 1.5 miles 315° true from Ikatan Point; approximate position 54°48' north latitude, 163°13' west longitude;

(430) (27) Akutan – 1.0 mile 073° true from Akutan Point Light; approximate position 54°09' north latitude, 165°42' west longitude;

(431) (28) Dutch Harbor-Captains Bay – 1.0 mile 060° true from Ulakta Head Light; approximate position 53°56' north latitude, 166°29' west longitude;

(432) (29) Adak – 2.0 miles 092° true from Gannet Rocks Light; approximate position 51°52' north latitude, 176°33' west longitude;

(433) (30) Attu – 1.5 miles 180° true from Murder Point; approximate position 52°46' north latitude, 173°11' east longitude;

(434) (31) St. Paul Island – 4.0 miles 263° true from Reef Point; approximate position 57°06' north latitude, 170°25' west longitude; or – 4.0 miles 043° true from North Point; approximate position 57°16' north latitude, 170°13' west longitude;

(435) (32) Port Moller – 4.8 miles 048° true from Walrus Island; approximate position 56°05' north latitude, 160°43' west longitude;

(436) (33) Port Heiden – 5.0 miles 340° true from Strongonof Point; approximate position 56°58' north latitude, 158°55' west longitude;

(437) (34) Ugashik Bay – 6.2 miles 291° true from Smoky Point Light; approximate position 57°38' north latitude, 157°52' west longitude;

(438) (35) Egegik – 7.0 miles 285° true from Red Bluff Light; approximate position 58°16' north latitude, 157°42' west longitude;

(439) (36) Naknek – 9.0 miles 248° true from Naknek Light; approximate position 58°39' north latitude, 157°21' west longitude;

(440) (37) Nushagak Bay – 0.6 miles 180° true from Nushagak Bay Entrance Lighted Bell Buoy; approximate position 58°33' north latitude, 158°24' west longitude;

(441) (38) Kulukak Bay – 3.0 miles 180° true from Kulukak Point; approximate position 58°47' north latitude, 159°39' west longitude;

(442) (39) Togiak – 1.0 mile 180° true from Summit Island; approximate position 58°48' north latitude, 160°12' west longitude;

(443) (40) Kuskokwim Bay Region

(444) (A) Kuskokwim Bay – 17.4 miles 320° true from Cape Newenham, approximate position 58°52' north latitude, 162°32' west longitude;

(445) (B) Goodnews Bay – 7.5 miles 228° true from Platinum; approximate position 58°55' north latitude, 162°00' west longitude;

(446) (41) Kivalina/Cape Krusenstern – 14.0 miles 239° true from the barge loading terminal; approximate position 67°27' north latitude, 164°35' west longitude;

(447) (42) Cape Spencer – 3.2 miles 090° true from Cape Spencer Light; approximate position 58°12' north latitude, 136°32' west longitude; this is a seasonal station open only during the period from May 1 – September 30;

(448) (43) St. George Island – either 3.0 miles 000° true from St. George village; approximate position 56°39' north latitude, 169°33' west longitude; or – 3.0 miles 210° true from Rush Point; approximate position 56°33' north latitude, 169°47' west longitude;

(449) (44) Frederick Sound – 3.0 miles 310° true from Cornwallis Point Light; approximate position 56°58' north latitude, 134°21' west longitude;

(450) (45) Chasina Point – 1.25 miles 013° true from Chasina Point; approximate position 55°18' north latitude, 132°01' west longitude;

(451) (46) Shoe Island – 2.0 miles 090° true from Shoe Island Light; approximate position 54°57' north latitude, 132°41' west longitude;

(452) (47) Mellen Rock – 0.6 miles 050° true from Mellen Rock Light; approximate position 55°02' north latitude, 132°39' west longitude;

(453) (48) Atka/Nazan Bay – 1.1 miles 134° true from Flat Point; approximate position 52°13' north latitude, 174°06' west longitude;

(454) (49) Tanaga Bay – 2.2 miles 202° true from Cape Agamsik; approximate position 51°45' north latitude, 178°04' west longitude;

(455) (50) Kiska Harbor – 1.0 mile 270° true from Little Kiska Head; approximate position 51°58.5' north latitude, 177°36.5' east longitude.

(456) (51) Barrow – 3.0 miles 320° true from the town of Barrow; approximate position 71°20’ north latitude, 156°53’ west longitude.

(457) (52) Kotzebue Sound – 11.0 miles 015° true from Cape Espenberg Light; approximate position 66°44’ north latitude, 163°29’ west longitude.

(458) (53) Port Clarence – 2.1 miles 000° true from Point Spencer Light; approximate position 65°19’ north latitude, 166°51’ west longitude.

(459) (54) Nome – 2.6 miles 199° true from the Nome north jetty breakwall; approximate position 64°27’ north latitude, 165°28’ west longitude.

(460) (55) Bieli Rocks – 1.0 mile 315° true from Bieli Rocks; approximate position 57°06’ north latitude, 135°31’ west longitude.

(461) (b) Inside compulsory pilotage waters, embarking or disembarking pilots at any location inside of an established pilot station may be undertaken only by agreement between a:

(462) (1) pilot and a ship’s master in an emergency or for reasons of safety when required by extreme weather or other unforeseeable circumstances; or

(463) (2) pilot organization and a ship’s agent on a trial basis to accommodate a newly established port, trade, or route.

(464) (c) If safe and reliable transportation cannot be provided to or from the pilot station, the nearest pilot station with safe and reliable transportation shall be

used. If reasonable effort has been made to offer safe and reliable transportation and the vessel, equipment, or personnel do not meet the minimum standards set out in (d) of this section, the pilot may use the transportation provided.

(465) (d) In order to provide safe and reliable transportation for pilots, a vessel must have the following items onboard:

(466) (1) licensed operator;

(467) (2) waterproof VHF radio in addition to the pilot's VHF radio;

(468) (3) distress signals, including three parachute flares, three hand held flares, and one dye marker in a waterproof case;

(469) (4) first aid kit;

(470) (5) spare fuel supply, if the vessel is propelled by an outboard motor;

(471) (6) radar reflector;

(472) (7) tool kit;

(473) (8) engine kill switch;

(474) (9) survival suits; one for each person onboard the vessel;

(475) (10) flashlight;

(476) (11) anchor and 30 fathoms of line;

(477) (12) sound producing device;

(478) (13) pilot retrieval system;

(479) (14) high-intensity strobe when a pilot transfer occurs at night.

(480) (e) Before a trial pilot station established under (b)(2) of this section may be used, it must be preliminarily approved by the marine pilot coordinator. A trial pilot station that has been preliminarily approved by the marine pilot coordinator will remain valid unless the board disapproves the trial pilot station for further use. The board will approve the trial station for notice as an established pilot station if it determines that the trial station accommodates a newly established port, trade, or route and is in the public interest. The board will disapprove the trial station for further use if the board determines that the trial station is not necessary or not in the public interest.

(481)

Towage

(482) Tugs are stationed at Anchorage, Homer, Seward, Valdez, Whittier and Kodiak. Navy tugs are stationed at Adak. At other places any towing that is required is done by cannery tenders and other local small craft. Much of the cargo traffic between Washington State and Alaska is by barges and tugs.

(483)

Vessel Arrival Inspections

(484) Vessels subject to U.S. quarantine, customs, immigration and agricultural quarantine inspections generally make arrangements in advance through ships' agents. Government officials conducting such inspections are stationed in most major ports. Mariners arriving at ports where officials are not stationed should contact the nearest activity providing that service. (See Appendix A for addresses.) Unless otherwise directed, officials usually board vessels at their berths.

(485)

Harbormasters

(486) **Harbormasters** are mentioned in the text when applicable. They generally have charge of the anchoring and berthing of vessels.

(487)

Supplies

(488) Provisions and fuel are generally obtained by vessels prior to departure for western Alaska. Provisions and limited amounts of marine supplies are available at the principal towns in Alaska, and nearly all of the canneries can supply some provisions.

(489) Water is available at most of the ports and canneries, and gasoline, diesel fuel and lubricating oils are available in all the larger towns and at many of the canneries in western Alaska.

(490)

Repairs

(491) There are no repair facilities for large vessels in south central or western Alaska. The nearest major facilities are in British Columbia and Washington. However, moderate-sized vessels can be lifted out at Seward, and most principal ports do have facilities for minor emergency repairs to machinery, engines and small boats.

(492) Some of the ports and canneries have small marine railways, slipways or grids, but these are subject to frequent change due to destruction from ice, abandonment of canneries or discontinuance of service.

(493)

Communications

(494) Air service is available to most major ports in south central and western Alaska, with connections to nearly every community in the state.

(495) Alaska State ferries maintain scheduled service between the cities of Whittier, Valdez, Cordova, Seward, Homer and Kodiak and down the Alaska Peninsula to Dutch Harbor. The Alaska Highway System connects most principal towns in south central Alaska (Anchorage, Kenai, Nikiski, Homer, Seward and Valdez) with each other, Fairbanks and AlCan (Alaska Canadian Highway) thence the conterminous United States.

(496) Telephone service is available from most communities in Prince William Sound, Cook Inlet, and Kodiak Island.

(497) AT&T Alascom operates a radio network that includes coast stations with ship-to-shore service throughout most of Alaska. Complete information on this service can be obtained from AT&T Alascom, Office of External Affairs, 210 E Bluff Dr., Anchorage, AK 99501 or by calling their Customer Service Department at 800–252–7266.

(498)

Reporting Marine Emergencies and Oil Spills

(499) Marine emergencies, oil spills, possible illegal entry, sightings of foreign naval or fishing vessels, icebergs, submarines or any other unusual events should be reported to the nearest Coast Guard unit by radio or by calling, toll free, 800–478–5555 anywhere in Alaska except Juneau, Douglas or Kodiak. Within these cities, call 907–463–2000 for Juneau/Douglas, and 907–487–5888 for Kodiak.

(500)

Rescue Coordination Centers

(501) There are three Rescue Coordination Centers in Alaska. The centers depend on information from many sources in order to perform effectively. Mariners are requested to report any information to the nearest center concerning fire, collision or other emergencies, foreign fishing vessels, oil spills, possible illegal entry, submarine sightings, icebergs, foreign naval vessels or any unusual sightings. (See the appendix for the location of the centers.)

(502)

Storm Avoidance

(503) Vessels transiting through the Western Alaska Captain of the Port (COTP) zone on innocent passage desiring to seek refuge due to storm avoidance should contact the Coast Guard Sector Anchorage Command Center at 907–428–4100 or Sector.Anchorage@uscg.mil to receive consensus on the desired location of refuge. Any vessel that is a participant of an approved Alternate Planning Criteria (APC) as part of the Vessel Response Plan (VRP) desiring to deviate from the APC routing measures for any reason including storm avoidance, shall follow the notification and approval requirements set by the vessels APC Administrator.

(504)

Small-craft facilities

(505) **Small-craft facilities** are limited in Alaska. In general, only the larger communities have gasoline, diesel fuel, berths, marine supplies and limited repair facilities. Services and supplies available at these facilities are described under the communities concerned.

(506) **A vessel of less than 65.6 feet (20 meters) in length or a sailing vessel shall not impede the passage of a vessel that can safely navigate only within a narrow channel or fairway. (Navigation Rules, International-Inland Rule 9(b).**

(507)

Standard time

(508) All of Alaska east of 169°30'W. uses Alaska standard time (AKST), which is 9 hours slow of Coordinated Universal time (UTC). For example, when it is 1200 UTC, it is 0300 in Juneau and Anchorage. All the Aleutian Islands west of 169°30'W., including the communities of Adak, Atka, Attu and Shemya, use Hawaii-Aleutian standard time (HAST), which is 10 hours slow of UTC. When it is 1200 UTC, it is 0200 at Adak.

(509)

Daylight saving time

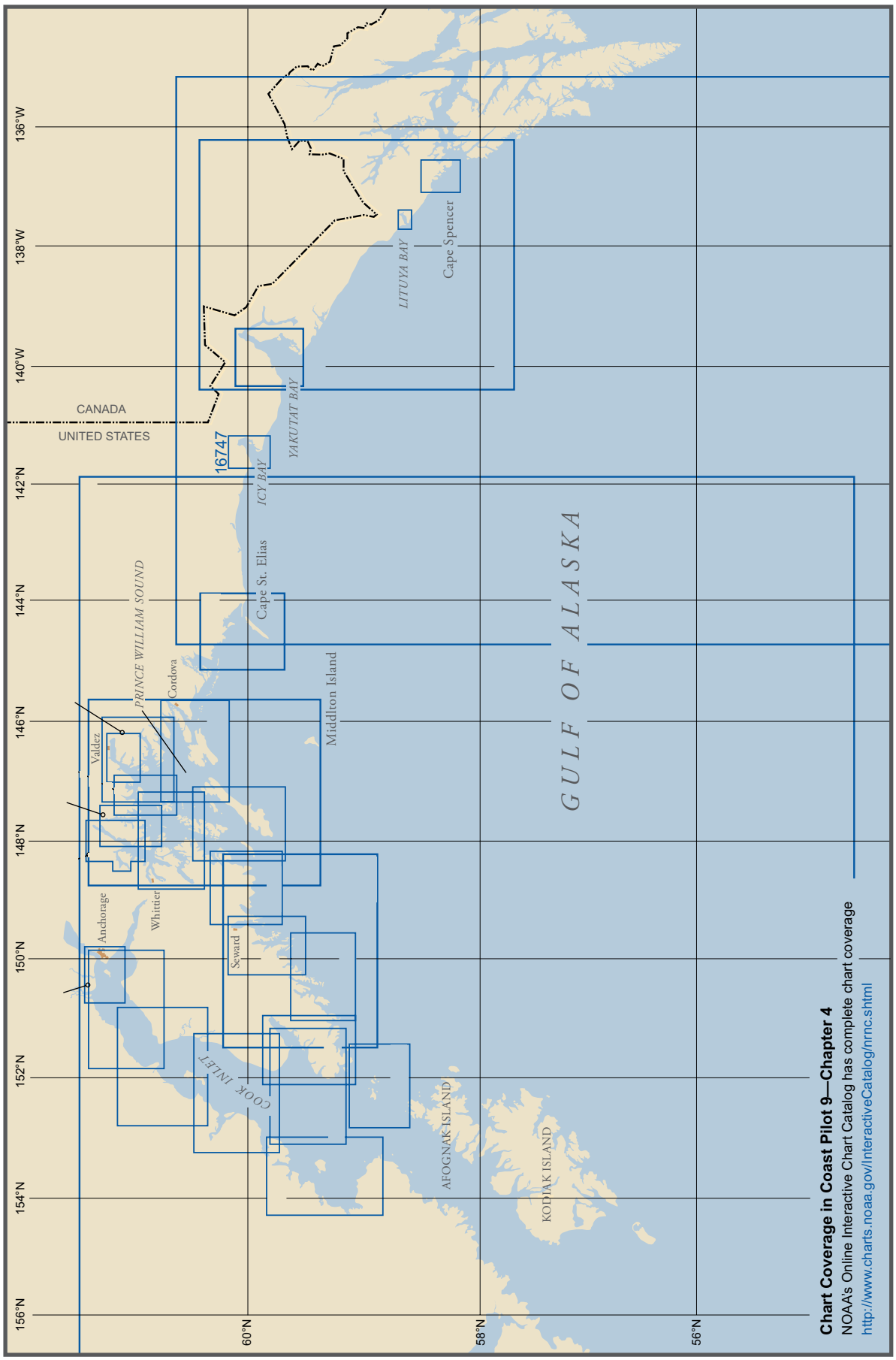
(510) In Alaska clocks are advanced 1 hour on the second Sunday in March and are set back to standard time on the first Sunday of November.

(511)

Legal public holidays

(512) The following are legal holidays in the area covered by this Coast Pilot: New Year's Day, January 1; Martin Luther King, Jr.'s Birthday, third Monday in January; Washington's Birthday, third Monday in February; Memorial Day, last Monday in May; Independence Day, July 4; Labor Day, first Monday in September; Columbus Day, second Monday in October; Veterans Day, November 11; Thanksgiving Day, fourth Thursday in November; and Christmas Day, December 25. The national holidays are observed by employees of the Federal government and the District of Columbia and may not be observed by all the states in every case.

(513) In addition the following holidays are also observed in the area covered by this Coast Pilot: Seward's Day, last Monday in March; Alaska Day, October 18.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ICY BAY
YAKUTAT BAY
LITUYA BAY
Cape Spencer
Cape St. Elias
Middlton Island
PRINCE WILLIAM SOUND
Cordova
Valdez
Whittier
Anchorage
Seward
COOK INLET
AFOGNAK ISLAND
KODIAK ISLAND
GULF OF ALASKA
Chart Coverage in Coast Pilot 9—Chapter 4
NOAA's Online Interactive Chart Catalog has complete chart coverage
http://www.charts.noaa.gov/InteractiveCatalog/nrnc.shtml

Cape Spencer to Cook Inlet

(1) This chapter describes the south coast of the Alaska mainland from Cape Spencer to Cook Inlet and the many passages and tributary waters of Prince William Sound and Cook Inlet. Also described are the deepwater ports of Valdez, Whittier, Anchorage and Seward, and the petroleum terminals and facilities on the Kenai Peninsula, as well as the numerous fishing and logging ports in this area.

(2) From Cape Spencer the coast extends northwest for about 130 miles to Yakutat Bay. The Fairweather Range begins 20 miles from Cape Spencer and extends to Alsek River. The mountains are snowcapped and have elevations of 10,000 to more than 15,000 feet. From Alsek River to Yakutat Bay the mountains are 4,000 to nearly 6,000 feet high. Along the coast are numerous glaciers with terminal moraines. The most conspicuous are La Perouse Glacier, Yakutat Glacier, 25 miles east of Yakutat Bay; and the great Malaspina Glacier, west of Yakutat Bay.

(3)

Weather, Cape Spencer to Cook Inlet

(4) Winds near the coast are only slightly less variable than over the open sea. As this coastline is irregular, with many islands, channels and inlets and is often steep, there are strong local effects to both wind speed and direction. In general, prevailing winds set parallel to the coastline, while speeds are increased by funneling effects or decreased by blocking.

(5) The gale frequencies of less than one percent at ports like Valdez, Anchorage and Cordova can be misleading since they are usually much more sheltered than their approaches. This is reflected in the frequencies of calms, which range from 12 to 40 percent during the winter season. Storms and williwaws are responsible for the gales that are most likely in early winter. Williwaws, which blow down from the mountains in winter, occur along most of the coast; they are particularly severe at Seward. Extreme sustained winds at these ports have reached 74 knots at Cape Spencer, 66 knots at Anchorage and 70 knots at Yakutat. Gusts of 60 knots or greater occur almost monthly during the winter season.

(6) In general from Cape Spencer to Yakutat, easterlies and southeasterlies are frequent, and from Yakutat to Cook Inlet, northeasterlies and easterlies prevail. At Yakutat, east winds blow 30 percent or more of the time from August through May. They also prevail at Cordova during this period. At Valdez, the sheltering effects of surrounding mountains funnel local winds into northeasterlies in winter and southwesterlies in summer. Over Controller Bay, summer winds range from the east through south and occasionally southwest. Seward's prevailing winds are from the north in winter and south in summer. In Cook Inlet, winds are most frequent from the north, with topography causing deflections to the northwest and northeast in some sections. At Anchorage, winter northerlies give way to southeasterlies and southerlies from May through September. At Kenai, northerlies prevail in winter, although gales are often out of the east in early winter and southeast later on; summer winds blow out of the south through southwest. At Homer, winter northeasterlies give way to summer southwesterlies.

(7) Precipitation along this coast is also greatly influenced by topography. The annual ranges are from 16 inches (406 mm) at Anchorage to 146 inches (3708 mm) at Yakutat; records from Latouche, which has since been abandoned, were 184 inches (4674 mm). Most of it falls during the winter season. September and October are often the rainiest months, when precipitation occurs on 20 to 26 days per month on the average, except at the well-sheltered ports. Snow is likely from October through April. At Valdez, an average of 67 inches (1702 mm) falls in January compared to 7 inches (178 mm) at Kenai. April through June is often the driest period.

(8) Poor visibilities are mainly caused by advection or sea fog in the summer and land fog or precipitation in winter. In general, sea fog affects exposed ports, while land fog is more of an influence at sheltered spots. However, visibilities are most likely to drop below one-half mile on winter mornings, even at exposed ports. Land fog can be very dense for short periods. At Cordova, for example, visibilities are most likely to be below one-half mile in January but below two miles in August. Yakutat suffers from poor visibilities in both midwinter and midsummer, when they drop below one-half mile on up to six days per month. In Cook Inlet, January is usually the foggiest month. This land fog will set in during the night and persist until about noon. Fog banks frequently hang over open waters after the harbors have been cleared. Occasionally in winter, if extremely cold air moves over the water, a steam fog or frost smoke may be experienced as relatively warm water evaporates into much colder air.

(9) Air temperatures are mild for these latitudes and reflect the influence of the land and the sea. The more continental ports have a wide daily and annual temperature spread compared to those exposed to the sea. A noticeable cooling begins in September, when daytime highs average in the low to middle fifties °F (11 ° to 14 °C), with nighttime lows in the lower forties (5 ° to 6 °C). January is usually the coldest month and is the time when

the difference between exposed and sheltered locations is most noticeable. In the sheltered Cook Inlet, average maximums are in the low twenties (-6 ° to -4 °C), while minimums drop to about 5 °F (-15 °C) or less. At Seward, daytime highs average 30 °F (-1.1 °C), with nighttime lows of 18 F (-7.8 °C). At continental locations like Kenai, Anchorage, and Valdez, temperatures fall below 0 °F (-17.8 °C) on an average of 10 to 15 days in January, compared to 3 days at Seward. Freezing temperatures, also more frequent at sheltered locations, are common from October through April. Extreme low temperatures range from a -24 °F (-31.1 °C) at Homer to a -48 °F (-44.4 °C) at Kenai. A noticeable warming begins in April, and the difference between the two types of locations becomes less noticeable. Daytime highs in the low to mid forties (5 ° to 8 °C), and nighttime lows in the upper twenties to low thirties (-2 ° to 1 °C), are common. July and August are usually the warmest months. Maximums average in the low to middle sixties (16 ° to 19 °C), while minimums are frequently in the mid- to upper forties (7 ° to 9 °C). It is often warmest at the more sheltered ports. Extreme highs reach the mid- to upper eighties (29 ° to 32 °C).

(10) Ice is most often a problem along this coast in Cook Inlet. The upper end is usually closed by ice to all but heavily built vessels, from December until late March. Elsewhere in the rivers and bays and in Prince William Sound, waters partially freeze after December 1, and some floating ice is seen through May. This ice usually does not interfere with navigation.

(11)

Cape Spencer

(12) **Cape Spencer** (58°12'45"N., 136°39'30"W.), 873 miles from Seattle by the outside route and 976 miles by the inside passage, is a conspicuous headland on the northwest side of the entrance to Cross Sound. The large shoal area that extends about 1.3 miles south from the cape has rocky islets, some of the inner ones wooded, and rocks, the outermost of which break. The cape rises rapidly to ridges about 1,800 feet high that are heavily wooded up to 1,500 feet.

(13) **Cape Spencer Light** (58°11'56"N., 136°38'26"W.), 105 feet (32 m) above the water, is shown from a white square tower on a rectangular concrete building on the outermost large rocky islet south of the cape.

(14) **Cross Sound**, between Cape Spencer and Cape Bingham, 8 miles southeast, is the northernmost passage to the inside waters of southeast Alaska. The sound is described in U.S. Coast Pilot 8, Pacific Coast, Alaska-Dixon Entrance to Cape Spencer.

(15) **Dicks Arm**, a narrow inlet less than 200 yards wide in places, extends in a north-northeast direction for about 2 miles along the southeast side of Cape Spencer. From the head of the arm, a gradually rising valley passes over a saddle to Taylor Bay. A narrow channel, with depths of 2½ to 12 fathoms leads east of **Zip Rock**, 20 feet high and bare, through the off-lying rocks and islets to the inlet. Depths of ¾ to 8 fathoms are found in the inlet to within 0.5 mile of the head, where it is shoal.

(16) **Polka Rock**, 20 feet high, is 2 miles northwest of Cape Spencer and at the outer edge of the foul ground, marked by kelp, which extends about 0.5 mile from shore in this general vicinity. Small craft approaching Graves Harbor from the southeast usually pass between Polka Rock and Graves Rocks.

(17) **Graves Rocks** are a group of islets about 3.5 miles northwest of Cape Spencer and about 1 mile from shore. Near the north end of the group is a wooded islet about 125 feet high. Rocks and kelp patches extend to the mainland and along the shore to Cape Spencer.

(18) **Libby Island**, 5.3 miles northwest of Cape Spencer and 0.7 mile from the mainland, is high and wooded. Bare rocks and rocks awash extend about 0.3 mile south of the island. **Libby Island Light** (58°16'24"N., 136°46'26"W.), 53 feet (16.2 m) above the water, is shown from a spindle with a red and white diamond-shaped daymark on an islet southeast of the island. **Horn Mountain** is a sharp, bare peak on the mainland north of Libby Island.

(19) **Graves Harbor** has an entrance about 1.2 miles wide between Graves Rocks and Libby Island Light and extends inland for about 3 miles. Depths in the harbor are 11 to 79 fathoms. The unnamed cove, which makes off to the south from the head of Graves Harbor, affords good landlocked anchorage in 7 to 15 fathoms and is easily entered. A daybeacon marks a shoal on the west side of the entrance to the cove.

(20) **Murphy Cove**, on the southeast side of Graves Harbor 1.7 miles above Graves Rocks, has depths of 11 fathoms or more in its outer part and affords snug anchorage for small vessels. **Murk Bay**, opposite Murphy Cove, is clear but too deep and open for good anchorage.

(21) **Torch Bay**, 7 miles northwest of Cape Spencer, extends inland more than 2 miles in a northern direction and varies in width from 1 mile at the entrance to 0.3 mile at the head of the western arm. Rocks, which uncover 7 feet and always marked by breakers, are 1 mile south of **Venisa Point**, on the west side of the entrance; vessels can pass on either side of these rocks when entering the bay. The bay has depths of 13 to 56 fathoms and is not a good anchorage for large vessels; small vessels can find protected anchorage in the northeast arm.

(22) **Sugarloaf Island**, 9 miles northwest of Cape Spencer, was named from its shape as seen from south, from which direction it appears barely detached from the islet-like point projecting from Hankinson Peninsula. The island is high and wooded. From west, it has a uniform north slope; the south slope has a step and is separated from the narrow south extremity by a deep V-shaped ravine. Bare rocks and some that cover fringe the shore from south around to west.

(23) **Sugarloaf Island Shoal**, about 0.5 mile long, is about 1 mile south of the southern end of Sugarloaf Island. A rock awash and submerged rocks on the shoal usually break. A lighted whistle buoy is off the west end of the shoal.

(24) During moderate eastern gales temporary anchorage is possible in 10 to 18 fathoms, rocky bottom, in the cove northeast of Sugarloaf Island. The cove is 0.3 mile wide and open to the northwest.

(25)

Local magnetic disturbance

(26) Differences of as much as 3¼° from the normal variation, have been observed at the south end of Sugarloaf Island.

(27) **Astrolabe Point**, 11 miles northwest of Cape Spencer, is rugged and has bare cliffs on its west side; the south face of the point is moderately wooded halfway up. **Astrolabe Rocks**, some bare, submerged or awash, are 0.3 mile south of the point.

(28) **Dixon Harbor**, with its entrance between Sugarloaf Island and Astrolabe Point, has depths of 60 to 20 fathoms over an average width of 0.8 mile for 2 miles north to Thistle Cove, the northwest arm. Depths of 13 to 18 feet are just west of the middle of the entrance. A glacier above the head of the harbor is visible from the entrance.

(29) **Thistle Cove** is 1 mile long in a northern direction. At the point on the northeastern side of the entrance is a grass-covered rock, 20 feet high. In 1998, it was reported that a shoal extended across the entrance to the cove. As result, Dixon Harbor does not offer a secure anchor in southerly or westerly weather.

(30) **Palma Bay** is between Astrolabe Point and Icy Point, 6 miles to the north-northwest. This large body of water, sometimes called **Icy Bay**, has depths of 20 to 60 fathoms; large vessels have anchored close inshore in 15 to 20 fathoms.

(31) **Boussole Head**, in the eastern part of Palma Bay, is a prominent wooded 650-foot-high peninsula that extends about 1 mile into the bay. The outer end of the head is a natural arch that rises 60 feet above the water and is quite prominent from the south. **Alder Rock**, 0.3 mile south of Boussole Head, uncovers 4 feet.

(32) **Astrolabe Bay**, southeast of Boussole Head, and **Boussole Bay**, on the northwest side of the head, are open to the south but afford protection to small vessels in northerly or easterly weather. Anchorage is possible in 6 to 8 fathoms, sand bottom, near the head of each bay; the best is in Boussole Bay.

(33) Another anchorage, which affords some protection for small craft in westerly weather, is off the mouth of **Kaknau Creek,** a large stream that empties into Palma Bay on the northeast side of Icy Point; recommended anchorage is close inshore in 6 to 10 fathoms, sand bottom.

(34) **Icy Point**, on the west side of Palma Bay and 17 miles northwest of Cape Spencer, is low and wooded; from south La Perouse Glacier can be seen over the point. Many rocks fringe the point but deep water is only 0.3 mile offshore.

(35)

Pilotage, Cape Spencer

(36) Pilotage, except for certain exempted vessels, is compulsory for all vessels navigating the waters of the State of Alaska.

(37) The pilot association which serves Cape Spencer is

(38) Southeastern Alaska Pilots Association, P.O. Box 6100, 1621 Tongass Ave., Suite 300, Ketchikan, AK 99901; telephone, 907-225-9696, fax 907-247-9696; E-mail pilots@seapa.com; cable address, SEAPILOTS; radio call, WKD-53. Their pilot office monitors VHF-FM channel 12.

(39) The Southeastern Alaska Pilots Association pilot boat is stationed at Cape Spencer pilot station. This boat CORONA BOREALIS is 36 feet long with a white hull and cabin with the word "PILOT" on the sides. CORONA BOREALIS displays the international day and night signals. Other vessels used for pilot transportation may or may not display international day and night signals. When the pilot is on the pilot boat at or near the pickup point VHF-FM channels 12, 13 and 16 are monitored and worked; the pilot station monitors channels 13 and 16 and works channels 12 and 77.

(40) Pilot services should be arranged in advance through ships' agents, or otherwise, in sufficient time to enable the pilot to travel to the area where the service is required.

(41) The established pilot boarding station or pickup point and other information for Cape Spencer is in chapter 3 of this pilot volume and also in chapter 3 of Coast Pilot 8 (Alaska: Dixon Entrance to Cape Spencer). Boarding instructions such as vessel's speed, course, ladder height and preferred boarding side will be given by the pilot prior to boarding. This information depends on weather condition and type of ship; also pilotage services are affected by weather, tides and currents and daylight hours.

(42)

La Perouse Glacier

(43) From Icy Point to La Perouse Glacier, a distance of about 8 miles, the coast is low and wooded, with rolling hills that gradually increase in height to the bare mountain peaks. Rocks extend along the coast about halfway from the point to the glacier; the rest of the way is mostly smooth sand beach.

(44) **La Perouse Glacier**, about 24 miles north of Cape Spencer, is an outstanding landmark along this coast because the mountains are often covered by clouds.

(45) Between La Perouse Glacier and Lituya Bay, 15 miles northwest the coast is low and densely wooded. About 2 miles inland are hills that rise in a succession of terraces to the snowcapped peaks of the **Fairweather Range**. Most of the shore is sandy, with occasional boulders; huge boulders cover the last 1.5 miles to Lituya Bay.

(46)

Lituya Bay

(47) **Lituya Bay**, 39 miles northwest of Cape Spencer, affords protected anchorage in all weather, but the entrance is dangerous and should never be attempted except at slack water because of the strong current. The bay extends about 6 miles in a northeast direction and has widths of 1 to 2 miles. The shoaler area along the shore around the bay is obstructed by tree trunks. Anchorage for small boats close to the shore is not recommended because of the possibility of fouling anchors in the debris of trees and roots.

(48) In July 1958, a giant wave, caused by an earthquake-induced avalanche, denuded the shores of Lituya Bay of trees to a height of 1,720 feet. Giant waves are a recurring phenomenon in the bay, and other catastrophic waves were observed in 1853, 1874 and 1936. Steep shattered cliffs at the head of the bay present a continuing hazard of avalanches; destructive waves, caused by rock falls, can occur at any time.

(49) Glacial ouburst flood events have resulted in significant infilling to the head of Lituya bay. Both **Gilbert Inlet,** on the northwest, with **Lituya Glacier** at its head and **Crillon Inlet**, on the southeast, with **North Crillon Glacier** at its head have been completely filled in with sediment. Because of rapid shoaling, depths in these inlets may differ from the charted depths. **Cascade Glacier**, which discharges into the head of the bay between the two arms, can be seen far at sea. Depths in the bay are as much as 78 fathoms. Vessels can obtain water from streams near the head.

(50) **Harbor Point**, on the east side of the entrance to Lituya Bay, can easily be identified from offshore by **The Paps**, two conical, wooded hills about 1 mile to the northeast; the northwest hill is the higher and rises to 540 feet. Large boulders, 20 to 35 feet high, are strewn along the beach. **Cormorant Rock**, 16 feet high, is the largest of three bare rocks off the south side of Harbor Point.

(51) **La Chaussee Spit**, on the northwest side of the entrance to Lituya Bay, is 100 to 225 yards wide and about 0.7 mile long. The spit is up to 12 feet high; the outer side of the spit is covered with large boulders.

(52) The entrance to Lituya Bay between Harbor Point and La Chaussee Spit is about 350 yards wide but is mostly foul. The channel has a controlling depth of about 5 fathoms but is only about 50 yards wide; the water shoals abruptly on either side and there are many rocks. The entrance is marked by a **007.8°**lighted range.

(53) **Anchorage Cove** behind La Chaussee Spit, has depths of 3 to 5 fathoms but is obstructed by numerous tree trunks and rocks awash and is not suitable for anchorage. On a flood tide with southerly weather, the cove has considerable swell.

(54) **Cenotaph Island**, in midbay and about 3 miles from the entrance, is densely wooded and has several hills, the highest rising about 320 feet. The north and west sides of the island slope gently, but the south side is an abrupt, high cliff with depths of 75 fathoms only 100 yards away. The island is named for a wooden monument, or cenotaph, which was erected by La Perouse in 1786 in memory of officers and men who were lost in the entrance to the bay. No trace of the monument or its site have been found in recent years.

(55)

Currents

(56) The current velocity at the entrance is 5.1 knots on the flood and 4.1 knots on the ebb. Ebb currents, running against a southwest swell, cause bad topping seas or combers which are dangerous to small craft. Small powered vessels in the bay should stay away from the entrance on the ebb to avoid being swept through. The ebb current follows a narrow path for several miles out to sea and can be seen for some distance. On the flood, the entrance is smooth and local fishing boats often negotiate it with a calm sea but are quickly swept through the channel by the powerful current. Strangers should not attempt to enter except at slack water.

(57)

Ice

(58) The bay has never been known to freeze over but icebergs could be present. With northeast breezes these icebergs often reach the entrance to the bay before melting. Ice is usually heaviest during October. The many streams flowing from the glaciers at the head of the bay give the water a murky discolored appearance.

(59)

Cape Fairweather to Yakutat Glacier

(60) From Lituya Bay northwest to Yakutat Bay, the shore is mostly gently curving sand beaches but boulders are found in the vicinity of Cape Fairweather and at other places. Prevailing currents set northwest about parallel to the shore, but it has been observed that winds have a great influence on directions and strengths.

(61) **Cape Fairweather**, 54 miles northwest of Cape Spencer, is an evenly rounded point sloping gently to the sea and abruptly back to the mountains. The summit of the cape is bare of vegetation but is covered with large piles of glacier drift, some of a bright iron-rust color. **Mount Fairweather**, 15,320 feet high, is 15 miles inland from the cape and is on the Alaska-Canada boundary.

(62) Protection from southeasterly weather can be had north of Cape Fairweather, which appreciably breaks both wind and swell. Just north is a high rocky slide, with a cataract several hundred feet high, which is prominent from offshore.

(63) **Alsek River**, about 82 miles northwest of Cape Spencer, empties into the northeast part of **Dry Bay**. About 8 miles back of the coast is **Alsek Glacier**. Dry Bay is filled with bars and small islands between which are constantly changing channels. The entrance to the bay, about 400 yards wide with depths of about 6 feet, has been used to some extent by small craft. The tidal current

has a velocity of about 2.5 knots on the ebb; during heavy weather the sea breaks fully 2 miles offshore.

(64) From Dry Bay to Yakutat Bay, the mountains are 5 to 15 miles from the coast, and between is a low wooded plain cut by numerous streams. The principal rivers between Dry Bay and Yakutat Bay have shifting bars at their entrances and lagoons or tidal basins inside; they can be used only by small boats or launches at high water and with a smooth sea. The mountains back of the coastal plain carry numerous glaciers; **Yakutat Glacier**, about 100 miles northwest of Cape Spencer and 30 miles east of Yakutat Bay, is 3 miles wide and very prominent.

(65) Mariners are advised that in glacially fed areas such as Yakutat Bay, a layer boundary with a steep thermal/salinity gradient and/or suspended sediments in the water column can produce erroneous bottom traces on echo sounders. If this anomaly is suspected, a handheld lead line should be used to penetrate the layer for an accurate reading.

(66)

Yakutat Bay to Nunatak Fiord

(67) **Yakutat Bay**, 130 miles northwest of Cape Spencer, has a 16.5-mile-wide entrance between Ocean Cape on the southeast and Point Manby on the northwest; the bay is 7 miles wide at **Blizhni Point**,15 miles above the entrance, and 2 miles wide a few miles farther up in Disenchantment Bay, the northern extension of the bay. Yakutat Bay, the best anchorage between Cape Spencer and Prince William Sound for light and medium-draft vessels, is mostly clear of islands and dangerous shoals. Depths in the bay range from 2 fathoms, marked by heavy growths of kelp west of Otmeloi and Krutoi Islands, to 134 fathoms off **Point Latouche**, 23 miles above the entrance. Two to three miles outside the line between Ocean Cape and Point Manby is a submarine ridge with depths of 3 to 17 fathoms. The water deepens rapidly to more than 30 fathoms on either side except near Point Manby, and the ridge curves northeast near Ocean Cape to join shallower water. During heavy weather, it has been observed that breakers or pronounced increased height and steepness of swell occurs across the entire entrance to Yakutat Bay and continues north to Disenchantment Bay; at such times entrance is dangerous.

(68) Complex currents are known to exist in Yakutat Bay. The current to the east of **Knight Island** flows south on a flood tide and north on an ebb tide.

(69) **Ocean Cape**, on the southeast side of the entrance to Yakutat Bay, is low and well wooded. Three bare light-colored bluffs 50 to 70 feet high, the westernmost point of the cape, are unmistakable landmarks. **Ocean Cape Light** (59°32'08"N., 139°51'20"W.), 130 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on one of the bluffs. A lighted whistle buoy, 3 miles west of Ocean Cape Light, marks the entrance to Yakutat Bay. Heavy breakers have been observed more than 0.5 mile offshore from the cape; vessels unfamiliar with the area should not attempt to pass between the lighted whistle buoy and Ocean Cape.

(70) **Point Manby**, on the northwest side of the entrance to Yakutat Bay, is low and wooded. There is usually heavy surf and strong currents along the shore from this point northeast to Blizhni Point, making it dangerous for boats to land, and causing migration of the shoreline and sandbars close to shore. Landings at stream entrances should only be made at high water and with local knowledge.

(71) **Point Carrew** is on the east side of Yakutat Bay 1.5 miles northeast of Ocean Cape. A lighted whistle buoy, about 2 miles north of Point Carrew, marks the north end of a bank of shoaler water extending from the point, and the turn into Monti Bay. A rocky point, over which heavy surf breaks, extends north from Point Carrew. The west shore of Phipps Peninsula is foul with large boulders. The north and northeast shore of Phipps Peninsula is subject to a periodic buildup of sand often producing sandbars offshore.

(72) **Point Munoz**, the westernmost extremity of **Khantaak Island**, is 3.5 miles above Ocean Cape. Dangerous rocks and heavy kelp growth, over which heavy surf breaks, extend southwest to south from Point Munoz making the area foul for vessels. The island is about 5 miles long in a northeast-southwest direction and the greatest width is between Point Munoz and **Point Turner**, 2 miles to the southeast. Khantaak Island is low and heavily wooded except at Point Turner, which is a tongue of sand covered with grass and bushes. **Khantaak Island Light** (59°33'29"N., 139°47'04"W.), 28 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on the south end of the island near Point Turner. The light is obscured from 105° to 330°.

(73) **Monti Bay**, entered between Point Carrew and Point Munoz, extends about 3 miles southeast to Yakutat, then turns north to Yakutat Roads anchorage. Depths in Monti Bay are 11 to 40 fathoms. The south side of the bay is clear, but the north side in the vicinity of Khantaak Island is foul. Heavy breakers are reported to exist at the entrance to Monti Bay. In 1999, it was reported that the shoreline around Monti Bay was spreading seaward with differences in excess of 10 meters from the charted shoreline. Caution is advised near the shoreline throughout Monti Bay and Khantaak Island.

(74) **The Ankau**, on the south side of Monti Bay 1 mile southeast of Point Carrew, is the outlet of an intricate system of shallow lagoons within the peninsula between the bay and the ocean. Navigating the area should not be attempted without local knowledge. Inside The Ankau, tides lag those predicted for Yakutat by as much as 2 hours.

(75) **Tzuse Shoal**, about midway between Point Turner and the Yakutat mainland, is a bare shoal about 300 yards in diameter at low water. A rock, 4 feet high, is near the south side of the shoal. Two rocks, awash at lowest tide, are about 0.2 mile north of the shoal. A lighted

buoy, (59°33'26"N., 139°45'51"W.), is about 100 yards southeast of the shoal.

(76) **Yakutat**, a town at the east end of Monti Bay, has a small hospital, school, and two general stores. There are several lodging options available in the town.

(77) Deep-draft vessels should anchor towards the deeper, central part of the bay in 25 fathoms.

(78)

Weather, Yakutat Vicinity

(79) The Yakutat area is surrounded on three sides by the waters of the Gulf of Alaska and Yakutat Bay; consequently, the climate is maritime in character. Both daily and seasonal average temperatures are held within fairly well-confined limits. Differences between average maximum and minimum readings range from a little over 12 °F (-11.1 °C) in November and December to around 15 °F (-9.4 °C) in March and April. Normal monthly temperatures range from 25 °F (-3.9 °C) in January to around 54 °F (12.2 °C) in July and August. Although Yakutat has experienced a record low of -24 °F (-31.1°C, December 1964), readings approaching this figure are extremely rare. Yakutat averages about 20 days each year with temperatures below 0°F (-17.8 °C). The higher mountain areas to the north and northeast of Yakutat, with extensive glaciation, provide down slope cold air drainage which results in wide variations of temperature within short distances. This cold air drainage produces much stronger winds than in the open bay, which may be encountered north of Point Latoche when approaching Disenchantment Bay. These localized winds have been observed to dissipate north of Hanke Island. Maximum temperatures above the 80°F (26.7 °C) mark have occurred in June, July, and August with the all-time maximum of 87°F (30.6 °C) occurring in June 1995.

(80) Although the area in the immediate vicinity of the station is relatively flat, rather rough, hilly terrain exists within short distances. At distances of 40 to 75 miles (74 to 139 km) to the north and northeast, peaks of the St. Elias Range rise to heights of from 14,000 to almost 20,000 feet (4,267 to almost 6,096 m). The upslope terrain, combined with the exposure of the station to moisture-laden air from the Gulf, tends to provide Yakutat with abundant rainfall. The annual precipitation of 146 inches (3708 mm) is one of the greatest in the state, and annual amounts have always been in excess of 85 inches (2159 mm). Extremes include 1987 when 250.24 inches (6356.1 mm) of precipitation fell and 1950 when 85.99 inches (2184.2 mm) of precipitation fell. Thunderstorms seldom occur, averaging only about one per year. June has the lowest average precipitation of any month with around seven inches (178 mm). October, with an average of greater than 21 inches (533 mm), has the heaviest monthly rainfall. In spite of abundant rainfall, runoff from heavy rain seldom creates a problem of any consequence. This is particularly true in the vicinity of the station where runoff not easily reaching drainage ditches is quite readily absorbed by the porous gravel which is exposed as a surface layer over much of the area. The heavy precipitation produces copious growth of various types of vegetation in the surrounding woods, including several types of edible berries. Heavy stands of timber in the area are harvested for lumber and pulp. Salmon fishing is a main source of income for natives in the area.

(81) Snowfall has occurred in all months of the year except June, July and August. The heaviest fall in any 24-hour period was experienced in March of 1960 when 32 inches (813 mm) fell.

(82) Cloudiness is abundant with the annual average sunrise to sunset exceeding eight-tenths sky cover. During the spring, fall and winter months, the Yakutat area is subjected to numerous storms, usually accompanied by high winds. During these seasons, the low pressure systems that develop in the Aleutians seem to follow a path lying just south of this area, resulting in persistent cloudy weather and extensive precipitation in the vicinity. During the summer, however, the weather occasionally remains cloudless and delightful for days at a time. The St. Elias Mountain Range, which borders the area on the northeast and contains numerous glaciers, exerts a pronounced effect upon the local weather, particularly when a steep pressure gradient develops with low pressure in the Gulf to the southwest of Yakutat. Under these conditions cold winds move down from the glacier slopes and skies are generally cloudless.

(83)

Ice

(84) The ice in Yakutat Bay comes from the glaciers at the head of Disenchantment Bay and Russell Fiords. The volume of ice present in Disenchantment Bay varies according to glacial activity and seasonal weather patterns. Ice flows can be thick across the entirety of Disenchantment Bay to as far south as Point Latouche, and often bank along the west sides of Disenchantment and Yakutat Bays as far south as Blizhni Point. Scattered bergs usually are found in the bay proper, and occasional drifts find their way as far south as Ocean Cape and Point Manby. Ice flows have reportedly been encountered west of Knight Island on the east side of the bay.

(85)

Pilotage, Yakutat Bay

(86) Pilotage except for certain exempted vessels is compulsory for all vessels navigating the waters of the State of Alaska.

(87) The Southeastern Alaska Pilots Association serves Yakutat Bay and can be reached at 907–225–9696 (phone), 907–247–9696 (fax) or *pilots@seapa.com* (email). The cable address is SEAPILOTS and radio call sign is WKD-53. The pilot office monitors VHF-FM channel 12. The associations address is P.O. Box 6100, 1621 Tongass Avenue, Suite 300, Ketchikan, AK 99901.

(88) The Southeastern Alaska Pilots Association pilot boat is stationed at Cape Spencer pilot station. This boat CORONA BOREALIS is 36 feet long with a white hull and cabin with the word “PILOT” on the sides. CORONA

BOREALIS displays the international day and night signals. Other vessels used for pilot transportation may or may not display international day and night signals. When the pilot is on the pilot boat at or near the pickup point VHF-FM channels 12, 13 and 16 are monitored and worked; the pilot station monitors channels 13 and 16 and works channels 12 and 77.

(89) Pilot services should be arranged in advance through ships' agents, or otherwise, in sufficient time to enable the pilot to travel to the area where the service is required.

(90) The established pilot boarding station or pickup point and other information for Yakutat Bay is in chapter 3 of this pilot volume and also in chapter 3 of Coast Pilot 8 (Alaska: Dixon Entrance to Cape Spencer). Boarding instructions such as vessel's speed, course, ladder height and preferred boarding side will be given by the pilot prior to boarding. This information depends on weather condition and type of ship; also pilotage services are affected by weather, tides and currents and daylight hours.

(91) A small-craft and seaplane float owned by the state and operated by the City of Yakutat is off Yakutat Roads in **Shipyard Cove**, (59°33'49"N., 139°44'27"W.). A 48-foot grid is on the west side of the approach. A small-craft float 230 yards east can repair small vessels. Limited repairs to small-craft are available at the cannery, when in operation, and at a garage in town.

(92) The **harbormaster** assigns berths; he can be contacted on VHF-FM channel 16 and by telephone (907-784-3323 or 907-784-3270).

(93)

Communications

(94) Barge service is available, stops being made only as freight traffic demands. Daily scheduled air service to Anchorage, Cordova and Juneau is available from the Yakutat airfield, about 3 miles southeast of the town; charter air service is also available.

(95) **Yakutat Roads**, extending north-northeast from Monti Bay, has a clear width of a quarter mile east of Tzuse Shoal, a length of about 1.5 miles, and depths of 12 to 26 fathoms, mud bottom, and is surrounded by an extensive foul area at its northeast end. A light marks the north limit of shoals on the east side of the roads. The best anchorage for large vessels is in the middle of Yakutat Roads in 15 to 23 fathoms.

(96) **Port Mulgrave**, on the west side of Yakutat Roads behind Point Turner, Khantaak Island, is 1 mile long and about 200 yards wide; on the side opposite Point Turner is **Village Shoal**, parts of which show at high water. The entrance to Port Mulgrave has a depth of 1½ feet; the arm is useable only by small boats.

(97) **Rurik Harbor**, the next arm indenting the inner side of Khantaak Island northeast of Port Mulgrave, has depths of 9 to 14 fathoms in its entrance. Small vessels can anchor in the entrance.

(98) **Sea Otter Bay**, northeast of Rurik Harbor, is 1.2 miles long and has depths of 12 to 36 fathoms. **Prince Shoal**, between Rurik Harbor and Sea Otter Bay, extends about 0.5 mile southeast from the Khantaak Island shore. The shoal is foul with rocks and has an extensive area that bares.

(99) **Broken Oar Cove**, 2.5 miles northeast of Yakutat, is the site of a logging operation. **Sawmill Cove**, on the south side of Broken Oar Cove, is used as a log dump and has a log boom with a submerged cable extending across the entrance.

(100) **Redfield Cove**, 3 miles northeast of Broken Oar Cove, affords excellent protected anchorage for light and medium draft vessels in 5 to 22 fathoms. The south side is clear of obstructions or shoals. A shoal extends about 0.3 mile south-southwest from the northern entrance point. The safest passage to the bay is from north between Knight Island and **Krutoi Island**. Unlighted buoys mark extents of two shoals northwest of Krutoi Island.

(101) From the southeast side of **Knight Island**, 6.5 miles north of Redfield Cove, a 500-yard-wide ridge extends southeast to Tla-xagh Island. The ridge provides a good anchorage in 14 fathoms for moderate-draft vessels. About 0.5 mile east of Tla-xagh Island is the entrance to **Eleanor Cove**.**Chicago Harbor**, just northeast of Eleanor Cove, is a well-protected steep-sided cove for small craft.

(102) North of Point Latouche, the bay bends to the northeast and joins **Disenchantment Bay**. Depths of 105 to 128 fathoms are found throughout Disenchantment Bay, except in the vicinity of Haenke Island, 4.5 miles northeast of Point Latouche, Osier Island, 2.5 miles northeast of Haenke Island in the entrance to Russell Fiord and a small islet 1.3 miles northeast of Haenke Island. A partially protected anchorage in 32 fathoms can be found behind **Haenke Island.**

(103) **Turner Glacier** and **Hubbard Glacier** actively discharge icebergs into the bay. The currents tend to push the ice debris in a west, southwest pattern out of the bay, but at times heavy ice concentrations spread across the bay. The thickest concentration of icebergs shift with the tide, extending south past Point Latoche during ebb tides. Turner Glacier flows into the west side of the bay, but was observed in the fall of 2017 to have almost completely receded onto land. There is a large exposed moraine bar at the terminus of Turner Glacier. Glacial meltwater streams were actively flowing from the moraine bar, discharging turbid meltwater into the area. Hubbard Glacier, the largest tidal glacier in Alaska, discharges innumerable icebergs into the head of the bay along a 6-mile-long ice cliff. Large waves caused by calving ice from the glacier make landing on the shores of the north part of the bay hazardous.

(104) **Osier Island** is 2.5 miles northeast of Haenke Island and located on the north end of the pass between Hubbard Glacier and the mainland. In 1999, it was reported that most of Osier Island was underneath the glacier with only a small portion of the southeast section of the island visible above water. Hubbard Glacier has advanced in recent years, at times closing the entrance to

Russell Fiord. Uncharted reefs, tidal currents, icebergs and ice calving from the glacier and resulting waves make navigation between Disenchantment Bay and Russell Fiord extremely hazardous at all times.

(105) Mariners should contact the U.S. Forest Service Public Affairs Office, Chatham Area, Region 10, 204 Siginaka Way, Sitka, AK 99835, for the latest conditions concerning Disenchantment Bay, Hubbard Glacier and Russell Fiord; telephone, 907–747–6671.

(106) **Russell Fiord** extends 27 miles southeast of Osier Island and has depths well over 100 fathoms except in the vicinity of Hubbard Glacier. A branch, **Nunatak Fiord**, extends east for 12 miles from Russell Fiord to **East Nunatak Glacier** which terminates on shoals that bare at low water.

(107) Tide rips and very strong currents exist at the entrance to Russell Fiord. Tidal currents have been observed to lag up to two hours after slack.

(108) Between Yakutat Bay and Cape Suckling, the coast is formed by river and glacier deposit and is relatively regular. Coastal currents are discussed in chapter 3.

(109) A short way inland, the St. Elias Range rises to 18,008 feet at **Mount St. Elias,** on the Alaska-Canada boundary, and culminates in the 19,850-foot **Mount Logan** in Canada. These towering snow-clad peaks, only 25 miles apart, are surpassed in all Canada and the United States only by central Alaska's 20,320-foot Mount McKinley.

(110) Stretching from Yakutat Bay to the Bering River in one continuous icefield are the tremendous **Malaspina Glacier and Bering Glacier**. Malaspina Glacier, which covers most of the coastal plain between Yakutat Bay and Icy Bay, reaches the sea at **Sitkagi Bluffs** which are formed of forest and debris covered ice. From the sea the glacier appears as a vast, almost featureless white plain, gently sloping toward the coast from the base of the towering peaks of the St. Elias Mountains.

(111)

Icy Bay

(112) **Icy Bay** is a glacially carved fiord that is 5 miles wide at the mouth and extends inland more than 22 miles. Actively calving Guyot, Yahtse and Tyndall Glaciers are at the north end of the bay.

(113) **Caution:** Mariners should use extreme caution when navigating Icy Bay. Icebergs and floe ice are hazards and their movement can cause changes to both shoreline and water depths.

(114) The bay is entered between **Point Riou Spit**, on the southeast, and **Claybluff Point**, on the northwest Both points are composed of soft shale and long sandy beaches.

(115) A bar extends across the entrance of Icy Bay, roughly in the shape of a crescent, with depths in midchannel of 5½ to 9 fathoms. Breakers extend out from each entrance point along the crest of the bar, varying from the size of the seas, but have never been observed to encroach on the channel.

(116) It is reported that most points on the east side of the bay give adequate radar returns from all positions in the bay.

(117) **Riou Bay** is behind Point Riou Spit. **Moraine Reef** lies in the entrance to Riou Bay. In surveys conducted by the NOAA Ship RAINIER in 2000, enough sand had accumulated around Moraine Reef to connect it to Point Riou spit. Most of Moraine Reef covers at high water. Numerous rocks awash and deadheads are in the entrance and throughout the bay.

(118) **Caution:** Point Riou Spit has been observed to migrate rapidly and in 2000 had migrated 0.5 mile north and west from Tsimpshian Pt. The rapidly changing shoreline of Point Riou Spit may make it unsuitable for radar navigation. Mariners are advised to give the spit a wide berth due to the rapidly changing nature of the shoals.

(119) A dangerous shoal extends about 0.5 mile north from the east sandspit to a 1¾-fathom spot in 59°55'43"N., 141°25'54"W. Depths to the north of the shoal are greater than 5 fathoms.

(120) **Moraine Island**, actually a peninsula, is on the east side of Riou Bay. A bar, with a least depth of ¾-fathom, northwest of Moraine Island, extends from 59°55'57"N., 141°23'37"W. to 59°56'01"N., 141°23'53"W. A shallow but navigable channel exists between the ¾-fathom bar and 1¼-fathom-spot about 0.5 mile to the east. A temporary logging camp with an airstrip exists on Moraine Island during the summer months. Small tugs and log barges use this passage en route to the camp.

(121) **Gull Island**, a natural bird sanctuary, is 2.5 miles northeast of Moraine Island. A 40-foot-high conical hill on the northeast end of the island is conspicuous. A shoal extends 1 mile west from the southwest tip of the island. Between the island and the southeast shore of Icy Bay, the water is foul with rocks and a moraine reef.

(122) The Icy Bay Lumber Company has a logging camp on the northwest side of the bay about 2 miles west of Claybluff Point. Caretakers are in attendance at the camp during the nonoperational winter months. An airstrip is also located at the camp.

(123) The Icy Bay Lumber Company also operates a log dump on the northwest side of the bay at **Carson Creek**, about 2.5 miles northeast of Claybluff Point. Heavy swells, which frequently break along this coast, can make landings difficult. A road terminates at Carson Creek.

(124)

Pilotage, Icy Bay

(125) Pilotage, except for certain exempted vessels, is compulsory for all vessels navigating the waters of the State of Alaska. (See **Pilotage, General** (indexed), chapter 3, for pilot pickup station and other details.)

(126) The pilot boat can be contacted by calling "ICY BAY PILOT BOAT" on VHF-FM channel 16 or on a prearranged frequency between pilot and agent/vessel.

(127)

Anchorages

(128) Possibly the best anchorage in Icy Bay is at the entrance to the bight east of Moraine Island. This harbor makes an excellent anchorage in most weather, well protected from the wind. The bottom is soft clay, which may yield in very high winds. In 2000, the controlling depth in the northwest part of the harbor was 4 fathoms with a 1¼-fathom spot at the entrance in 59°56'00"N., 141°22'45"W. Do not anchor between Moraine Island and Gull Island to the northeast, as bergs drift through this area, sometimes with considerable velocity. Off the entrance to Riou Bay, northeast of Moraine Reef, is an area that has a good holding bottom but is often exposed to swells from the Gulf of Alaska. Riou Bay has many foul areas along the east shore which, combined with the presence of Moraine Reef, makes the bay an undesirable anchorage.

(129) A 5½-fathom spot is 3.5 miles southwest of Kichyatt Point, 0.9 mile offshore.

(130)

Currents

(131) Currents in the bay are weak. The combined effect of the ebb current and the discharge from the glacial streams is most pronounced in the northwest part of the bay. In the entrance to Guyot Bay, the ebb current attains a velocity of 2 knots or more. The tidal current at the entrance to Icy Bay floods northeast and ebbs southwest, with a velocity of about 0.5 knot.

(132)

Weather, Icy Bay and vicinity

(133) The prevailing winds are east and northeast. A breeze off the glacier usually brings rain. Winds from other quarters are seldom observed, although offshore winds are known to blow at times. Breakers on the outside coast are generally heavy and plainly audible on either side in entering. Within the bay, west of **Claybluff Point**, breakers are frequently heavy enough to make landing difficult in small boats. Surf was observed along the east shore of the bay and along Gull Island but the shore was still often suitable for small craft landings.

(134) The bay trends generally northeast for 10 miles with depths of generally less than 50 fathoms below Kichyatt Point. north of prominent **Kichyatt Point**, on the west side of the bay, the shores are barren having been recently exposed by glacier retreat; the bay trends northwest for 15 miles to **Guyot Glacier** and **Yahtse Glacier** which discharge large amounts of icebergs. The west shore is high; 7 miles northwest of Kichyatt Point, **Tsaa Fiord** extends west 3 miles heading in three calving glaciers. The east shore of the bay is low and composed of glacial moraine and outwash from Malaspina Glacier. Two miles north-northeast of Kichyatt Point is low **Kageet Point**; north of the point **Taan Fiord** extends 12 miles northeast to **Tyndall Glacier**. Most of the waters of these fiords are uncharted and mariners are urged to use caution.

(135)

Ice

(136) Ice in the bay originates from the actively calving glaciers at the head of the bay. The part of the bay north of 60°00'N. is usually filled with ice. In the south part of the bay, the ice usually forms long tongues of loosely packed ice. Icy Bay is usually ice-free from the east shore, west to the centerline of the bay. The size of the ice ranges from a few widely spaced bergs of over 200 feet in length and 50 feet in height to many small bits 2 feet and smaller. Riou Bay remains relatively free of ice during the summer. During and shortly after periods of strong winds, the upper end of the bay is clear of ice sometimes to the face of the glaciers.

(137) Caution should be exercised when approaching or beaching a boat near the face of the glaciers. Boats may be swamped by the large waves generated by the falling of large chunks of ice into the water. Caution should also be exercised in the vicinity of the larger bergs that may roll over or break apart without warning.

(138) Freshwater may be obtained from streams along the west side of the bay in the vicinity of Kichyatt Point. Also, small icebergs can be taken aboard for potable water.

(139)

Cape Yukataga

(140) From Icy Bay to Cape Yakataga, the coast is backed by a continuous ridge of stratified mountains 3,000 to 6,000 feet high. Numerous streams cut the foothills, and a dense growth of alders and bushes line the shore.

(141) **Yakataga Reef** extends about 0.5 mile from shore at **Cape Yakataga** (60°03'40"N., 142°26'00"W.) and parts of it show above high water. This is the best landing place between Icy Bay and Controller Bay about 57 miles to the west, but landing is possible only with occasionally smooth seas. In 1968, a depth of 9 fathoms was reported about 15 miles south of Cape Yakataga in 59°50.0'N., 142°31.0'W. An aero radiobeacon is at Cape Yakataga.

(142)

Cape Suckling to Katalla

(143) **Caution:** Mariners are urged to use caution when navigating in the area of this chart due to possible changes in depths and shoreline as a result of the earthquake of March 27, 1964.

(144) **Cape Suckling** (59°59'24"N., 143°53'36"W.), 25 miles northeast of Cape St. Elias, is low and wooded. Two miles north of the cape a prominent mountain ridge 1,500 to 2,500 feet high extends about 8 miles northeast. Three bluffs about 100 feet high are 1.5 to 2.9 miles west of Cape Suckling. From the E bluff a sunken reef extends 0.6 mile southwest to three rocks awash that are close together.

(145) **Southwest Breaker** is a rock bare at low water, 3.8 miles 260° from Cape Suckling.

(146) **Okalee Spit**, forming the south side of Controller Bay, is low with bare sand dunes, and is 7 miles long in an

east-west direction. The southeast entrance to Controller Bay between the north end of Kayak Island and Okalee Spit is of little use except for small craft that can cross the flats east of Wingham Island.

(147) Two prominent rocks about 75 feet high are in the approach, about 1.5 miles east of **Lemesurier Point** at the northeast end of Kayak Island, and about 0.9 mile south of Okalee Spit. Ledges which uncover are between the two rocks, and extend about 300 yards east and west from them. Foul ground with 13 feet over its outer half extends from Lemesurier Point almost to the shoal surrounding the rocks.

(148) The channel is over a bar with least depths of 17 to 19 feet, thence between Okalee Spit and the two prominent rocks. North from the rocks, the channel has depths of 5 to 6 fathoms until about 1 mile inside the north end of Kayak Island; thence, through the flats, about 12 feet can be carried to Kayak Entrance, and 6 feet to Okalee Channel. Keep to the west of Southwest Breaker when using this channel.

(149) **Kayak Island** is 17.5 miles long, has peaks 1,110 to 1,390 feet high in the central portion and slopes gradually to its north part, which is low and wooded.

(150) **Cape St. Elias**, the south end of Kayak Island, is an important and unmistakable landmark. It is a precipitous, sharp, rocky ridge, about 1 mile long and 1,665 feet high, with a low, wooded neck between it and the high parts of the island farther north. **Pinnacle Rock**, about 0.2 mile off Cape St. Elias, is 494 feet high and connected to the cape by a low, narrow strip of land.

(151) **Cape St. Elias Light** (59°47'54"N., 144°35'56"W.), 85 feet above the water, is shown from a white square tower at the corner of a rectangular building on the southwest end of Kayak Island.

(152) A breaking reef extends 1 mile southwest from Pinnacle Rock. Another breaking reef, about 1 mile east of Cape St. Elias, extends about 1.5 miles south-southeast from Kayak Island and then continues as a submerged ridge of 2½ to 8 fathoms to **Southeast Rock**, which uncovers 11 feet. Broken ground with 7 to 16 fathoms extends about 2.5 miles southwest from the rock. A buoy, 3.2 miles south-southwest from Cape St. Elias Light, is on the broken ground. Tidal currents have considerable velocity across the reefs.

(153) The east coast of Kayak Island is strewn with boulders and landing is impracticable. Rocky shoals with 11 feet over them are 1.8 miles 172° from Lemesurier Point. Lying 3.2 miles southwest of the point and 1 mile offshore is a reef 0.5 mile long. Its north end is a rock 10 feet high and its south end uncovers 5 feet. For 9 miles northeast from Cape St. Elias, rocks awash and breakers extend 0.8 mile off the east coast of the island.

(154) **Sea Ranger Reef** is off the west coast of Kayak Island 3.3 miles north of Cape St. Elias. The inner shoal is 1 mile from shore, has 11 feet over it and often breaks. The outer shoal is 1.5 miles from shore, has a least known depth of 24 feet, and seldom breaks. Tide rips occur around it at times.

(155) The tidal currents on the west side of Kayak Island set north on the flood and south on the ebb, with an estimated velocity of 0.6 knot.

(156)

Anchorages

(157) Good protection from all winds except from the west can be found on the west side of Kayak Island. This area is used by foreign fishing vessels, generally large stern trawlers, for the transfer of fish between vessels at anchor. The smoothest water usually will be found between Sea Ranger Reef and Kayak Entrance, an anchorage that is used by fishing vessels during the halibut season. Indifferent anchorage can be had on the east side of Kayak Island in 15 to 20 fathoms, about 1.5 miles offshore midway between Cape St. Elias and Lemesurier Point. The holding ground is poor and a vessel should be ready to move on short notice.

(158) **Controller Bay** is formed by Okalee Spit and Kayak Island on the south and Wingham and Kanak Islands on the west. For some distance back from the east shore the land is but slightly above high water, and is broken by many streams; the bay is mostly flats. Entrance is through two principal channels, Kayak Entrance just south of Wingham Island and Okalee Channel just north of Wingham Island.

(159) (CLOB) **Kayak Entrance**, between Kayak and Wingham Islands, is rocky and foul with shoals. The least depth of the shoals as far as abeam of the southeast tip of Wingham Island is 1 fathom; above that and into the south portion of Controller Bay the depth is not more than 3 feet. Two rocks awash are about 0.3 mile north of the south entrance point. The channel is 0.5 mile wide between spits, which largely uncover, projecting out from Kayak and Wingham Islands. Kayak Entrance should be used with caution and only at high water.

(160)

Anchorages

(161) Anchorage can be made in 2 to 3 fathoms, bottom soft in places, in Kayak Entrance as far north as abeam of the southeast end of Wingham Island. There is some local chop with strong winds, but no outside swell enters the bay either through Kayak Entrance or around the north end of Kayak Island.

(162) Small vessels can anchor in the narrow channel close to the east side of the north end of Wingham Island. This channel is about 300 yards wide and has depths of 7 to 11 fathom for 1 mile south, then shoals gradually south. The flats on the east edge of the channel have depths of 7 to 11 feet. At times the tidal currents in the channel have a velocity of 3 knots or more.

(163) With heavy east winds, anchorage and shelter can be found in 16 to 18 fathoms 0.5 mile off the west side of Wingham Island.

(164) **Wingham Island**, 4 miles long and wooded, has three hills. The highest hill, near its north end, rises to 833 feet. The west shore of the island is precipitous.

(165) **Okalee Channel**, between Wingham and Kanak Islands, is 0.6 mile wide at the entrance. A depth of 6 fathoms can be carried to abeam of the south tip of Kanak Island. Further northeast, and into the bay depths are less. The channel is a secure anchorage, however, it changes annually and should be used only with local knowledge.

(166) The shoal on the south side of Okalee Channel, 1.5 miles northeast from Wingham Island, uncovers shortly after high water, and this shoal and the one on the opposite side of the channel are usually indicated by breakers. The shoal extending south from Kanak Island is mostly uncovered at low water. Above these shoals the flats bordering Okalee Channel are partly uncovered at low water only, and there is nothing to indicate the channel when the flats are covered.

(167) Vessels sometimes anchor in Okalee Channel about 2 miles above the north end of Wingham Island. This part of the channel is generally easy of access in clear weather. In the absence of local knowledge, navigation above this point should be at low water only.

(168) **Kanak Island** is about 4 miles long, very low and flat, and wooded in the middle. Breakers mark the extensive shoal which extends from the west side of the island. The south edge of the shoal is within 1.2 miles of the north end of Wingham Island.

(169) The passage between Kanak Island and Strawberry Point is used only by small boats at high water with local knowledge.

(170)

Currents

(171) The velocity of the current is 1.5 knots on the flood and 1.2 knots on the ebb off the north end of Wingham Island, and 1.7 knots on the flood and 2.0 knots on the ebb in the channel southeast of Kanak Island. The currents set into Controller Bay through all the entrances on the flood and out on the ebb. In Kayak Entrance the ebb has greater velocity than the flood and the estimated velocity is not over 3 knots. Tide rips occur at times in the channels south of Wingham Island and southeast of Kanak Island.

(172)

Weather, Kanak Island and vicinity

(173) During the summer the prevailing winds are from the east around through south to southwest. During the early spring and fall, northwest winds blow with great force over the flats. There is a great deal of cloudy misty weather during the summer. Fog is infrequent and usually clears before noon.

(174) **Point Hey** is a projecting and prominent point, high and narrow, on the northwest side of Controller Bay 1 mile north of Kanak Island. **Chilkat**, an abandoned village, is on the west side of the mouth of **Bering River,** which flows into the northeast end of Controller Bay.

(175) **Katalla Bay**, 23 miles north from Cape St. Elias, is between Strawberry Point on the east and Martin Islands on the west, a distance of about 4.5 miles, and indents the coast about 2 miles to the mouth of Katalla River. The bay is a roadstead sheltered from offshore winds but exposed to winds from southeast through southwest.

(176) **Strawberry Point** is low and bare at the end and wooded toward the foot of a prominent hill on the point which has a low break between it and the higher land north. A shoal with little water over it, and on which the sea generally breaks at low water, extends nearly 1.2 miles south from the point.

(177) The northeast shore of the bay from Strawberry Point to the mouth of Katalla River is a steep sand beach. The northwest shore from Katalla to Martin Islands is foul and should be given a berth of about 0.8 mile.

(178) **Palm Point** is 1.5 miles southwest of Katalla. A boulder reef, bare at low water, extends 0.4 mile south from it.

(179) **Martin Islands**, two in number and about 150 feet high, have steep rocky sides and are 0.5 miles from shore. The north island is joined to the shore by a flat, bare at extreme low water.

(180) **Martin Islands Light** (60°09'52"N., 144°36'22"W.), 150 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on the southwest point of Fox Island, the outer island of the Martin group. A 1½-fathom reef extends about 0.8 mile southwest of the light.

(181) **Katalla** is an abandoned village at the head of the bay, on the west side of **Katalla River**. The bar at the mouth of the river has a depth of about 3 feet, and the sea generally breaks on it. The entrance is narrow and rocky, and requires local knowledge. With a smooth sea, lighters formerly landed in the bight on the northeast side of Palm Point. The beach always has some surf, and with southeast or southwest winds, landing is impracticable. Shoals extend on both sides of the river mouth.

(182) The anchorage in the bay is 1.5 to 2 miles south of Katalla, in 5¼ to 7 fathoms, hard sand bottom. The holding ground is generally good, but quicksand south of Palm Point has caused the loss of many anchors. There are no dangers if the shore is given a berth of over 0.8 mile, but avoid the shoal extending 1.5 miles south from Strawberry Point.

(183)

Cooper River

(184) **Copper River** (60°25.0'N., 145°00.0'W.) emerges from the mountains between **Miles Glacier** and **Childs Glacier**, above which are rapids. Below the rapids, the river flows through broad flats in many changes channels that vary in depth from 5 to 20 feet at high stages. There are five navigable channels in the Copper River Delta. These channels require local knowledge due to changing bar and sea conditions and frequent dangerous breakers. The current is swift, and tidal effects are felt only near the mouth.

(185) The delta is low and marshy except for sand dunes, 50 to 150 feet high, on the islands and banks of the main channel. From seaward, the vicinity of Copper River

shows as a vast, rugged range with numerous glaciers filling its gorges. From **Point Martin** to Hinchinbrook Island is a chain of low sand islets, 3 to 5 miles offshore. These islets are marked by seasonal lights that are 12 feet above the water and mounted on steel skeleton towers with red and white diamond-shaped daymarks. These lights are frequently destroyed during severe weather. Between 1 to 2 miles offshore of these lights are corresponding red and white buoys. They do not mark the navigable channels between the islets and should only be used for position reference. Behind the islets are tidal flats of mud and sand, intersected by sloughs that drain into the Copper River passes and into Glacier and Eyak Rivers.

(186) The shoals extending seaward from the islets off the Copper River Delta have not been surveyed, however, danger can be avoided by giving the islets a berth of more than 3 miles and by avoiding depths less than 10 fathoms.

(187) **Alaganik Slough**, the westernmost and main outlet of Copper River, is 0.5 to 1 mile wide, with depths from 5 to 15 feet depending upon the stages of tide and river. The mean range of tide is about 9 feet at the mouth and is reported to be 2 to 3 feet at **Alaganik** about 10 miles up the slough.

(188)

Eyak River to Hinchinbrook Island

(189) **Eyak River**, 6 miles east-northeast of Point Whitshed (60°26'45"N., 145°52'42"W.), flows from Eyak Lake and has a swift current. At favorable stages of the tide it is navigable for small, light-draft craft to the lake. A highway bridge with a 43-foot fixed span and a clearance of 8 feet crosses the river about 3.5 miles above the mouth. **Mountain Slough** is 1.5 miles west from the mouth of Eyak River.

(190) **Egg Islands**, about 5 miles southeast of mainland Point Whitshed and 10 miles east of Hinchinbrook Island, are low and partly grass covered.**Egg Island Channel**, just east of the islands, leads northeast between sand and mudflats to Alaganik Slough. The seaward approach to the channel is marked by a lighted whistle buoy.

(191) **Egg Island Light East** (60°21'59"N., 145°45'19"W.), 33 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark, on the southeast island of the group.

(192) The current in the channel is strong. East of Egg Islands, flood and ebb velocities of 3 to 3.5 knots, respectively, setting in the direction of the channel, have been observed. North of the islands a current of 1.5 knots, flooding northwest and ebbing southeast, was found. Southeast of Point Whitshed a west flood of 1.5 knots was observed.

(193) Navigation with local knowledge in this area is limited to small craft. Anchorage can be found in the wider parts of the sloughs north of the Egg Islands. There is no protection from prevailing winds but seas are broken up by the surrounding flats.

(194) **Point Whitshed** is at the southern extremity of the **Heney Range**, the steep eastern side of which flanks the alluvial coastal region of the Cooper River. The waterfall, 1 mile east from the point on the coastal side of the ridge, is a prominent landmark, seen for several miles over the mudflats, and shows well when the peaks and higher land are cloud covered. The higher peaks on Heney Range, as well as those on Hinchinbrook Island, are generally sharp and bare topped. The end of the peninsula west from Heney Range is rolling hills. **Government Rock**, at Point Whitshed, is 30 feet high and rounded in outline.

(195) The irregular slough, marked by stakes and black oil drum buoys and trending east and west near Point Whitshed and **Twin Rocks**, has a controlling depth of about 1 foot. When the Twin Rocks are just covered, the depth in the slough is increased to about 6 feet. Twin Rocks can be avoided by bringing the summit of Mummy Island, a rounded wooded knoll, in range with the 1,845-foot mountain peak on Hawkins Island.

(196) An abandoned radio tower is near **Gravel Point** on the mainland about 1 mile east from Mummy Island.

(197) **Mummy Island** is about 425 feet high and wooded. **Mummy Island Light** (60°27'44"N., 145°59'27"W.), 21 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on the islets east of Mummy Island, where there is an approach through a slough. The islet 0.2 mile southwest of Mummy Island has two steep ends, 75 feet high, with a low, flat strip between.

(198) **Little Mummy Island,** 0.7 mile northwest of Mummy Island, is rounded in outline and profile.

(199) About 0.8 mile south of Mummy Island is **Pinnacle Rock**, on the edge of a slough extending from Point Bentinck to Mummy Island.

(200) Orca Inlet northeast to Cordova from Mummy Island is filled largely with flats. The channel from Mummy Island to Cordova is marked by seasonal buoys from May to October. Shoals throughout the area are constantly shifting; numerous other dangers exist in the area. Local knowledge is necessary. The inlet is described later in the chapter and numerous other dangers exist in the area. Local knowledge is necessary.

(201) **Point Bentinck** (60°23.5'N., 146°05.0'W.), at the east end of Hinchinbrook Island, is low, sandy, and grass covered, with sand dunes and brush 0.5 mile back. The brush covers a ridge extending southwest from **Strawberry Hill** at the south shore of Boswell Bay. The 798-foot knoll with a parabolic antenna north of Boswell Bay is prominent.

(202) At low water, sandflats bare for 2 miles off Point Bentinck. Part of this area is above high water offering a footing for sparse grass and a lodging place for driftwood. Shoal water continues off the point in a southeast direction, and about 4 miles from the point the shoal drops off into deeper water.

(203) A lighted whistle buoy about 4.5 miles south-southeast of Point Bentinck marks the seaward approach to a channel that leads between the flats 1 mile east of the

point to Orca Inlet. After crossing the bar, **Strawberry Channel** becomes deep and narrow abreast of Point Bentinck. Low water is the best time to negotiate the entrance as the flats are bare and of some aid and should be used only with local knowledge.

(204) Currents with velocities up to 3 knots on the flood and 2 knots on the ebb were observed in this channel. On the bar, flood and ebb velocities of about 1 knot were found setting northeast and south, respectively. South of the flats which extend west from Egg Islands, a northwest flood of 0.5 knot and a southeast ebb of 1 knot were observed.

(205) A ½-fathom spot is about 1.2 miles north-northeast of Point Bentinck in about 60°24.7'N., 146°03.7'W. A group of rocks that bare is in the middle of the entrance to Boswell Bay in about 60°24.9'N., 146°05.7'W.

(206) **Boswell Bay**, indenting the east end of Hinchinbrook Island, affords anchorage for small craft just inside the entrance. Massive **Boswell Rock** is 100 yards off the north point. Immediately adjacent to the point itself is an undercut rock. A very small rock is 100 yards outside of Boswell Rock.

(207) To enter, bring the 65-foot rock, brown in color and near the south shore of the bay, just clear of the southernmost pinnacle inside the entrance, and steer on this range until abreast of Boswell Rock. Then haul south a little and anchor when the northeast point of Hinchinbrook Island is just shut in on the undercut rock. Flood and ebb velocities of 1.5 and 2 knots, respectively, have been observed in the narrow entrance.

(208) A mountain ridge parallels the southeast coast of **Hinchinbrook Island**. The tree line is about 1,000 feet high and the summits of the island are bare. The peaks are not prominent and from offshore they are difficult to identify.

(209) The promontory between **Point Steele** and **Hook Point** is 2 miles broad and is faced with 200-foot bluffs; back of the bluffs is swampland. Lowland and sand beaches are adjacent to the promontory on either side. A boat can land in good weather on the northwest side of Hook Point and 0.5 mile north of Point Steele. Reefs extend 0.4 mile from the promontory.

(210) Northeast of Cape Hinchinbrook, the seaward face of Hinchinbrook Island is steep, with rocky bluffs at the water, for 12 miles to an open bight with a broad sand beach on the west side of Hook Point.

(211) Hinchinbrook Entrance is described later.

(212)

Prince William Sound

(213) **Prince William Sound** is an extensive body of water with an area of about 2,500 square miles. It is very irregular in outline, with great arms spreading in all directions. The entrance, from Cape Hinchinbrook to Cape Puget, is 58 miles across but is almost closed off by islands. The largest is Montague Island, which extends well out into the ocean.

(214) Many of the islands and peninsulas in the sound are low and tree covered, but behind these rise eternal barriers of ice and snow. The **Chugach Mountains** stretch northwest from the St. Elias Range and enclose the sound round through north and west. On the north shore glaciers come down to the heads of the bays.

(215) **Prince William Sound Shipping Safety Fairway**, extending southeast from Hinchinbrook Entrance at the approaches to Prince William Sound, has separate inbound and outbound traffic lanes that merge in the northwest part. (See **33 CFR 166.100** through **166.110** and **166.400**, chapter 2, for limits and regulations.)

(216) There are Safety Zones and Security Zones in Prince William Sound. (See **33 CFR 165.1** through **165.33** and **165.1701** through **165.1711**, chapter 2, for limits and regulations.)

(217) **Traffic Separation Scheme (Prince William Sound)**, wholly within U.S. Territorial waters, has inbound and outbound traffic lanes and separation zones and leads from the vicinity of Cape Hinchinbrook through Prince William Sound and into Valdez Arm–the entrance to Port Valdez. (See Traffic Separation Schemes, chapter 1, for additional information. See also **33 CFR 167.1** through **167.15** and **167.1701** through **167.1703**, chapter 2, for limits and regulations.)

(218) Mariners approaching or departing Hinchinbrook Entrance are advised to use caution, because of strong currents, occasional severe weather, and fishing activity in the area. Hinchinbrook Entrance may be transited east or west of Seal Rocks, at the vessel master's discretion.

(219)

Dangers

(220) The off-lying dangers in the approaches to Prince William Sound are Middleton Island, Fountain Rock, Wessels Reef and Seal Rocks.

(221) The Hinchinbrook Entrance Safety Fairway has been established to provide an unobstructed approach for vessels from the southeast to Hinchinbrook Entrance. Use of this fairway provides safe clearance of Wessels Reef and Seal Rocks and terminates at Cape Hinchinbrook. The Prince William Sound Vessel Traffic Service begins about 3.5 miles after departing the designated safety fairway. A RACON established at Seal Rocks and a radio beacon at Cape Hinchinbrook provide aids to making the approach.

(222) **The March 1964 earthquake caused a bottom uplift of from 4 to 32 feet in Prince William Sound. Some parts of the sound outside of the traffic separation scheme have not been surveyed since the earthquake. Until a complete survey is made of the area, extreme caution is necessary because depths may be considerably less than charted and mentioned in the Coast Pilot.**

(223) A **Vessel Traffic Service (Prince William Sound Vessel Traffic Service)**, operated by the U.S. Coast Guard, has been established in Prince William Sound, Valdez Arm, Valdez Narrows and Port Valdez. The

Service is designed to prevent collisions and groundings and to protect the navigable waters of the Vessel Traffic Service area from environmental harm resulting from such collisions and groundings.

(224) The **Prince William Sound Vessel Traffic Service** comprises three major components: a **Traffic Separation Scheme,** a **Vessel Movement Reporting System** and **radar surveillance.** The Traffic Separation Scheme comprises a network of one-way traffic lanes with a separation zone in between. The traffic lanes are each 1,500 yards wide from Hinchinbrook Entrance to the vicinity of Bligh Reef at the southeast end of Valdez Arm, then gradually decrease in width to 1,000 yards and terminate at Rocky Point. The separation zone is 2,000 yards wide between Hinchinbrook Entrance and the vicinity of Bligh Reef, then gradually decreases in width to 1,000 yards and terminates at Rocky Point.

(225) The Vessel Movement Reporting System is controlled by the **Vessel Traffic Center,** call "Valdez Traffic," which is operated continuously by the U.S. Coast Guard. The center maintains radiotelephone communications with vessels in the Vessel Traffic Service Area on VHF-FM channel 13. The center receives, assembles and processes information from vessels through mandatory and voluntary reports and in turn disseminates marine safety information to vessels participating in the Service.

(226) Vessels of 20,000 DWT or more are required to carry and operate an Automatic Identification System Shipborne Equipment (AISSE) transponder within the Prince William Sound regulated navigation area (VTS Area). (See AISSE, indexed as such, chapter 1, and **33 CFR 165.1704**, chapter 2, for more information.)

(227) The radar surveillance system covers Valdez Arm, Valdez Narrows and Port Valdez from Coast Guard operated radar sites. One site is at **Potato Point**, on the west side of Valdez Narrows, and the other is on Valdez Spit, which borders the south and east sides of the small-boat basin at Valdez. A continuous radar watch of these areas is maintained by the Vessel Traffic Center.

(228) The mariner is cautioned that the reliability of information received by the Vessel Traffic Center may vary depending on the method of receipt and source. Additionally, the Coast Guard may not always have first-hand knowledge of hazardous circumstances existing in the Vessel Traffic Service area, and unreported hazards may confront the mariner at any time.

(229) The Vessel Traffic Service is shown on the appropriate nautical charts of the area.

(230) The rules governing vessels operating in the Vessel Traffic Service area are given in **33 CFR 161.1** through **161.23** and **161.60**, chapter 2. In addition, detailed operating procedures are contained in the Prince William Sound Vessel Traffic Service Operating Manual, available from the Commanding Officer, Coast Guard Vessel Traffic Service, Valdez, AK 99686.

(231) Every ladden oil tanker is escorted by an ocean-going tug and a 210-foot Escort Response Vessel (ERV) from Valdez Marine Terminal to Hinchinbrook Entrance. ERVs are equipped to tow or assist tankers with power or maneuvering problems; to contain, recover and store oil; and carry spill response equipment.

(232) In Prince William Sound, the **narrow channel rule**, Inland Rule 9 Narrow Channel, applies when tank vessels, cruise ships and tank barges are underway between their berths and the northern boundary of the Traffic Separation Scheme in Valdez Arm. A vessel less than 20 meters (66 feet) in length shall **not** impede the passage of any vessel that can safely navigate **only** within the narrow channel fairway. A vessel engaged in fishing shall **not** impede the passage of any other vessel navigating within a narrow channel or fairway. A vessel shall **not** cross a narrow channel or fairway if the crossing will impede the passage of any vessel which can safely navigate **only** within the narrow channel or fairway. All vessels shall avoid anchoring in a narrow channel, unless circumstances require a vessel to anchor to avoid immediate danger. (See Navigation Rules, International-Inland).

(233)

Spill Response Resources

(234) Tank vessels carrying oil in bulk are required to have an approved vessel response plan and spill response resources (owned or contracted) to enter U.S. Ports. (See Oil Pollution, indexed as such, chapter 1.) In addition, all vessel spills are the responsibility of the spiller to remove. Spill response resources are available in Valdez, Cordova, Whittier, Port Etches and Naked Island. Contact Captain of the Port (COTP) in Valdez for further information.

(235) **Middleton Island**, about 50 miles off the entrance to Prince William Sound, is comparatively low and grass covered and difficult to pick up when making a landfall. An aerolight is on the west side about 1.3 miles from the south end of the island.

(236) From a few miles offshore the island appears flat. The highest ground, on the south, has an elevation of 126 feet. A pinnacle rock at the extreme south end is conspicuous from east and west. The north end slopes to a sandspit.

(237) The east and south sides of the island are bold hard-clay cliffs upon which great numbers of seafowl nest. The steepest and highest section of the cliff, on the west side, extends for 1 mile from the south end. There is also a short section of cliff midway along the west shore.

(238) A sandbar, awash at low water, extends 1.3 miles northwest from the north tip of the island. The channel between the extreme end of the bar and the main island, 0.5 mile northwest of the tip of the island, carries a depth of 3 fathoms, but strong rips occur and it is dangerous to use.

(239) Middleton Island is inhabited by technicians that operate the Federal Aviation Administration station. The island is fringed by vast areas of reefs, rocks and kelp. Breakers occur at greater distances. Foul ground extends 2 miles south of the island, terminating in breakers except in very smooth weather. Seaward of these breakers, the bottom falls off rapidly into deep water, except that in

1967, a depth of 5¼ fathoms was found to exist about 0.3 mile south of the foul ground in 59°22.3'N., 146°23.1'W. Broken ground extends 3 miles to the east, terminating in breakers that first begin to appear when a moderate swell is running. This side of the island should be given a wide berth.

(240) The waters west of Middleton Island are clear of off-lying dangers, giving an easy approach to an anchorage from this direction. The best anchorage is 1 mile south of the north tip and 2 miles west of the island in about 12 fathoms. Small vessels can anchor further east, 1 mile west of the island, in about 7 to 8 fathoms. This area gives protection from the northeast and southeast. Tidal currents, of about 2 knots, run approximately parallel to the island.

(241) There are two good landing places, depending on the prevailing seas; one is on the northeast side of the island 0.3 mile from the north tip; the other is on the west side of the island, directly west of a quonset hut, 0.7 mile south of the north tip of the island. These areas have steep beaches, and landings can be made in moderate swells. The remains of the S.S. COLDBROOK, which was wrecked in this vicinity in 1942, are above the high waterline.

(242) At the north and south ends of the island the current is irregular and sets in a northeast-southwest direction. Tide rips are visible several miles to the south of the island, and to the north in the vicinity of Fountain Rock. **Mariners are advised to use extreme caution when navigating in shoal waters in the vicinity of Middleton Island because of possible additional shoaling as a result of the bottom uplift caused by the earthquake of March 1964.**

(243) **Fountain Rock**, 4 miles north of Middleton Island, breaks in light seas. The rock, which uncovers 2 feet, and the danger area, centered around the rock, is about 0.5 mile square. Safe passage can be made midway between Fountain Rock and the north tip of Middleton Island in 14 fathoms but should be done so with caution.

(244) **Wessels Reef**, bare at low water and 2 miles long, north-northeast – south-southwest, is about 19 miles north of Middleton Island. Depths of 30 fathoms or more are close to the reef, and with smooth seas it can hardly be detected. A buoy is on the east side of the reef.

(245) **Seal Rocks** are discussed later with Hinchinbrook Entrance.

(246)

Routes

(247) Vessels bound for ports on Prince William Sound from east use Hinchinbrook Entrance, between Montague and Hinchinbrook Islands. Vessels approaching from southwest use Elrington Passage, it being the best marked. Montague Strait, the widest and deepest of the west entrances to Prince William Sound, Latouche Passage, Prince of Wales Passage and Bainbridge Passage are also available to vessels approaching from the southwest.

(248)

Currents

(249) In Prince William Sound high and low water occur about the same time as at Cordova. It is reported that the currents along the approach to Prince William Sound set southwest invariably, and occasionally with a velocity of 2.5 knots; accordingly, extreme caution is required in approaching Hinchinbrook Entrance in thick weather. See the Tidal Current prediction service at *tidesandcurrents.noaa.gov* for specific information about times, directions, and velocities of the current at numerous locations throughout the area. Links to a user guide for this service can be found in chapter 1 of this book.

(250)

Weather, Prince William Sound

(251) The waters of the sound are very deep and are chilled by large amounts of ice from the surrounding glaciers. The meeting of cold water and the colder air from the mountains with the warmer waters and vapor-laden airs of the Gulf of Alaska causes changeable weather; sudden wind squalls and thick fogs are common.

(252)

Ice

(253) Glacial ice is rarely found in the open waters of Prince William Sound. Ice is discharged by the Columbia Glacier, north of Glacier Island, and is driven into the sound by north winds; it may be expected, depending on the winds, from Bligh Island to Bald Head Chris Island and as far south as Storey Island. Large bergs may be found at any time along the north shore from Point Freemantle to Fairmount Island.

(254) There are numerous discharging glaciers in Port Wells, the northwest arm of the sound, but ice rarely reaches the entrance of the arm. There is a discharging glacier at the head of Blackstone Bay, but the ice is confined to the bay. Ice is discharged by Chenega Glacier on the southwest side of the sound and occasionally drifts east as far as Point Helen and the north entrance to Latouche Passage.

(255) During very cold weather ice sometimes forms in the arms of the sound that reach well into the mountains and is at times heavy enough to impede navigation.

(256) **Montague Island**, on the west side of Hinchinbrook Entrance approach to Prince William Sound, is high, mountainous and wooded to about 1,000 feet. There are no distinctive peaks, although Montague Peak, the most north one of the range, can be distinguished from the south. A striking characteristic of the east part of the north half of the island is the regularity of the succession of spurs reaching from the mountain range to the coast, where the spurs terminate in dirt bluffs with comparatively steep slopes.

(257) A constant southwest current is reported along the east coast of Montague Island. (See remarks on currents in chapter 3.)

(258) Two logging camps are on the north side of Montague Island. Brown bears are numerous on the island, and visitors should exercise extreme caution.

(259) **Montague Island was subjected to extensive upheaval during the March 1964 earthquake. Thirty-one feet was measured at Macleod Harbor, 11 feet at Port Chalmers and 15 feet at Patton Bay. Mariners should exercise extreme caution when navigating in depths under 10 fathoms or areas of uneven bottom.**

(260)

Cape Cleare to Purple Bluff

(261)

South and East coast of Montague Island

(262) **Cape Cleare**, the southwest extremity of Montague Island, is gently rounding and consists of eroded bluffs with rocky beaches. Back of the cliffs the cape is timbered and undulating with the ground gradually rising to the mountain masses nearby. A detached rock with a double head 25 feet high is about 75 yards off the southwest extremity of the cape. Three pinnacle rocks, with least depths of 2.4 fathoms, 2.9 fathoms and 3.8 fathoms are south of the cape and located at:

(263) 59°44'40"N., 147°51'33"W.,

(264) 59°44'22"N., 147°51'38"W., and

(265) 59°44'15"N., 147°51'45"W., respectively. The cape should be given a berth of at least 2.5 miles. Strong tidal currents sweep around the cape and tide rips are frequently encountered.

(266) Exposed anchorage can be had in the bight about 5 miles northeast from Cape Cleare in 10 to 20 fathoms, sand and gravel bottom. **Cape Cleare was subjected to extensive upheaval during the March 1964 earthquake. Shoaling and other scattered dangers exist in the area. Mariners should exercise extreme caution when navigating in depths under 10 fathoms or areas of uneven bottom.**

(267) **Neck Point**, the first prominent point northeast from Cape Cleare, is a bold headland with eroded bluffs. A prominent pinnacle rock 104 feet high is about 100 yards off the point and deep water extends close to shore. The point is separated from the higher peaks back of it by a neck of land somewhat lower than the outside point. The headland and the 1,900-foot peak are separated from the main ridge by a deep valley. When viewed from a position southwest of Cape Cleare the peak has the appearance of a detached conical island.

(268) **Jeanie Cove**, a bight 10 miles northeast from Cape Cleare, is exposed to the south and affords no protected anchorage. There are numerous reefs and rocky patches in this vicinity that should be avoided.

(269) Rocks awash are 0.8 mile northeast of the west entrance point, and a reef, which uncovers, is 0.8 mile southwest of Jeanie Point, the east entrance point. A depth of 7 fathoms is about 1.4 miles 212° from Jeanie Point.

(270) **Jeanie Point** is bold with rock cliffs. Back of the cliffs the land is timbered and rolling. A prominent detached rock is a short distance off the point.

(271) **Wooded Islands**, on the southeast side of Patton Bay, are 16 miles northeast from Cape Cleare. The largest of the three is wooded and flat topped, with a prominent square-topped pinnacle rock about 175 yards off its west end. **Tanker Island**, the middle islet about 0.4 mile east of the largest island, has a small clump of trees near one end that appear similar to the stack and wheelhouse of a tanker. **Fish Island**, the easternmost islet, is small with a few trees on the west summit. The area between the islands is foul, and the small passage southwest of the largest island is shoal and foul. These islands should be given a berth of at least 2 miles, and without local knowledge, the shoal rocky passage southwest of the islands should not be used by small boats.

(272) A survey of the coast from Wooded Islands to Cape Cleare disclosed no outlying dangers, but there are areas of broken bottom near the shore and vessels are advised to give the coast a berth of 3 miles.

(273) **Patton Bay**, 17 miles northeast of Cape Cleare, is about 4.5 miles square with Box Point on the northeast side and Wooded Islands on the southeast side. The deepwater entrance, about 3.5 miles wide, is between the rocky foul ground extending east from Box Point and the irregular rocky ground extending ENE from the Wooded Islands.

(274) Inside the bay, foul areas extend 0.3 mile south and 1.1 miles west of the south tip of Box Point. The east head of the bay is foul over 1 mile offshore. There are foul areas from the prominent pinnacle rock on the rocky point 2 miles northwest of the largest of the Wooded Islands: 0.7 mile north-northwest, 0.3 mile northeast and 0.8 mile south-southeast. **Nellie Martin River**, on the south side of the bay, is blocked by a bar across its mouth.

(275) There is good anchorage, except during northeast to south weather, for small boats in the bights at the northeast, west and southwest parts of the bay in 2½ to 10 fathoms, sand bottom, and for larger vessels in 15 fathoms or more, sand and mud bottom.

(276) **Box Point**, 20 miles northeast of Cape Cleare, is about 130 feet high and comparatively level, with steep bluffs, giving a rectangular appearance. Two box-shaped islets are on foul ground extending about 2 miles east with a 4¼-fathom depth in 59°57'08"N., 147°18'10"W.

(277) **Purple Bluff**, 5 miles north of Box Point, has a purple hue especially in the afternoon. South of Purple Bluff, a conspicuous valley, drained by **Beach River**, trends far inshore.

(278) From Purple Bluff to Zaikof Point, the outer coast of Montague Island is unbroken and free from outlying dangers except for Seal Rocks. About 3.5 miles south of Purple Bluff, a spit extends 0.5 mile offshore, terminating in a group of rocks awash.

(279) The west and north coasts of Montague Island are described later.

(280)

Hinchinbrook Entrance to Windy Bay

(281) **Hinchinbrook Entrance**, the main entrance to Prince William Sound, is about 6 miles wide and clear with the exception of Seal Rocks. The entrance (1.5 miles southwest of Cape Hinchinbrook Light) is 1,168 miles from Seattle via Strait of Juan de Fuca and the outside route and 1,306 miles via the inside passages, Cross Sound and Cape Spencer.

(282) The south extremity of the **Prince William Sound Traffic Separation Scheme** leads through the middle of Hinchinbrook Entrance. Additional information on this scheme is given earlier in this chapter under Prince William Sound.

(283) **Seal Rocks**, off the entrance, are 6 to 7 miles southwest from Cape Hinchinbrook and over 6 miles from Montague Island. They are two bare rocks, 30 and 37 feet high, surrounded by low rocks. The westernmost bare rock is marked by **Seal Rocks Light** (60°09'47"N., 146°50'18"W.), 48 feet (14.6 m) above the water and shown from a skeleton tower with a red and white diamond-shaped daymark. A radar beacon (Racon) is at the light. Rocks, submerged and awash, extend 1 mile northeast and 0.4 mile southwest from them. The entire reef within the 10-fathom curve forms an obstruction nearly 2.9 miles long. A lighted whistle buoy marks the east end of this obstruction.

(284)

Currents

(285) The tidal currents in the entrance set directly in or out of the sound, except east of Seal Rocks where the currents usually run east to west regardless of the tide. There is a strong set in the direction of Seal Rocks when the wind is blowing from the east and the tide is ebbing. In Hinchinbrook Entrance, Montague Strait and Latouche Passage, the velocity of the current is about 1 knot. The ebb current running out against a large swell causes overfalls, especially in the deep water 2 or 3 miles east of Zaikof Point, which have been mistaken for breakers. There are also tide rips on the broken ground around Cape Hinchinbrook. The flood entering west of Montague Island sets northeast past Montague Point and causes rips between it and Johnstone Point.

(286) Outside the entrance along the southeast coast of Hinchinbrook Island the current sets southwest almost constantly. (See remarks on current in chapter 3.) Current observations in Elrington Passage indicate a velocity of 1.5 knots.

(287) With a strong south gale and ebb tide, very heavy overfalls and tide rips occur in Hinchinbrook Entrance and are dangerous to small craft. Tremendous seas, steep and breaking, are sometimes encountered just outside the entrance. During heavy weather, tide rips and confused seas are in the vicinity of Wessels Reef. Many halibut schooners have foundered between Cape St. Elias and Montague Island.

(288) **Cape Hinchinbrook** is on the east side of Hinchinbrook Entrance, the principal entrance to Prince William Sound from the east.

(289) A few rocky islets are close to the southeast and southwest sides of the cape, and submerged reefs on which the sea breaks in a moderate swell are 0.4 mile southeast and south from the cape. The cape should be given a berth of at least 1 mile.

(290) **Cape Hinchinbrook Light** (60°14'15"N., 146°38'48"W.), 235 feet above the water, is shown from a white square tower on the corner of a building on the southwest point of the cape.

(291) **Zaikof Point**, on the west side of Hinchinbrook Entrance, is one of three prominent points on the northeast end of Montague Island. **Schooner Rock**, marked by a light, is a pinnacle 75 feet high about 0.3 mile off Zaikof Point.

(292) Between the three prominent points are Zaikof and Rocky Bays. Low depressions run through from the heads of these bays to the west side of Montague Island.

(293) **Zaikof Bay** is clear, but exposed to northeast winds. A 6¾-fathom shoal area is in the middle of the entrance to the bay, 1.4 miles northwest of Zaikof Point. An 8½-fathom shoal area is 3.6 miles from the head and in the middle of the bay. A shoal area extending across the bay, with depths of 10¾ fathoms and less, is about 2.3 miles from the head of the bay. Anchorage can be selected with the aid of the chart along the southeast shore, from 2 miles inside Schooner Rock to the head: also on a bar with 6 to 9 fathoms that extends across the bay 2.5 miles from the head. A swell makes in during southeast gales.

(294) A small vessel can anchor in the cove on the southeast side 1.6 miles from the head, with shelter from northeast winds. Anchor close to the south side of the point, about 0.1 miles from the short spit extending from it, in 8 to 10 fathoms. There is no swell, but the williwaws blow with great force over the lower land inside the point. When the wind hauls southeast or south the williwaws come from all directions, and it is well to shift anchorage farther from the spit. A small shallow lagoon is at the head of the cove, and the bank is steep-to.

(295) Foul ground marked by kelp extends 0.6 mile north to 1.0 mile west-northwest off **Middle Point**, which separates Zaikof and Rocky Bays.

(296) **Rocky Bay** is deep and exposed to north and east winds. A small vessel can anchor in good weather about 0.5 mile from the head and 0.2 mile from the northwest side, in 5 to 6.5 fathoms. Small craft can anchor all the way back in the bay, about 0.2 mile from the head. The depth in this location is about 15 feet. When entering this area, care should be taken to avoid a reef 0.1 mile off the southern shore and a rock 0.15 mile southwest of the reef.

(297) A reef that uncovers extends about 0.6 mile east from Montague Point which forms the west side of Rocky Bay. The south side of the bay has many dangerous off-lying rocks and reefs that extend to 0.2 mile offshore. Mariners are advised to exercise extreme caution when navigating on this side of the bay.

(298) **Port Etches**, an inlet in the southwest end of Hinchinbrook Island, has secure anchorage, the best in Hinchinbrook Entrance, and is easy of access. The strongest gales are from the northeast and are not steady, but descend from the surrounding mountains in heavy williwaws of varied direction and at times blow hard in Port Etches when comparatively light winds prevail outside. The bay also serves as a mooring station for oil spill response barges.

(299) The best anchorage for large vessels is abreast Garden Cove, in 11 to 14 fathoms, muddy bottom. A flat extends 1.5 miles from the head of the inlet but can easily be avoided. The swell is quite perceptible in heavy south weather.

(300) **Garden Cove**, on the southeast side 2 to 2.5 miles from the head of Port Etches, is the best anchorage for small vessels. **Garden Island**, wooded and with a break through it, is in the middle of the entrance; there is no safe passage northeast of it. **Point Horn**, the southwest point of the cove, is the most prominent of the projecting points on the southeast shore of Port Etches.

(301) Anchor with Point Horn in line with the southernmost of the Porpoise Rocks and about 250 yards southeast of Garden Island in 4 to 5 fathoms, sticky bottom. No ocean swell reaches the anchorage, but, as elsewhere in Port Etches, the williwaws are bad in east gales.

(302) **English Bay**, on the south side of the entrance to Port Etches, is a bight about 0.4 mile wide. It can be used as a temporary anchorage by small vessels but is exposed to the ocean swell in heavy weather and open to north and west winds. East gales blow in williwaws from all directions but do not raise much sea in the inner cove. The holding ground is good. A submerged rock is about 0.2 mile north of the southwest entrance point, in about 60°17.5'N., 146°40.9'W.

(303) The two bights on the southeast shore of Port Etches, 1.2 and 3.5 miles northeast of English Bay, are rocky and should be avoided.

(304) **Porpoise Rocks**, on the northwest side of the entrance to Port Etches, are three principal rocks about 48 feet high, with numerous small rocks among and east of them. The westernmost and largest is flat on top and grass covered and has a rock covered at high water 200 yards west from it. Deep water is close to the rocks except on their northeast side where foul ground extends to Point Barber at Nuchek, a distance of 1 mile, with no safe channel between. Kelp surrounds Porpoise Rocks and extends 0.4 mile southwest of Point Barber.

(305) **Nuchek** is an abandoned Indian village at **Point Barber**, the southeast end of the shingle spit at the southwest end of Constantine Harbor. A hunting lodge is conspicuous.

(306) In good weather vessels have anchored off the shingle spit northwest of Nuchek. It is an uncomfortable anchorage because of the swell. The best anchorage in about 10 fathoms, sandy bottom, is abreast the spit midway between the village and the rocky wooded knob in the middle of the spit, with the southeasternmost of the three largest Porpoise Rocks in line with the end of Hinchinbrook Island.

(307) **Constantine Harbor**, the lagoon on the northwest side of Port Etches, has its entrance at **Phipps Point**. It is suitable only for small craft because of the very narrow entrance channel that is 50 to 100 yards wide with depths of 3 to 15 feet. The tidal currents have considerable velocity in the entrance. The best time to enter is at high water, preferably near slack. The harbor is mostly shallow but has an area 0.5 mile long and 0.4 mile wide with depths of 3 to 4¼ fathoms, sticky bottom, but exposed to williwaws. Numerous brown bears are reported to inhabit the area.

(308) On the northeast side of the entrance are three small rocky wooded islets with overhanging sides. Among them are rocks awash, and 60 yards south-southeast from the west islet is a submerged rock, all marked by kelp at slack water. The channel is close to the west islet, between the foul ground at the islets and a shoal of 9 to 10 feet extending 0.3 mile east from Phipps Point.

(309) Temporary anchorage in 10 to 12 fathoms, sticky bottom, can be had about 0.6 mile southeast of the rocky islets in the entrance of Constantine Harbor; there is considerable swell in heavy weather.

(310) **Bear Cape**, steep and high, is the southwest end of the northwest mountain ridge of Hinchinbrook Island. **Deer Cove**, 3 miles north of Bear Cape, has anchorage a little south of the middle of the entrance in 3 to 6 fathoms, with shelter from east and southeast winds. A light is on the point at the south side of the entrance to the cove.

(311) **Shelter Bay**, 5.5 miles north-northeast of Bear Cape, has a shallow entrance with strong currents and is foul inside. It should not be used even by small craft. A shoal with a rock that uncovers 3 feet extends 0.3 mile from the shore of the bight at the entrance to Shelter Bay. This bight should not be used without local knowledge.

(312) A vessel has anchored in 10 fathoms, about 0.3 mile northwest of **The Seven Sisters**, a group of rocks 2 miles north of Shelter Bay and found the williwaws less strong with southeast winds than at the anchorage in the cove 3 miles north of Bear Cape.

(313) Temporary anchorage, with shelter from offshore winds, can be had southwest of the sharp point, with two rocks about 30 feet high close-to, 0.4 mile southwest of Johnstone Point. The anchorage is about 0.5 mile off the sand beach, in 10 fathoms, sandy bottom.

(314) **Johnstone Point**, the northwest end of Hinchinbrook Island, is low and wooded with a small bluff at the water's edge. **Johnstone Point Light** (60°28'58"N., 146°36'51"W.), 57 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on a pillar rock off the point.

(315) Twin 100-foot communication towers, about 12 feet apart, and several buildings are about 1 mile east of Johnstone Point.

(316) East of Johnstone Point the shore is low and broken by two shallow bays or lagoons. The east bay has secure anchorage for small craft. The entrance, 4 miles east

of Johnstone Point, is west of a large island and leads between two rocks. The one on the west side is bare at half tide and is at the end of a sandspit extending from the shore; it should be given a berth of about 40 yards. The rock on the east side is bare at extreme low water. When inside the rocks, head for the cove in the southwest side of the bay and anchor in about 3 fathoms, sticky bottom, about 250 to 300 yards from shore and about halfway between the sandspit mentioned above and the south shore of the bay.

(317) **Middle Ground Shoal**, between Hinchinbrook and Hawkins Islands, extends for 3 miles into Orca Bay. A lighted bell buoy marks the northwest end. The shoal consists of sand and mud and is subject to shifting. A narrow unmarked channel with depths of about 2 feet leads from the northwest corner of the shoal southeast into Hawkins Island Cutoff. Anchorage can be selected off the shore, southwest of Middle Ground Shoal, in 12 to 20 fathoms, soft bottom, with shelter from south and east winds.

(318) **Hawkins Island Cutoff**, between Hinchinbrook and Hawkins Islands, leads from Prince William Sound into Orca Inlet and is navigable only for small craft with local knowledge. It is full of shoals, and in its east end are extensive flats that bare and are largely covered at high water. Strong tidal currents are in its narrower parts.

(319) **Orca Bay** is the east arm of Prince William Sound, nprth of Hinchinbrook and Hawkins Islands. From its entrance between Johnstone Point on the south and Knowles Head of the north, Orca Bay extends about 30 miles in a general east direction. The city of Cordova is on Orca Inlet at the head of the bay. The south side of the bay is clear with the exception of Middle Ground Shoal. The north side is indented by large bays of no commercial importance.

(320)

Anchorages

(321) An anchorage area with fair to good holding ground and sand and mud bottom is on the north side of Orca Bay and extends about 2.2 miles south of Knowles Head. (See **33 CFR 110.1** and **110.233**, chapter 2, for limits and regulations.) Williwaws may cause vessels anchored in the east part of the anchorage to drag; caution is advised.

(322) **Knowles Head**, the southwest end of the mountainous peninsula between Port Gravina and Port Fidalgo, is a steep massive headland, with a prominent yellowish landslide down its south face. There are numerous rocks close to shore and a rock, covered 3¾ fathoms and marked by a lighted bell buoy about 0.5 mile southwest of it, is about 3 miles west of Knowles Head.

(323) **Red Head**, 4 miles east-southeast of Knowles Head, is a high hill with a long, low, wooded neck behind it. It is the west entrance point to Port Gravina and marked by a light.

(324) **Gravina Point**, on the north side of Orca Bay, is low and wooded, and at its south end is a bare spit. **Gravina Point Light 3** (60°37'22"N., 146°15'13"W.), 27 feet above the water, is shown from a skeleton tower with a green square daymark on the point.

(325) **Gravina Island**, low and wooded, is 1.5 miles northwest of the point and 0.6 mile offshore. Anchorage in about 10 fathoms, with shelter from northeast winds, can be had about 0.5 mile offshore between the island and Gravina Point.

(326) **Sheep Bay** has its entrance between Gravina and Sheep Points and extends north about 7 miles. The bay has not been completely surveyed, the bottom is exceedingly broken, and vessels should proceed with caution. Foul ground extends 0.2 to 0.4 mile from the east shore for 2 miles north of Sheep Point. A rock covered 2 fathoms in 60°38'29"N., 146°01'10"W., is about 0.6 mile west of the east shore of the bay. Indifferent anchorage in 18 to 20 fathoms can be selected in the middle about 3 miles north-northwest of Sheep Point and 0.4 mile south of the northwest point where the bay narrows. Numerous dangerous submerged rocks are in the upper part of the bay and across the channel. Vessels should proceed with care.

(327) **Sheep Point** is moderately low and wooded at the end and backed by high land. A wooded islet 15 feet high is 0.3 mile west of the point with bare rocks between; foul ground extends 0.3 mile south and west from the islet.

(328) **Hanks Island**, small and wooded, is 0.8 mile east-southeast of Sheep Point and 0.5 mile from shore. **Gatherer Rock**, 0.6 mile 124° from Hanks Island, is a pinnacle covered 13 feet with deep water close-to. Broken ground on which the least depth found was 8

(329) **Simpson Bay** is just east of Sheep Bay. **Bomb Point** is the east entrance point to Simpson Bay. The shores of the bay are fringed with numerous rocks and islets. In navigating the north arm, avoid the rock awash at extreme low water 400 yards southwest of the east entrance point of the inner part of the north arm. Anchorage can be had at the head of the arm in about 15 fathoms.

(330) The east arm of Simpson Bay is clear except near the shores. Good anchorage in 12 to 15 fathoms can be had on either side of the twin islands in the upper part of the arm. The Coast Guard uses the east arm for wet-pool storage of buoys. Occasionally, lanterns are attached to the buoys but at no time are they lighted. Mariners should not confuse these buoys with navigational aids.

(331) **Hawkins Island**, about 20 miles long and mountainous, is divided by **Canoe Passage** about 8 miles from its southwest end; the passage is no longer navigable. The northwest shore west of Canoe Passage is low tundra with patches of trees. Northeast of Canoe Passage the high land is nearer the northwest shore of the island; there are bluffs in places, and it is more densely wooded.

(332) Anchorage can be selected in places along the northwest shore of Hawkins Island with shelter from east and south winds. The best anchorage in 9 to 12 fathoms, soft bottom, is 0.2 to 0.4 mile off the spit at the south end of Cedar Bay. A round, wooded islet is at the north end of this spit, and a larger wooded one is 0.5 mile northeast.

(337)



Orca Bay and Orca Inlet, Alaska
Image courtesy of GenWest (1997)

Small craft, entering at high water and passing north of the awash and covered rocks inside, can anchor east of the spit, where there is a limited area with a depth of 7 feet.

(333) **Windy Bay** is a small inlet on the northwest coast of Hawkins Island about 5 miles northeast from Canoe Passage.

(334)

Channel Islands to Cordova

(335) **Channel Islands**, wooded and nearly 1 mile long, are at the east end of Orca Bay. They are 1 mile west of Salmo Point, on the northeast end of Hawkins Island, and 4.5 miles north of Cordova. The channel south of the islands is called **The Narrows**. A rock, covered 3 feet, is 0.3 mile southwest of the southwest end of Channel Islands and is marked by a light. This light and a light opposite it on Hawkins Island mark the southwest entrance to The Narrows.

(336) **Orca Inlet** extends southwest from the head of Nelson Bay to Mummy Island. Between North Island and Spike Island, about 4.5 miles to the south, the west and central portion of the inlet are shoal. The inlet south of Spike Island is largely blocked by flats. Depths of 25 to 30 fathoms are north of North Island, and a flat extends 1 mile from the head of **Nelson Bay** at its north end.

(338) **Salmo Point**, at the north extremity of Hawkins Island, is marked by a light. **Deep Bay**, at the north end of Hawkins Island, is 1.5 miles long and 0.5 mile wide. A large shoal covered 5 to 10 feet is across the entrance of the bay; depths of 19 to 25 feet are farther inside. Anchorage is possible for vessels able to cross the shoal.

(339) **Observation Island**, high and wooded, is 0.4 mile northeast of Knot Point. **North Island**, low and wooded, is 1 mile northeast of Salmo Point. **Shepard Point** is a sandspit 1.5 miles east-northeast of North Island and 6 miles north of Cordova. Ruins of a cannery, wharf and marine railway are on the point.

(340) **Cordova** is on the east shore of Orca Inlet opposite **Spike Island**, which is wooded and marked by a light at its north end. Cordova is 1,221 miles from Seattle via the ocean route and 1,363 miles via inside passages through British Columbia and Southeast Alaska to Cape Spencer. It is one of the most important towns in Alaska and is the supply and distribution point for numerous outlying fishing localities.

(341)

Prominent features

(342) **Mt. Eyak**, 2,498 feet, and **Mt. Eccles**, 2,680 feet, dominate the approach, with the town nesting at the foot of Mt. Eyak.

(343)

Traffic Separation Scheme

(344) Prince William Sound Traffic Separation Scheme was discussed earlier in this chapter under Prince William Sound.

(345)

Routes to Cordova

(346) **From the south via the Prince William Sound Traffic Separation Scheme** (discussed earlier in this chapter under Prince William Sound). Depart the scheme about 14 miles north of its southern entrance, thence via the charted recommended track leading from about 60°28.0'N., 146°52.5'W., through Orca Bay, thence via the marked channel through the east part of Orca Bay, proceeding through The Narrows, south of Channel Islands, then north of North Island Rock Light 10, thence via marked Orca Inlet to Cordova.

(347) **From the west via Elrington Passage**. Pass 1 mile east of Point Helen Light, thence north to 1.5 miles west and 1.5 miles north of Seal Island, thence east across the Prince William Sound Traffic Separation Scheme to the charted recommended track in about 60°35.0'N., 146°42.2'W., through Orca Bay, thence the same route to Cordova from the south given in the previous paragraph. **Caution:** Mariners are advised to adhere to the general principles for navigation when entering, departing or crossing a traffic separation scheme. (See Traffic Separation Schemes, chapter 1.)

(348) Fishing vessels sometimes approach Cordova through **Western Channel** and **Odiak Channel**, on the west and south sides, respectively, of Observation Island. The southern extent of Western Channel is buoyed, but local knowledge is helpful. There is significant shoaling northeast of Odiak Channel. This area of Orca Inlet is subject to shifting shoals. Fishing boats also approach Cordova through Orca Inlet from the south. This route requires local knowledge and was discussed earlier in this chapter.

(349)

Channels

(350) The deepest channel, mostly used by larger vessels, runs north of North Island and then follows the east shore south to Cordova; the channel is marked by lights.

(351)

Anchorages

(352) Good anchorage can be had in the channel northeast of Spike Island in 45 to 50 feet, 0.1 mile northwest of Spike Island in 40 feet, and 0.5 mile northwest of Spike Island in 22 to 25 feet, sand bottom. A cable area lies just west of this anchorage.

(353)

Caution

(354) Several visible rocks and shoals with little water over them are in the areas north and south of Observation Island and in the area around **North Rock** (60°36'42"N., 145°43'39"W.); mariners are urged to use caution when transiting these areas.

(355) A submerged wreck, covered 16 feet, is about 90 yards west of Spike Island in about 60°32'58"N., 145°46'29"W.

(356)

Currents

(357) The flood current enters the northeast end of Orca Inlet and sets southwest past Orca and Cordova. Off Orca the velocity of the current is about 1 knot, but a flood of nearly 2.5 knots has been observed. The current sets parallel with the face of the Municipal Wharf (Ocean Dock) and the City Dock (Coast Guard Dock) on the flood and ebb. In the channel between the City Dock and Spike Island the swiftest water will be found along the east shore of Spike Island, sometimes attaining 2 knots.

(358) Off Cordova the velocity is 1.8 knots on the flood and 1 knot on the ebb. See the Tidal Current prediction service at *tidesandcurrents.noaa.gov* for specific information about times, directions, and velocities of the current at numerous locations throughout the area. Links to a user guide for this service can be found in chapter 1 of this book.

(359) In the channel west of Big and Gravel Points, 6 miles southwest of Cordova, velocities up to 2 knots have been observed setting along the channel. A northeast current can be expected at low water and a southwest current at high water.

(360)

Weather, Cordova and vicinity

(361) Cordova, in eastern Prince William Sound, has a mean annual temperature of 39°F (3.9°C). The average high is 46°F (7.8°C) and the average low is 31°F (-0.6°C). July is the warmest month with an average high of 61°F (16.1°C) and an average minimum of 47°F (8.3°C). January is the coolest month with an average high of 31°F (-0.6°C) and an average minimum of 15°F (-9.4°C). The highest temperature on record for Cordova is 89°F (31.7°C) and the lowest temperature on record is -30°F (-34.4°C). Every month has recorded temperatures below freezing except July (extreme minimum of 33°F (0.6°C)) and each month, October through April, has recorded temperatures below zero (-17.8°C).

(362) The average annual precipitation for Cordova is 95.36 inches (2422 mm). September is the wettest month, averaging over 14 inches (356 mm) and April the driest, with 5.26 inches (134 mm). Precipitation falls on about 260 days each year, averaging about 20 days each month. Snow falls on about 90 days each year and averages about 124 inches (3150 mm) each year. December through March each average more than 20 inches (508 mm), with a slight maximum in December. Seventeen inch-plus (432 mm) snowfalls in a 24-hour period have occurred in each month, November through March. Snow has fallen in every month except June through September. Fog is present on average 141 days each year and is most likely in July and August when greater than half the days each month report foggy conditions.

(363) The prevailing wind direction in Cordova from an easterly quadrant, mainly east from June through February and then east-southeast during March, April and May. Calm conditions can be expected about one-third of the time. Gales are uncommon but do occur especially during December and January. In 2002, it was reported that williwaw winds can plunge down the side of the mountain just east of the Cordova City Dock.

(364)

Pilotage, Cordova

(365) Pilotage, except for certain exempted vessels, is compulsory for all vessels navigating the waters of the State of Alaska. Pilots for Prince William Sound are available from the Southwest Alaska Pilots Association (swpilots.com). (See **Pilotage, General** (indexed), chapter 3, for the pilot pickup station and other details.)

(366) The pilot boat can be contacted by calling "CORDOVA PILOT BOAT" on VHF-FM channel 16 or on a prearranged frequency between the pilot and agent/vessel.

(367)

Quarantine, customs, immigration and agricultural quarantine

(368) (See chapter 3, Vessel Arrival Inspections, and Appendix A for addresses.)

(369) **Quarantine** is enforced in accordance with regulations of the U.S. Public Health Service. (See Public Health Service, chapter 1.)

(370)

Coast Guard

(371) A U.S. Coast Guard vessel is stationed at Cordova. A Search & Rescue aircraft is stationed at the airport during the summer months.

(372)

Harbor Regulations

(373) The **harbormaster** administers the municipal wharves and the small-boat harbor and maintains an office at the west end of the small-boat basin.

(374)

Wharves

(375) **City of Cordova, Ocean Dock** (60°33'29"N., 145°45'17"W.): 408 feet of berthing space with 25 feet alongside and a deck height of 30 feet; 140-ton mobile crane and 12 acres of open storage; tank storage for 28,500 barrels of fuel-oil; receipt and shipment of containerized general cargo; receipt of petroleum products and handling supplies for fishing vessels; owned by City of Cordova and operated by the city and Orca Oil Co., Inc.

(376) **Alaska Marine Lines, Cordova Transfer Ramp** (60°33'08"N., 145°45'44"W.): 350 feet of berthing space with 11 feet alongside and a deck height of 25 feet; forklifts to 50 tons and open storage for 300 containers; receipt and shipment of containerized general cargo; owned and operated by Alaska Marine Lines, Inc.

(377) **City of Cordova, Approach No. 5, Loading Wharf** (60°32'48"N., 145°45'54"W.): 120 feet of berthing space with 14 feet alongside and a deck height of 20 feet; One ¾-ton electric-hydraulic derrick; handling supplies for fishing vessels; owned and operated by City of Cordova.

(378) **Cordova Small-Boat Harbor**, southeast and inshore of the City Dock, is protected by two breakwaters. It has about 852 berths and transient moorage is available; the harbormaster assigns berths. The harbormaster's office monitors VHF-FM channels 16 and 68. In 2010, the controlling depth in the entrance and access channel was 12 feet. The controlling depth in the berthing area was 7 feet. Water, electricity, gasoline and diesel fuel are available in the basin. The basin is owned and operated by the city.

(379)

Repairs

(380) Several fully equipped marine repair facilities can handle most repairs. A tidal grid, in the small-boat harbor, can handle craft up to 70 feet; a small boatyard is south of town.

(381)

Ferries

(382) The Alaska Marine Highway System provides ferry service with connections to Tatitlek, Valdez and Whittier. The ferries operate from the City of Cordova, Ocean Dock. For summer and winter schedules, visit *dot.state.ak.us*.

(383)

Communications

(384) Regular freight barge services to and from Seattle use the Municipal Wharf. Telephone and cellular telephone service is available. Scheduled air service to Anchorage and Juneau is maintained. Charter air service, boat service and automobile rentals are available.

(385) AT&T Alascom maintains a public coastal radio station at Cordova and on nearby Johnstone Point, Hinchinbrook Island.

(386)

Port Gravina to Eickelberg Bay

(387) **Port Gravina** has its entrance between Gravina Point and Red Head. A 2¼-fathom bank is near the middle of Port Gravina, between Gravina Rocks and St. Matthews Bay, in about 60°41'19"N., 146°19'24"W.

(388) **Gravina Rocks** are about 0.7 mile offshore north of the southeast entrance point.

(389) **Comfort Cove** is a small inlet on the southeast shore about 6 miles from Gravina Rocks. The entrance is narrow and the cove is suitable for small craft only.

(390) **Beartrap Bay** is a narrow inlet near the head of Port Gravina. There are rocks awash and areas of broken bottom in midchannel just within the entrance. About 1.2 miles from the entrance, an island nearly blocks the channel. The deep channel is on the north side of the island. Depths of 10 to 30 fathoms, mud bottom, will be found in the upper basin.

(391) The upper end of Port Gravina is deep and terminates in mudflats that extend for about 1.3 miles to the head of the bay.

(392) **Parshas Bay** is a small bay on the north side of Port Gravina. Depths of 50 to 30 fathoms extend nearly to the head of the bay, but there is no suitable anchorage. An extensive area of rocks, islets and foul ground extends about 1.3 miles west-southwest from the west entrance point to Parshas Bay.

(393) **Olsen Bay**, 1.5 miles west from Parshas Bay, shoals gradually from 20 fathoms at the entrance to mudflats at the head. In entering, the west shore should be followed at a distance of 0.5 mile or less to avoid the foul ground extending southwest from the west entrance point of Parshas Bay.

(394) **St. Matthews Bay** indents the north shore of Port Gravina 5.5 miles northeast from Red Head. The only known dangers are a reef extending 0.4 mile west off the east entrance point and a rock awash 0.1 mile south of the prominent point on the west side of the bay, 1 mile within the entrance. Good anchorage can be had near the head of the bay in 14 fathoms, mud bottom.

(395) Between Red Head and St. Matthews Bay are a series of lagoons. **Hells Hole** is the northeasternmost one. This shore should be given a berth of 0.8 mile or more.

(396) **Port Fidalgo**, an east arm of Prince William Sound, has its entrance between Goose and Bligh Islands and extends east about 22 miles. There are abandoned mines on the shores of Boulder and Landlocked Bays and on the south shore of Port Fidalgo, between Irish Cove and Whalen Bay.

(397) The waters of the main arm of Port Fidalgo are deep and free from outlying dangers. Vessels can navigate with safety as far as the southeast arm at the head of the bay by keeping over 0.4 mile offshore.

(398) **Goose Island**, on the south side of the entrance to Port Fidalgo, is wooded and has two prominent knolls. **Gull Island**, small and rocky, is midway between Goose Island and the shore. Strong tidal currents run between Goose Island and Porcupine Point. The passages between the islands and the shore should be avoided without local knowledge.

(399) **Goose Island Light** (60°42'47"N., 146°43'38"W.), 38 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on the southwest side of the island and marks the entrance to Port Fidalgo.

(400) **Porcupine Point** is a round, high, wooded bluff, with a low depression between it and Knowles Head. A rock awash and marked by kelp is 350 yards north of the point. A ledge with a depth of 3 fathoms extends 600 yards north from Porcupine Point.

(401) **Snug Corner Cove**, on the northeast side of Porcupine Point, has good anchorage except with northwest winds, but the bottom is irregular and should be avoided by large vessels. A rocky patch with a depth of 2½ fathoms is in the entrance 0.5 mile off the northeast side of Porcupine Point. A low divide is at the head of the cove and another is across Porcupine Point.

(402) To enter Snug Corner Cove, avoid the rock off Porcupine Point and follow the southwest shore at a distance of about 0.3 mile. Anchor about 0.3 mile off the bight in the southwest shore in 10 to 11 fathoms, soft bottom. Small vessels can find better shelter from north winds in the basin at the head of the cove, in a depth of 5 fathoms. Favor the southwest shore slightly when entering and anchoring. The shore of the basin should be given a berth of over 0.2 mile.

(403) **Two Moon Bay** indents the southeast shore of Port Fidalgo. Low divides cut the peninsula from the heads of its two arms. Good anchorage can be had in the bay at the entrance to either arm, and vessels of moderate size can anchor in the arms in about 10 to 15 fathoms, bottom generally sticky. A midchannel course should be followed in the arms. At the head of the southeast arm is a basin trending southwest where small vessels can anchor in 4 to 7 fathoms. The channel is between the west point and a reef bare at low water near the middle of the entrance. A 4-fathom rocky ledge extends about 0.5 mile north-northeast of the eastern entrance point of the basin and should be avoided by medium to large vessels.

(404) **Irish Cove**, on the south shore of Port Fidalgo, is a narrow inlet about 1 mile long. Small craft can find secure anchorage in the widest part near its head in 5 fathoms. To enter, favor the east side of the narrows and then keep in midchannel.

(405) In **Whalen Bay**, mudflats, bare at low water, extend across the bay 0.8 mile from the head. Small vessels can enter the bay on a midchannel course and find anchorage in 7 to 10 fathoms 1 mile inside the entrance to the bay.

(406) A group of islands is near the head of Port Fidalgo. A single islet is about 900 yards southwest of this group, the passage to the bight to the north lying between the groups. Its head is obstructed by mudflats, and it is reported that strong williwaws are encountered. A winter anchorage with good holding ground, protected from swells and north wind, is located on a 9-fathom mud shelf along the northwest shore, about 0.8 mile north of the midchannel entrance to the bight.

(407) The entrance to the east arm at the head of Port Fidalgo is 2 miles east-southeast of the group of islands. A dangerous foul area is 300 yards west of the northeast entrance point in about 60°50'58"N., 146°09'01"W. The head of the arm ends in a narrow passage that opens into a circular lagoon. It is reported that this passage is foul and should not be attempted.

(408) A well-sheltered anchorage is in midchannel 0.6 mile west from the above mentioned dangerous foul area in 15 fathoms, mud bottom. Small vessels can find anchorage near the head of the southeast arm in midchannel, 0.6 mile beyond the foul area, in 7 fathoms.

(409) **Fish Bay**, on the north shore of Port Fidalgo 9 miles above Porcupine Point, is an indifferent anchorage and should be avoided by large vessels. The williwaws are very heavy with northeast winds drawing through the

bay from the high mountains above its head. A small wooded island is just inside the entrance and 0.3 mile from the west side. The channel is east of the island and is obstructed near the middle by a rock covered 2¾ fathoms. Rocks awash are 200 yards off the east point at the entrance. Anchorage can be had in the middle of the bay, 0.3 to 0.8 mile above the island, 8 to 13 fathoms, with soft bottom in places.

(410) **Landlocked Bay** is on the north shore of Port Fidalgo between Bidarka Point and **Graveyard Point.** The bay is approximately 1 mile wide at the mouth and narrows to a tight channel with a right-angle turn into a small haven. The lower bay has depths of 50 to 60 fathoms in the center with rocks and islets extending from the east shore. Secure anchorage is afforded in the widest part above the narrows, in 14 to 15 fathoms, sticky bottom. The bay is easily entered during daylight, but the narrow entrance may be difficult to locate at night, rendering it difficult for vessels not equipped with searchlights.

(411) The islands on the east side below the narrows have covering rocks near them. Near the middle of the narrows is a rock with 10 feet over it. The channel is northwest of the rock, but the northwest shore abreast of it should be given a berth of about 100 yards. There is a flat at the head of the bay with an islet at its lower edge. A 2005 survey found 14 fathoms through the narrows, but entry by vessels other than small craft is not recommended without local knowledge due to the shoals encroaching from both north and south.

(412) There are no commercial enterprises in this bay. The mines are abandoned and the wharves are in ruins.

(413) **Bidarka Point** is a high wooded hill with a lower strip at its south end. A shoal extends 0.8 mile southwest from the point.

(414) **Boulder Bay**, between Bligh Island and Bidarka Point, has several dangers, the depths are very irregular, and the anchorage is not desirable.

(415) In the approach to Boulder Bay, a reef bare at lowest tide is 0.6 mile east of the east side of Bligh Island. About 0.2 mile east of this reef is a 2½-fathom spot and a depth of 6½ fathoms about 0.7 mile to the south-southeast. A submerged rock, nearly awash at low water, and a rock awash close north, are 0.4 mile from a point on the east shore and 1.6 miles northwest from Bidarka Point. A reef, partly bare at low water, is 0.2 to 0.4 mile southeast from the small wooded island in the middle near the head of Boulder Bay.

(416) **Bligh Island**, on the east shore of Prince William Sound, is mountainous. The southwest end of the island is a high, steep, wooded head, with yellow landslides near the water. On the northwest side are islands with foul ground between.

(417) Good anchorage from north winds for large vessels can be found about 1 mile south of Bligh Island.

(418) **Reef Island**, off the west side of Bligh Island, is level and wooded and has a single knoll in the middle. A rock awash is 0.3 mile 208° from the southwest end of the island.

(419) **Bligh Reef**, about 2 miles long, has depths of ¼ fathom to 9 fathoms and shoals to bare near the center. The reef is marked by **Bligh Reef Light** (60°50'20"N., 146°53'02"W.), 59 feet above the water and shown from a pile structure with a red and white diamond-shaped daymark. A racon is at the light. The steamship OLYMPIA was lost on Bligh Reef in 1910 and the oil tanker EXXON VALDEZ struck the reef on March 24, 1989.

(420) **Busby Island**, off the northwest end of Bligh Island, is high and partly wooded. Its west point is long, level, and wooded and is surrounded by a reef to a distance of nearly 0.5 mile. The point is marked by **Busby Island Light** (60°53'43"N., 146°49'01"W.), 48 feet above the water and shown from a skeleton tower with a red and white diamond-shaped daymark.

(421)

Currents

(422) At the entrance to Port Fidalgo, north of Goose Island, the velocity of the current is about 0.5 knot.

(423) **Tatitlek Narrows** separates Busby and Bligh Islands from the main shore and offers a more direct route for small craft between Port Valdez or Ellamar and points on Port Fidalgo. The channel, marked with daybeacons, has depths of about 4 fathoms, except for a dangerous shoal with a least depth of 8 feet in midchannel about 400 yards south-southeast of Daybeacon 4, at 60°51'55"N., 146°42'20"W. The channel is narrow with foul ground on both sides; local knowledge is advisable.

(424) **Tatitlek**, a native community on the north shore at the southeast end of the narrows, is home to about 16 families. The village has a school, church, and a Community Center, which includes museum, post office, health clinic, Village Council Office and minimal visitor accommodations. There is electricity and telephone. There is a state-maintained pier with a 64-foot face and an Alaska State Ferry Pier with service upon request to Valdez and Cordova. There is also a 100 by 2,500-foot gravel air strip. The Village Council Office can be reached by phone at 907-325-2311.

(425) **Virgin Bay** is a shallow bight 0.5 to 0.8 mile long on the northeast shore of Tatitlek Narrows. There is little water in the bay, and on the north side of the entrance is a long reef bare at low water.

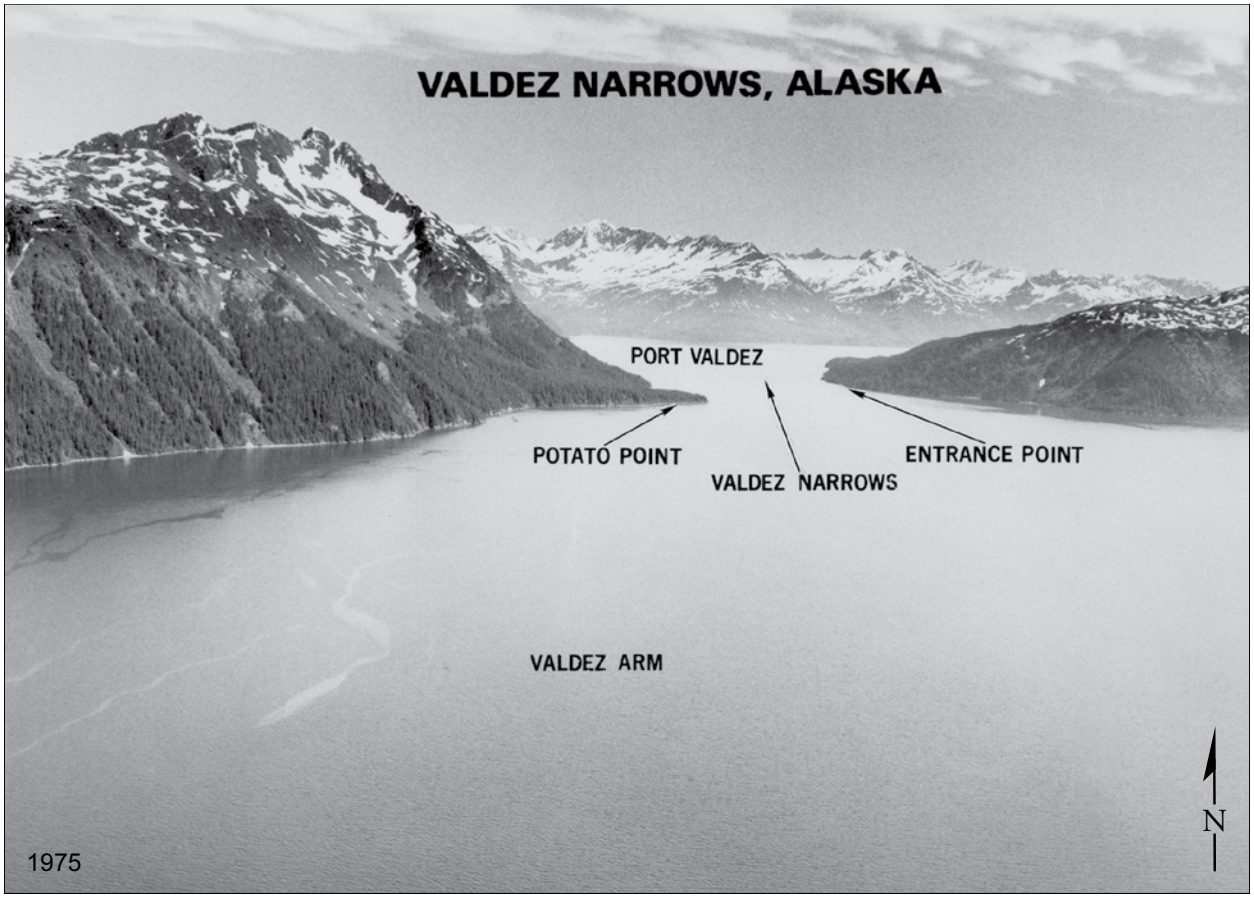
(426) **Ellamar**, a village on the northeast side of Virgin Bay, has a large wharf in ruins. Small craft find shelter south of the ruins.

(427) Anchorage can be had 0.3 to 0.4 mile from the northeast shore of Tatitlek Narrows southeast of Black Point and 0.5 to 0.8 mile northwest of Ellamar, in 12 to 16 fathoms, sticky bottom.

(428) Larger vessels can find anchorage between Busby Island and Black Point, 1.4 miles northwest of Ellamar, in about 30 fathoms, fair holding ground.

(429) **Valdez Arm**, the main north arm of Prince William Sound, extends about 13 miles northeast from Busby Island and **Point Freemantle** to the north end of Valdez Narrows, then turns east for 11 miles to the head of Port

(439)



Valdez. The water is very deep and there are no known outlying dangers except for Middle Rock near the North end of the narrows, which is described later in this chapter, and two shoals, 2 fathoms and 7 fathoms, about 0.35 mile apart, near the west edge of the arm about 3.5 miles northeast of Point Freemantle. The south side of the 7-fathom shoal is marked by a lighted buoy. Anchorages are few because of the great depths.

(430) The **Prince William Sound Traffic Separation Scheme**, which is a component of the **Prince William Sound Vessel Traffic Service**, leads through the middle of Valdez Arm. Additional information on the traffic separation scheme and the vessel traffic service is given earlier in this chapter under Prince William Sound.

(431) **Sawmill Bay**, on the west shore of Valdez Arm 9 miles northeast of Point Freemantle, has depths of about 9 fathoms in its 0.3 mile-wide entrance. Secure anchorage can be had behind the west entrance point, in 5 to 9 fathoms, sticky bottom. The south and west ends of the basin forming the anchorage are shoal, and a flat fills the head of the bay down to the narrows at the north end of the basin.

(432) **Rocky Point** is the west end of the peninsula between Tatitlek Narrows and Galena Bay. A rocky grass-covered islet is 0.2 mile north of the point. **Rocky Point Light 10** (60°57'02"N., 146°46'06"W.), 38 feet above the water, is shown from a skeleton tower with a red triangular daymark on the southwest point of an island west of Rocky Point.

(433)

Currents

(434) The currents in Valdez Arm are too weak or variable to be predicted.

(435) **Galena Bay** is about 5 miles long in a general east direction. About 3 miles from the mouth, the bay is constricted midway by a peninsula projecting approximately 0.5 mile from the southern shore. Entering from Valdez Arm, a southeasterly course is steered toward a steep walled basin at the foot of Ellamar Mountain. The passage through **The Narrows**, to the inner bay becomes visible only from well within the outer bay. The outer bay has depths over 100 fathoms. The inner bay has depths less than 60 fathoms. There are extensive flats off the mouths of the two rivers emptying into the bay. In the vicinity of The Narrows, numerous massive rock outcrops protrude abruptly to a minimum depth of 4½ fathoms (8.2 m). The only anchorage for medium to large vessels is at the eastern extent of the bay, about 0.2 mile south of the islets on the north side at the head of the bay, in about 15 fathoms, bottom soft in places. This anchorage is well protected.

(436) A group of rocky, grass-covered islets extends 0.5 mile northwest off the north point at the entrance of Galena Bay. Anchorage can be had in the middle of the

(445)



cove northeast of the islets, in 10 to 12 fathoms, sticky bottom.

(437) **Jack Bay**, on the east shore south of Valdez Narrows, is 0.8 mile wide at the entrance and 0.2 to 0.4 mile wide in the upper 3 miles. An island in the middle of the bay has a bare islet about 200 yards north off the northwest end and several islets off the southeast end. Numerous rocks surround the island and the islets to the southeast. Two coves indent the south shore, 0.7 mile and 1.8 miles inside the entrance. The entrance to the first cove is foul; the second cove has depths of 4½ to 8 fathoms and is a suitable anchorage for small vessels. Jack Bay has mudflats at the head and numerous boulders along the shore. Anchorage for large vessels can be had 1.2 miles inside the entrance about 0.2 mile from the north shore, in 12 to 15 fathoms. Other anchorages are also available in the entrance to the cove about 1.5 miles east-southeast of **Tongue Point**, in 9 to 12 fathoms, and in the cove about 0.5 mile east of the island, in 9 to 14 fathoms.

(438) **Valdez Narrows** is about 0.8 mile wide, with deep water and bold shores. **Middle Rock**, near the middle of the north end of the narrows and marked by a light, is a pinnacle barely covered at extreme high tides. A shoal, west of the light, extends east from the mainland about 0.3 mile. The shoal consists of a rock awash at the inner end, a 2½-fathom depth at the outer end, and a wooded islet in between. The tidal currents in the narrows are too weak and variable to be predicted, however, it is reported that deep-draft tankers maneuvering at the regulated low speed of 6 knots will be affected appreciably by the currents. Speed adjustments may be necessary to lessen the effect of the currents on deep-draft vessels.

(440) **Entrance Point**, 1 mile north of Jack Bay on the east side of Valdez Narrows, and **Potato Point**, on the west side of the narrows, are marked by lights. **Entrance Island**, 1.2 mile east of Middle Rock, is marked by a light.

(441) **Port Valdez** is the designation given the body of water extending from Valdez Narrows to the head of the bay.

(442) **Shoup Bay**, at the northwest end of Port Valdez, is fed by an inflow of water from **Shoup Glacier**. The entrance is crossed by a sand bar that has a depth of 1 fathom in a narrow channel at the center. The bay occasionally has floating ice, some of which escapes into Port Valdez when the wind and tide are favorable.

(443) **Jackson Point** is a jutting point of land extending from the mainland on the south side of Port Valdez. This point of land was once an island.

(444) **Valdez Marine Terminal** is on the south side of Port Valdez between Jackson Point and **Saw Island**, 0.8 mile to the west. It is the terminus of the Trans-Alaska Pipeline, which carries crude oil south from Prudhoe Bay on the Arctic Ocean. The terminal and adjacent waters are within a **Safety Zone.** (See **33 CFR 165.1**throu

gh**165.8**,**165.20**, **165.23**, and **165.1701**, chapter 2, for limits and regulations.)

(446)

Wharves

(447) The terminal, operated by Alyeska Pipeline Service Co., has four deepwater berths for the shipment of crude oil. Berth No. 1 is a floating pier with four 12-inch loading arms with a maximum loading rate of 20,000 barrels per hour each. Berth Nos. 3, 4 and 5 are T-head piers each having four 16-inch loading arms with a maximum loading rate of 27,500 barrels per hour each arm.

(448) No bunker fuel or fresh water is available at the terminal. The alongside depths for each facility are reported depths. For complete information on the latest depths, terminal facilities, services and regulations, refer to the Trans-Alaska Pipeline Port Information Manual, Valdez, Alaska, published by the operator.

(449) **Berth No. 1**: east end of Jackson Point; 1,200 feet with dolphins; 99 feet alongside; deck height, 32 feet.

(450) **Berth No. 3**: west side of Jackson Point; 1,050 feet with dolphins; 90 feet alongside; deck height, 38 feet.

(451) **Berth No. 4**: about 0.4 mile west of Jackson Point; 1,380 feet with dolphins; 90 feet alongside; deck height, 38 feet.

(452) **Berth No. 5**: about 0.7 mile west of Jackson Point; 1,385 feet with dolphins; 85 feet alongside; deck height, 38 feet.

(453) A rock that uncovers 10 feet is about 175 yards southwest of Saw Island.

(454) About 0.5 mile east of Jackson Point, submerged piling of an abandoned cannery wharf may exist. Ruins of the inactive Midas mine wharf are 2.3 miles east of Jackson Point.

(455) **Valdez** is on the north shore of Port Valdez about 2 miles from its head. It is at the south end of **Richardson Highway**, which connects with Fairbanks 374 miles north, Anchorage 308 miles west, and Seward 434 miles southwest. Open all year, the highway also links with the **Alaska Highway.**

(456) The town of Valdez was formerly at the head of Port Valdez but was relocated to its present site due to the extensive damage it suffered from the March 1964 earthquake. It is an important gateway to interior Alaska and is the northern most ice-free port in the Western Hemisphere. It serves as the southern terminus for the Trans-Alaska Pipeline. It also has a commercial fishing fleet and is popular for tour and excursion boats.

(457) Valdez is 1,232 miles from Seattle via the outside route through the Strait of Juan de Fuca and 1,374 miles via the inside route to Cape Spencer.

(458)

Prominent features

(459) The Coast Guard radar tower at Valdez: group of grain silos in the northeast: the white petroleum tanks at the head of the bay in Old Valdez and the Alyeska pipeline terminal tank farm with a 642-foot stack with strobes on the south shore.

(460)

Traffic Separation Scheme

(461) Prince William Sound Traffic Separation Scheme was discussed earlier in this chapter under Prince William Sound.

(462)

Routes to Valdez

(463) **From the south via Prince William Sound Traffic Separation Scheme** (described earlier in this chapter under Prince William Sound). Depart the scheme at its north end in Valdez Arm, thence through Valdez Narrows and Port Valdez to Valdez.

(464) **From the west via Elrington Passage**. Pass 1 mile east of Point Helen Light, thence north to 1.5 miles west of Seal Island Light, thence north to 2 miles east of Smith Island, thence east to enter the Prince William Sound Traffic Separation Scheme and depart the scheme at its north end in Valdez Arm, thence through Valdez Narrows and Port Valdez to Valdez.

(465) **Caution:** Mariners are advised to adhere to the general principles for navigation when entering, departing or crossing a traffic separation scheme. (See Traffic Separation Schemes, chapter 1.)

(466)

Channels

(467) The approach to Valdez is deep and clear of dangers once through Valdez Narrows.

(468)

Anchorages

(469) There are no safe anchorages at Valdez due to the foul ground and high winds that prevail from the west during the afternoons of the summer season. Convenient anchorages in the approaches to Valdez Arm and Port Valdez have been described.

(470) For limits and regulations of Special Anchorage Areas, see Orca Bay, earlier in this chapter and **33 CFR 110.1** and **110.233**, chapter 2.

(471)

Currents

(472) The tidal currents are too weak and variable to be predicted. In 1966, however, it was observed that noticeable currents from the Robe River discharging into the southeast end of Port Valdez are created at times of low and high stages of the tide. This current affects the area of the Old Valdez waterfront. The current sets 000° with a maximum observed velocity of 2 to 3 knots flowing perpendicular to the ruins of the piers at Old Valdez.

(473) In 1979, it was reported that the surface currents in Port Valdez had a maximum velocity of 0.5 to 1.0 knot. See the Tidal Current prediction service at *tidesandcurrents.noaa.gov* for specific information about times, directions, and velocities of the current at numerous locations throughout the area. Links to a user guide for this service can be found in chapter 1 of this book.

(474)

Pilotage, Valdez

(475) Pilotage, except for certain exempted vessels, is compulsory for all vessels navigating the waters of the State of Alaska. Pilots for Prince William Sound are available from the Southwest Alaska Pilots Association (swpilots.com). (See **Pilotage, General** (indexed), chapter 3, for the pilot pickup station and other details.)

(476) Contact the Valdez pilots landline directly at 907-255-0869. The Valdez pilot boats include: the "BERING," a 53-foot aluminum boat; and the "EMERALD ISLAND," a 76-foot aluminum boat. All have the word Pilot forward. Vessels picking up a pilot should maintain a speed of about 8 to10 knots and have the pilot ladder 5 feet above the water. The pilot boat displays the appropriate day and night signals when on duty.

(477)

Towage

(478) Three 5,750-hp tugs and two mooring launches are available for docking and undocking.

(479)

Quarantine, customs, immigration and agricultural quarantine

(480) (See chapter 3, Vessel Arrival Inspections, and Appendix A for addresses.)

(481)

Quarantine

(482) A U.S. Public Health Service Contract Physician is located at the hospital in Valdez. (See appendix for additional information.)

(483)

Customs

(484) Valdez is a **customs port of entry.** See **Customs Ports of Entry** contact information in Appendix A.

(485)

Coast Guard

(486) A **Coast Guard Sector Field Office, Station** and **Vessel Traffic Service Center** are in Valdez. (See Appendix A for address.)

(487)

Harbor Regulations

(488) The small-boat harbor is administered by the Harbormaster; the office is located on the north shore of the small-boat basin, telephone 907–835–4981, FAX 907–835–2958. The rest of the Port is administered by the Port Director, with an office located at the head of the ferry terminal dock, telephone 907–835–4981, FAX 907–835–2958. The Valdez Marine Terminal is administered by the Alyeska Pipeline Service Company.

(489)

Wharves

(490) There are three deep-draft waterfront facilities in Valdez. Longshoreman services are provided by North Star Terminal and Stevedore Company.

(491) **State of Alaska, Valdez Ferry Terminal:** west side of City Dock; 200 feet of berthing space; 20 feet alongside; deck height, 22 feet; landing for passenger and vehicular ferry; owned and operated by the State. The terminal and adjacent waters are within a **Safety Zone**. (See **33 CFR 165.1712**, chapter 2, for limits and regulations.)

(492) **Valdez City Dock**, also called the Kelsey Dock (61°07'27"N., 146°21'42"W.): 600-foot face with 26 feet alongside; deck height, 16 feet; receipt and shipment of fish; mooring of vessels; fueling by truck; water, garbage wastewater disposal and telephone available; owned by the city and operated by Nautilus, Inc.

(493) **Petroleum Dock:** 133 yards east of City Dock; 200-foot face; 275 feet of berthing space with dolphins; 30 to 36 feet alongside; deck height, 22 feet; shipment of petroleum products; mooring vessels; pipelines extend from wharf to storage tanks in rear, total capacity 176,225 barrels; owned and operated by Valdez Petroleum Terminal, Inc.

(494) When approaching this pier care must be taken to avoid a 3-fathom shoal extending about 100 yards out from the west breakwater of the small-boat harbor to east.

(495) **Valdez Small-Boat Harbor north basin,** the small-boat harbor to the east of the fuel pier, is entered between a breakwater to the west of the entrance and Valdez Spit to the east of the entrance; both are marked by lights. Two seafood plant piers are just inside on the south shore. The harbor can accommodate about 490 boats, and transient berths are also available. The **harbormaster** assigns berths and can be contacted on VHF-FM channel 16; channel 8 is used as a working frequency. Water, electricity, fuel, telephone, boat-launching ramps and a 60-ton mobile vertical boat lift are available in the harbor. A tide grid is available for underwater repairs.

(496) **Ship Escort Response Vessel System Dock (SERVS Dock)** is about 0.2 mile east of the small-boat harbor entrance. The dock is a concrete floating wharf with a 115 by 15-foot ramp from a pier. The wharf has 200-foot face, 590 feet total berthing space with dolphins; 90 feet reported alongside; two cranes are available; owned and operated by Alyeska Pipeline Service Company.

(497) **Valdez Small-Boat Harbor south basin** is just east of the SERVS Dock and is protected by rubble mound breakwaters on the south and east sides. The south basin offers facilities, a surfaced launching ramp, and has several floats for small-craft. The entrance is marked by lights and the basin can accommodate around 130 boats.

(498) **Port of Valdez, General Cargo and Container Wharf:** 1.5 miles east of the small-boat harbor at Ammunition Island; concrete, floating offshore wharf with two 200 by 38-foot steel and concrete approach ramps from landfill at rear. The wharf has 700-foot face, 1,200 feet berthing space; 50 feet reported alongside; deck height, 15 feet; 21 acres of open storage; nine 522,000-bushel capacity grain silos; receipt and shipment of conventional and containerized general cargo and mooring cruise ships; one 140-ton crane, one 100-ton crane and forklifts are available; owned by the City of Valdez and operated by the City of Valdez and North

Star Terminal & Stevedore Co. The terminal and adjacent waters are within a **Safety Zone**. (See **33 CFR 165.1703**, chapter 2, for limits and regulations.)

(499) At the head of the bay are mooring buoys used for oil spill response barges, as well as mooring buoys used for fish pens near the hatchery.

(500)

Supplies

(501) Gasoline, diesel fuel and water are available in the small-boat basin. Provisions and some marine supplies can be obtained in town.

(502)

Repairs

(503) Minor repairs can be made to small craft.

(504)

Ferries

(505) The Alaska State Ferry provides daily service from Valdez to neighboring Prince William Sound communities seven days per week in the summer and one to two days per week in the winter. By ferry, Valdez is two hours and forty five minutes from Tatitlek, five hours and forty five minutes from Whittier and by fast ferry only two hours and forty five minutes from Cordova. For more information visit: dot.alaska.gov/amhs/comm/valdez.shtml.

(506)

Communications

(507) Valdez is connected by road with the Alaska Highway system. Scheduled air service to Anchorage is maintained, and charter air service, bus and auto rentals are also available. Telephone and cellular telephone service are available.

(508) **Glacier Island** is on the north side of Prince William Sound, west of the entrance to Valdez Arm. It is mountainous and indented by a number of bays.

(509) **Glacier Island Light** (60°52'20"N., 147°05'31"W.), 38 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on the east side of the island.

(510) **Chamberlain Bay**, on the south side of Glacier Island, is exposed to the south but affords anchorage for small vessels about 0.4 mile from the head in about 16 fathoms, muddy bottom. Rocks, which partly bare at low water, extend 0.2 mile from the west side of the bay about 0.7 mile from the head.

(511) **Jackson Cove**, on the west side of Chamberlain Bay, is a secure harbor for small craft. The entrance has a least width of about 50 yards and a depth of about 1 foot; at the narrowest part of the entrance, favor the north side. The upper half of the cove has rocks on both sides, and a careful midchannel course should be followed. Anchorage can be selected in the lower part of the cove in 10 to 15 fathoms, also about 350 yards from the head in about 5 fathoms. A divide about 75 feet high extends through to Jackson Hole.

(512) The passage north of Glacier Island in its east part is very deep except near the shore. The north side of Glacier Island is indented by Finski Bay, Growler Bay, Eagle Bay and Jackson Hole. On the north side of the passage, Columbia Bay, Long Bay, and several other smaller inlets form an irregular coast.

(513) **Finski Bay**, situated on the northeast side of Glacier Island, shoals from about 5 fathoms at the entrance to less than 1 fathom at the entrance to the inner cove.

(514) **Growler Bay** provides good anchorage near its head for small craft. Several rocks bare at low tide, situated along the south shore near the head of the bay, are the only known offshore dangers once well inside the entrance. The east side of the channel should be favored when approaching the bay with depths as little as 9 feet reported off the entrance in midchannel, and shoals extend all along the east side of **Growler Island** (local name), the island between Growler Bay and Elder Point.

(515) **Elder Bay** (local name) east of Elder Point provides two small-craft anchorages. As both entrance points are foul, a midchannel course should be maintained while entering and while passing on either side of a wooded island near the west shore. Anchorage can be had in about 50 feet southeast of the island and in 40 feet south of the island. The narrow passage that connects with Growler Bay, with a least depth of about 3 feet, is suitable only for small boats. A private pier and summer lodge are located in the east cove of the bay, south of a prominent west point on Growler Island.

(516) **Eagle Bay** provides secure anchorage at its head, but shoals are situated in midchannel on the west side of the bay southeast of an unnamed island about 1 mile west of Elder Point. Rocks awash at low tide extend about 0.1 mile northeast of the northeast side of the unnamed island. Dangerous offshore rocks, nearly awash at low tide are situated about 0.3 mile west of this island. Eagle Bay can be entered by maintaining a course about 200 yards off the west shore south from Elder Point until the lowland opens between Eagle Bay and the next bay east, then steering directly southwest for the head of the bay, where anchorage in 5 to 8 fathoms is available. **Eagle Lagoon** connects with Eagle Bay by a very narrow passage that is fouled on its south side by rocks exposed at low tide. Small craft entering at high water slack can find anchorage in depths up to 13 fathoms inside the lagoon.

(517) **Jackson Hole**, about 1 mile west of Eagle Bay, appears to be clear of offshore dangers and has depths ranging from 3¼ fathoms in its narrow entrance to 16 fathoms inside at midchannel.

(518) **Campbell Bay**, on the northwest side of Glacier Island, has depths of about 3½ fathoms throughout, with a deeper indentation to 15 fathoms on the northeast part of the bay. There is a rock about 0.2 mile southeast of the south entrance and 0.1 mile from the south shore.

(519) **Irish Cove**, on the west-northwest side of Glacier Island, is foul at the head of the bay. A shoal area with a rock is off the point at the north entrance to the bay, extending 0.2 mile west of the point.

(520) **Iceberg Point** forms the west extremity of Glacier Island. A shoal to 2½ fathoms extends 0.3 mile southwest

of the point. A ½-fathom rock is 0.8 mile south of the point and ¾-fathom is 1.0 mile south-southwest of the point.

(521) Between Point Freemantle and Columbia Bay the coast is encumbered by dangerous rocks extending at least 0.2 mile offshore. A shoal with a least known depth of 4¾ fathoms is 0.5 mile south of Elf Point and a 4½-fathom depth is 0.6 mile southeast of the point.

(522) **Columbia Bay**, about 6 miles west of Valdez Arm, is deep except near the shores. A moraine shoal, about 3 miles north of the entrance, completely crosses the bay northwest from the north end of Heather Island to the west shore of the bay. Both east and west ends of this moraine dry at low water; elsewhere, the depths vary from about 2 to 12 fathoms. Crossing the moraine is best approached center bay, staying at least ½ mile from shore. Glacier ice will accumulate along the moraine, causing the upper bay to fill with ice, until weather and tide conditions are such that the ice is discharged into the lower bay and on into Prince William Sound. In 2021, the faces of the glaciers had receded to approximately 13 miles northeast of the moraine and approximately 15 miles northwest of the moriane. The upper bay has depths of 100 to 200 fathoms in the center; the shores are steep and strewn with rocks. Between **Heather Island** and a small island to its south is a narrow, rocky passage, called **Lutris Pass**, which has a maximum depth of 8 feet; due to numerous reefs south and west, this latter island should be given a berth of at least 0.5 mile. Rocks extend 0.2 mile offshore along the northwest shore of Heather Island.

(523) In 2021, the retreat of **Columbia Glacier** now results in at least 6 distinct terminus areas. A large inlet at the head of the bay has opened up but retains large amount of ice. Icebergs are constantly being discharged from the face of the glacier. The upper bay, in front of the glacier, is usually filled with ice preventing boats from approaching the face. Mariners are urged to exercise extreme caution if choosing to navigate within this area. Mariners are warned to keep at least 0.5 mile away from the face, as blocks of ice may be thrown great distances when falling seracs strike the water.

(524) **Glacier Ice:** At any time of the year, but especially in summer and fall months, icebergs and brash ice discharged from the Columbia Glacier may completely fill Columbia Bay and block the passage and coves north of Glacier Island. Particularly dangerous to vessels are low-lying icebergs (growlers) which scarcely show above the water surface. Ice conditions change rapidly and mariners are cautioned to be vigilant at all times. At night and under conditions of low visibility, navigation of these and adjacent waters should not be attempted.

(525) **Heather Bay**, situated east of Heather Island, shoals gradually northeast from 50 fathoms to moraine reefs near its head and provides good protection from wind and heavy glacier ice for moderate-sized vessels. The best anchorage is situated in about 30 fathoms in midchannel, where the bay trends north. The east side of the bay is encumbered by dangerous rocks and shoals. A moraine reef, with a maximum depth of 5¼ fathoms about 0.3 mile off the northeast point of Heather Island, and with rocks awash at low tide further northeast, encloses the head of the bay. Shoals at the head of Heather Bay collect the ice from the glacier and only small icebergs make it into the bay. Transiting the head of the bay is not recommended.

(526) **Emerald Cove**, situated on the southeast side of Heather Bay 1 mile northeast of Elf Point, provides the most secure small-craft anchorage in the area. Depths of 85 feet, muddy bottom, are found in midchannel, and a small bight on its north side has midchannel depths of 33 feet; sunken rocks are located on both the east and west entrance points to the bight. A drying flat extends 0.1 mile off the stream mouth at the east side of the bay. Another anchorage for small craft called **Jade Harbor** is situated south of an island about 2 miles northeast of Emerald Cove. A midchannel course should be followed when entering due to rocks along both shores; once inside, good anchorage is available in 4 to 5 fathoms. A shoal extends about 0.2 mile off a small river of good water that enters the head of the cove.

(527) The northeast corner of Heather Bay is shoal, and even small launches should not proceed north of a group of small islands and rocks situated on the east shore. Fishermen occasionally anchor in good weather in the passages on either side of the largest of the islands while visiting nearby lakes.

(528) **Granite Cove**, situated on the west side of Columbia Bay, has maximum depths of about 1 fathom, rocky bottom, in midchannel in the passage north of the entrance island. Once inside, the cove has depths up to 4 fathoms. Due to the shallow entrance and frequency of glacier ice, this cove is little used as an anchorage.

(529) The coast between Granite Cove and **Flent Point** is shoal. A reef with a least depth of about 1 foot is located 0.2 mile east of Flent Point and the beach south of the point is also foul. Vessels are advised to maintain a distance of at least 0.3 mile off these shores.

(530) **Long Bay**, 3.5 miles west of Columbia Bay, extends in a north direction for about 6 miles and at its head divides into two arms, each about 2 miles long. There are numerous islands and rocks that bare at various stages of tide. The bottom is very broken. Secure anchorage with good holding ground is found in 7 to 10 fathoms east of the island located in the center of the west arm, about 1.4 miles north-northwest of Schrader Island. Passage to the anchorage is midchannel east of Schrader Island then north of two small islets north of Schrader Island, avoiding the rock and shoaling just north of each islet.

(531) **Useless Cove**, which indents the east shore of Long Bay, is reported to be foul. One mile northwest of Useless Cove are numerous dangerous rocks that extend as much as 0.4 mile offshore. Other rocks foul the east and west shores of Long Bay, and a midchannel course is recommended. south, west and north of **Schrader Island**, situated near the center of Long Bay, foul ground is located between a small wooded island and the mainland. The northeast extremity of Long Bay appears to be deep

in midchannel until about 1 mile of the head, where the bottom rises abruptly to a shoal with depths of less than 3 feet.

(532) Moderate-sized vessels find good anchorage in 8 to 12 fathoms, mud bottom, in **Buyers Cove** just west of **Slipper Point**, situated off the west entrance point to Long Bay. There are shoals from about 1¼ to 4 fathoms in the entrance to Buyers Cove. The 1¼-fathom depth is at 60°55'04.1"N., 147°16'21.5"W. Commercial fishermen use the cove as a transfer point. Just west of this cove is **Eickelberg Bay**, about 2 miles long, with depths of 10 feet, possibly less, near the middle of the entrance.

(533)

Naked Island to Long Bay

(534) The northwest part of Prince William Sound has long inlets and fiords, most of which are very deep. The shores are generally bold and wooded, and rise abruptly to lofty peaks, especially near the heads of the fiords. Spectacular valley glaciers descend into the heads of the fiords and discharge large quantities of icebergs, which may completely block the upper channels, especially in the spring months.

(535) The bottom of the entire area is a bluish-gray glacial silt of very fine texture and often quite sticky even though the deposit is only a few inches thick over the rock. In selecting an anchorage, care should be exercised to determine the true character of the bottom, for it is often difficult to get an anchor to hold on the underlying rock, even though the sounding lead shows a sticky bottom.

(536) **Naked Island**, **Peak Island** and **Storey Island**, near the center of Prince William Sound, form a group about 8 miles long, north-south, and about 6 miles wide. They are high and wooded to the summits.

(537) The bottom in the vicinity of the islands, including the passages among them, is rocky and very broken. As a measure of safety it is advisable for vessels, especially large ones, to avoid areas with depths less than about 20 fathoms in the vicinity of the islands and to avoid the passages between them.

(538) It is safer for vessels to keep in the deeper part of the passage between Naked Island and Smith Island, preferably between the 50-fathom curves.

(539) The best anchorages are in the south part of **McPherson Bay** on the north side of Naked Island in 20 to 30 fathoms for large ships and in the east bight of this bay in 10 to 20 fathoms for vessels up to 500 tons. The bottom is rock and mud. The bay also serves as a mooring station for oil spill response barges in the summer.

(540) Small craft can anchor in the small bight on the north side of Naked Island and in the small bight on the southwest side of Peak Island. They may also anchor in the bay on the north side of the east part of Storey Island with protection from all winds except north. Anchorage in 6 to 10 fathoms on the east side of Naked Island affords protection only from the north and west.

(541) **Bass Harbor**, on the south side of Naked Island, offers secure anchorage in 20 fathoms, mud bottom, about 0.4 mile west of the entrance to a small unnamed cove on its east side. The anchorage is open to south winds, and a slight swell makes in during heavy south weather.

(542) **Outside Bay**, on the southwest side of Naked Island provides good anchorage, except in strong west winds, for small vessels in the first bight southwest of the head of the bay in 3 to 10 fathoms, mud bottom. The bay also serves as a mooring station for oil spill response barges in the winter.

(543) **Cabin Bay**, on the west side of Naked Island, offers some protection from east winds for vessels up to 500 tons, but the bottom is broken and not ideal holding ground. Small vessels can find protection from west winds in the head of the south arm in 5 to 7 fathoms, mud bottom. A ¾ fathom sounding is in the middle of the entrance to the south arm.

(544) **Fairmount Island**, 7.5 miles north of Storey Island, is high. Buildings of a former fox farm are on the gravel beach on the southwest side but they are not prominent. The channel between the island and the mainland is about 0.6 mile wide at its narrowest part but has numerous rocks that bare at various stages of the tide; passage should not be attempted without local knowledge. Foul ground, which includes **Outpost Island** and **Little Fairmount Island**, extends about 2 miles from southeast through south-southwest of the south shore of Fairmount Island. Use extreme caution when navigating near these islands.

(545) **Wells Bay** (60°53.5'N., 147°28.5'W.) is a large bay just east of Unakwik Inlet and separated from it by a narrow peninsula. The bay extends north about 8 miles to a forked head and is about 2 miles wide at the mouth and narrows to 0.6 mile about 4 miles north of the entrance. In 1993, it was reported that the entrance to the bay was impeded by two shoals. A 4¼-fathom shoal is located about 0.7 mile east of the west shoreline in about 60°56'04"N., 147°28'29"W. A 2-fathom shoal was reported to be in about 60°55'51"N., 147°29'31"W. Small boats may anchor in the two small coves along the east shore of the bay. **Granite Bay**,1.3 miles from the mouth, extends east-northeast about 2.0 miles and is about 0.3 mile wide at the entrance. A constricted passage about 100 yards wide is about 1 mile from its head with numerous rocks and shoals. Caution is advised. The sides are usually bold. **Cedar Bay**, 2.5 miles from the mouth of Wells Bay, extends northeast about 3.5 miles and averages 0.5 mile in width; an island near its head almost closes the upper part of the bay.

(546) A group of islands and bare rocks between Granite and Cedar Bays extends west past the center of Wells Bay. A prominent point juts out about 0.5 mile on the east side of this bay 1.3 miles north of the entrance; an island is on the southeast side of the point. Temporary anchorage for moderate-sized vessels may be had about 0.2 mile north of the point and 0.2 mile east of the west shore in 17 to 20 fathoms, mud bottom. The entrance to the bay is deep. A 2-fathom shoal is in 60°55'51.5"N., 147°29'31.2"W.

(547) **Unakwik Inlet** has its entrance 6 miles west of the west point of Glacier Island, 2 miles west of Wells Bay. The inlet extends north about 18 miles and averages 1.5 miles in width, narrowing to 0.5 mile at its north end at **Meares Glacier**, which discharges large quantities of small icebergs. Numerous rocks and islets are situated off the east and west shores; in midchannel, excepting the dangerous shoal off Jonah Bay described below, the inlet's depth gradually diminishes from over 170 fathoms at its south end to 70 fathoms near the glacier.

(548) **Olsen Island** is situated on the west side of the entrance to Unakwik Inlet. A rock awash at low water is 0.6 mile east of the island and a group of rocks are situated 0.4 mile off its northwest side; the passage between the island and these rocks is foul. Many rocks foul the passage between Olsen and a small island southwest; rocks and shoals extend a mile or more south of this latter island. The passage between Olsen Island and the mainland is used by small vessels. A course slightly west of midchannel is recommended, due to numerous rocks on both sides.

(549) **Olsen Cove** provides anchorage for small craft in 40 to 60 feet of water near the center of the basin. Sunken rocks extend 300 feet from the north shore just outside of the entrance narrows, which has a least depth of 14 feet. Once inside the narrows, a course slightly south of midchannel should be maintained to avoid rocks situated about 400 feet offshore midway between the two north points. A sunken rock is also located about 300 feet west of the south entrance point. The main basin appears to be clear of danger with the exception of shoals and a drying rock that block the northwest extremity of the cove.

(550) **Mueller Cove**, 1 mile north of Olsen Cove, affords good anchorage for small craft near its south shore just west of the two small wooded islets marking the south entrance point. Depths shoal gradually from 25 to 8 fathoms, sand and gravel bottom. This anchorage is exposed to the northeast. In 1993, there was a 3½-fathom shoal at the entrance at about 60°53'18"N., 147°36'27"W. and the northwest end of the cove is foul ground.

(551) **Siwash Bay**, on the west side of Unakwik Inlet about 6 miles north of Olsen Island, affords excellent anchorage in 10 to 15 fathoms, mud bottom, about 0.2 mile west of the entrance island. This bay is about 2 miles long and 0.5 mile wide and has a wooded island near the south shore at the entrance. The deep channel is to the north of the island. Entering on a midchannel course the depths shoal rapidly to 10 fathoms just north of the island, continuing at that depth until well inside. Sheltered from all directions, the anchorage appears suitable for large vessels.

(552) **Jonah Bay**, on the west side 8 miles north of Olsen Island, is crescent shaped and about 2.5 miles long. A glacial stream discharges at its head. The entrance is narrow and nearly blocked by a small island. The best water is south of the island. Recommended passage is at high water. In 1993, depths ranged from ½-fathom in the entrance to 14 fathoms inside the bay.

(553) A dangerous moraine bar completely crosses Unakwik Inlet just north of Jonah Bay. A low, grassy islet, on the moraine bar and difficult to observe in thick weather, is situated approximately one-third of the channel width from the east shore to which it is connected by drying rocks. The deepest channel crossing the moraine bar is about 0.1 mile west of the islet in about 61°00'53"N., 147°33'24"W., with a least depth of 5¾ fathoms. Shallow water extends about 0.5 mile east-southeast from the north entrance to Jonah Bay and well offshore. A fish hatchery and fish pens are located in a cove on the east side of the inlet, just south of the moraine bar.

(554) On the east side of Unakwik Inlet, about 10 miles north of Olsen Island is a series of small coves known collectively as **The Cow Pens**. A small ragged island lies about 0.5 mile offshore.

(555) **Eaglek Bay**, midway between Unakwik Inlet and Esther Passage, is a large irregularly shaped bay extending north about 7 miles. The south half is about 2.5 miles wide and the north half about 1 mile wide. Two coves are on the west side; each extends west for about 1.5 miles. One large and several small coves are on the east side. The shores are extremely ragged and there are many wooded islets, bare rocks and rocks awash. The large cove on the east side has numerous good anchorages for small craft. Caution is advised when entering the bay, to avoid the charted rock at midentrance and also because of the irregularity of the bottom. In entering, the best water is 0.3 mile west of the small prominent wooded islet 0.5 mile southwest of **Point Pellew**.

(556) **Axel Lind Island**, 2.5 miles south-southwest of the entrance to Eaglek Bay, is high. The buildings of a fox farm are prominent on a stretch of gravel beach on the north side. Passage to the north is deep, but there are several off-lying dangers. In 2002, a rock that uncovers at low tide was reported to be at 60°48.7'N., 147°44.3'W. Fishing craft use this passage and the one north of Bald Head Chris Island when bound for Port Wells via Esther Passage. In 1993, the passage north of Bald Head Chris Island was 71 fathoms deep, 0.4 mile north of the island. There is shoaling to 2¼ fathoms about 0.3 mile off the southwest shore.

(557) **Qacuuqaq Bay**, 1 mile east of Esther Passage and 1.5 miles north of Bald Head Chris Island, extends north-northeast 2 miles and averages 0.5 mile in width. Its east side is irregular, with numerous islands and rocks baring at various stages of the tide. The west side has no visible dangers and is unbroken except for small **Papoose Cove** about midway in. The cove affords excellent anchorage for small craft in 8 to 10 fathoms, sticky mud bottom. Directly opposite Papoose Cove is another cove, the middle of three on the east side, that affords excellent anchorage with good holding ground for small craft in 8 fathoms.

(558) **Lone Island**, about 3 miles east of Perry Island and 5.5 miles south of Axel Lind Island is wooded, comparatively level and high. Foul ground extends nearly 0.5 mile north. Foul ground extends 1.3 miles south of the

group to two prominent rocks about 5 to 10 feet high. A 3½-fathom shoal 1.4 miles south of the island is marked by a lighted bell buoy. A bank with a least depth of 3½ fathoms is between the shoal and the island.

(559) **Dutch Group** consists of several wooded islands and bare rocks 4.3 miles north-northwest of Lone Island, the largest having elevations up to 150 feet. Foul ground extends 1.3 miles south of the group to two prominent rocks about 5 to 10 feet high. An abandoned white building with a yellow roof is on the large north island of the Dutch Group and is prominent from offshore.

(560) **Fool Island**, 3 miles west of the Dutch Group, is wooded and about 50 feet high. A rock that uncovers is 0.3 mile south of Fool Island.

(561) **Egg Rocks** are prominent bare rocks 1.5 miles west-northwest of Fool Island.

(562) **Perry Island**, in the northwest corner of Prince William Sound, is wooded to a height of about 1,000 feet. It is prominently marked on its northeast side by a round peak, the summit of which is small, bare and dome shaped. The bays indenting the island are anchorages for small craft only because of the foul, rocky and broken bottom.

(563) **Perry Island Light** (60°39'17"N., 147°55'57"W.), 35 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on the southernmost point of the island. A rock, 14 feet high, is about 150 yards south of the light. A rock awash is 0.4 mile northwest of the light.

(564) Foul ground extends 0.5 mile east from the east end of Perry Island at **Billings Point** and nearly 1 mile southeast and south from the southeast point of the island.

(565) **South Bay** is on the east side of Perry Island Light. Good anchorage is available for moderate-size vessels in 10 to 24 fathoms, sand and mud bottom, in the cove at the head of the bay. When entering, avoid the rocks that extend almost 0.2 mile from the east side of the entrance to the cove. An oyster farm is near the head of the cove.

(566) **East Twin Bay**, indenting the north side of Perry Island, has anchorage for small craft near the center of the bay, about 0.8 mile from the head in 13 fathoms with a soft bottom. A midchannel course should be followed until a prominent rock about 20 feet high, near the center of the bay, bears south approximately 0.2 mile. The portion of the bay beyond the rock is navigable in spots, but should be avoided because the area is foul.

(567) **West Twin Bay**, on the northwest side of Perry Island, is entered mid-channel, avoiding the chain of islands and foul ground extending for over a mile from the point of land on the west side on the entrance. Small craft entering should favor the northeast side until past the narrow area about 1 mile from the head of the bay, and then favor the southwest side, passing west of a rock about 15 feet high, near the middle of the bay 0.8 mile from the head. A 1½-fathom shoal exists just north of the narrow section approximately 0.1 mile from the point of land protruding northeast from the west shore.

(568) From the point on the west side of entrance to West Twin Bay, a chain of islets and foul ground extends north for over 1 mile.

(569) Anchorage is available in the bay for mid-sized vessels in 5 to 15 fathoms of water, mud bottom, in a bight about 0.7 mile south of the west point and about 0.1 mile north of the gravel spit extending from the east shore and east of the rock in the middle of the bay. The area south of the gravel spit is shallow and rocky.

(570) **Perry Passage** is between Perry Island and Culross Island, 2.5 miles to the west. **Wells Passage**, between Perry and Culross Islands on the south and Esther Island on the north, is over 2 miles wide. The two passages have depths of 100 to 250 fathoms. Caution should be exercised when approaching or departing the east end of Wells Passage. Numerous islands, islets, rocks and shoals extend east and southeast for about 5 to 9 miles.

(571) **Esther Island** is mountainous, wooded to a height of about 1,000 feet, and the summits are bare rocks. The peak on the southeast point of Esther Island, and the sharp twin peaks on the southwest point, are prominent. **Point Esther Light** (60°47'08"N., 148°06'01"W.), 31 feet (9.5 m) above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on the southwest side of the island. Three bays are between the light and Esther Passage. **Esther Bay**, the easternmost, is 3.5 miles east of the light on Point Esther and extends north about 2 miles. The entrance, 0.7 mile wide, is partly blocked by several wooded islets, bare rocks and rocks awash. The interior of the bay is dotted with islets and rocks.

(572) **Quillian Bay**, the middle bay, 1.3 miles east of the light, extends 1.7 miles north-northeast and is about 0.2 mile wide. The entrance is constricted to a width of 0.1 mile. An islet is 0.7 mile above the entrance and two rocks awash are toward the head of the bay. The shores are steep-to.

(573) When transiting the bay from south, vessels are advised to stay midchannel between the easternmost islet and the east shore. Continuing north from the islets, the bay widens to 0.4 mile, average depth 12 fathoms. A foul area extends approximately 0.1 mile off the east shore at the widest part of the bay. About 0.45 mile north of the islets, the bay narrows to 0.1 mile with numerous rocks extending west from the east shore. Vessels should stay within 50 yards of the west shore until the bay starts widening again. Continuing north to the head of the bay, vessels should favor for the west shore. Average depth in the area is 3½ to 5¼ fathoms. The entrance to the lagoon northwest of the head of the bay is blocked by a rock.

(574) **Lake Bay**, the westernmost bay, is 0.7 mile east of the light, extends 1.2 miles northwest and is about 0.2 mile wide. Fishing craft find indifferent anchorage near the east shore southeast of the narrowest part where the bay widens to its maximum of 0.3 mile. Rocks awash extend about 110 yards southeast of the point forming the northwest extremity of the anchorage bight. A submerged rock is 0.3 mile from the head of the bay. In general, the shores are steep-to and depths are too great for convenient

(576)



anchorage. About 0.5 mile from the head on the east side is a freshwater stream that discharges from **Esther Lake**. A fish hatchery and fish pens are near the stream.

(575) **Esther Passage** separates Esther Island from the mainland. The south entrance, 7.5 miles east of Point Esther and 1.8 miles northwest of **Bald Head Chris Island**, is about 1.5 miles wide. The entrance is flanked by two wood islets. A rock awash at about half tide is about 0.3 mile east of the west islet. The bottom of the entrance is extremely irregular, varying from 3¾ to 60 fathoms. Once inside, the water deepens rapidly to more than 130 fathoms for 2 miles or more. The passage trends northwest for about 10 miles and connects with Port Wells about 8.5 miles north of Point Esther and 3.5 miles south of Golden; it is sharply constricted at its midpoint. The least depth in the constricted channel is 3½ fathoms at 60°53'39.6"N., 147°56'59.7"W. The south half is about 0.7 mile wide and the north half, 400 to 250 yards wide. The passage is clear except for the 3½ fathom area previously mentioned and a dangerous submerged rock 200 yards northeast from the south shore near the bend 1 mile east of the west entrance to Esther Passage. The best way to avoid the submerged rock is to hold well into the north half of the channel when swinging on the turn. Fishing craft use the passage regularly.

(577) **Esther Rock**, 1 mile west of **Point Esther**, is 15 feet high and sparsely covered with grass.

(578) A reef, bare at lowest tide, is reported to extend about 1 mile off the south point of **Granite Bay**, on the west side of Esther Island.

(579) **Culross Island** is mountainous and wooded to a height of about 1,000 feet. **Culross Island Light** (60°44'50"N., 148°06'49"W.), 40 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on the northeast point of the island.

(580) **Culross Bay**, on the north side of Culross Island, has good anchorage in 30 fathoms with limited swinging room about 1 mile inside the entrance just southwest of a prominent point on its northwest side. The center at the head of the bay shoals to 3¾ fathoms 0.6 mile southwest of the prominent point and 0.1 mile west of a ledge containing two islets and several rocks extending 0.1 mile north from the south shore. The bay is open to northeast winds, but no swell makes in, and it is not subject to williwaws.

(581) **Hidden Bay** is on the east side of Culross Island, 3.0 mile south of Pt. Culross. The northwest arm of the bay is bounded by three small islands to the north and one large island to the south. The entrance to the northwest arm has average depths of 8 to 13 fathoms shoaling to 4 fathoms 100 yards south of the center north island. Depths at the head of the northwest arm range from 16 to 22 fathoms.

(582) The long west arm should only be entered by small craft at high tide and slack water. Enter the west arm just

south of the largest island, between the largest island and the nearest island south. A faded white cross on the large island marks the entrance. Stay midchannel in 2½ feet of water as ledges extend off both islands. Continuing west, pass south of the midchannel islet, staying close to the south shore. A large ledge surrounds this islet and extends 75 yards west of the islet. Once past the large island, favor the north shore leaving a group of islands that extend 150 yards north from the south shore to the south. The center of the head of the bay has depths from 27 to 33 fathoms, mud bottom.

(583) **Culross Passage**, between Culross Island and the mainland to the west, is used occasionally by fishing craft and cannery tenders. It is narrow and congested and should be used only with local knowledge. Anchorage is available in midchannel about 1 mile south of the north entrance in about 35 fathoms, mud bottom. No swell makes in, and the area offers protection from all but north weather. The small bay on the east side 1 mile from the north entrance affords good anchorage in 3 to 8 fathoms, mud bottom.

(584) **Goose Bay**, on the east side of Culross Passage 3.5 miles south of the north entrance, is narrow and extends northeast about 1 mile. The entrance narrows to about 100 yards and has a least depth of 3 feet; Goose Bay is recommended for very small boats only. The narrow entrance opens out into a bay with two arms; extensive flats and shoal water are reported in both arms. The cove 0.7 mile south of Goose Bay offers good anchorage for larger vessels in 15 fathoms of water, clay and gravel bottom.

(585) **Long Bay**, on the west side of Culross Passage across from Goose Bay, is narrow and extends southwest about 2 miles. The bay appears clear on the south side of the channel, with depths of about 10 fathoms; however, it shoals rapidly in the vicinity of the small islets at the southwest end of the bay.

(586) It is further reported that anchorage for small vessels can be had in the vicinity of the small islets in 7 to 10 fathoms, fair holding ground. East winds funnel into Long Bay blowing from the northeast with considerable force and gusts; vessels should guard against dragging onto the shoals at the head of the bay.

(587)

Routes

(588) When entering the narrowest part of Culross Passage from the north, small vessels are advised to pass between the westernmost small islet just off the west shore about 2 miles inside the entrance and the west shore. Continue south between the larger island in midchannel and the west shore. A 2¾-fathom shoal is midchannel, 160 yards south of the large island, then shift to midchannel to avoid a shoal extending off the point on the west shore. One mile farther south and off Goose Bay are numerous islands. The channel, with a least depth of 4¼ fathoms, passes to the east of the island.

(589) In entering the passage from the **southward**, give a wide berth to the many dangerous rock ledges and rocks that extend off the south shore of Applegate Island on the east side of the entrance. Considerable current has been observed through this area.

(590)

Port Wells to Yale Glacier

(591) **Port Wells** extends north from Wells Passage along the west side of Esther Island for 13 miles to **Point Pakenham** where it divides into **Barry Arm** to the west and **College Fiord** to the east. Except for the two submerged terminal moraines extending southwest and southeast from Point Pakenham across the entrances to Barry Arm and College Fiord, Port Wells is deep throughout with 100 to 200 fathoms except near the shores.

(592) **Pigot Bay**, on the west side of Port Wells just north of Passage Canal, has a rocky shore except at its head where sand and mudflats extend offshore about 0.4 mile and bare at low water. The bottom in Pigot Bay is grey clay with good holding qualities. Depths near the entrance to Pigot Bay are too great for anchoring, but good anchorage is available for vessels near the head of the bay in 16 to 30 fathoms. A small area about 1.1 miles from the head of the bay affords good anchorage in 13 fathoms but is difficult to find because of its limited extent. A similar area 0.7 mile from the head of the bay affords excellent anchorage for small vessels in 13 fathoms. Good anchorage is available for small boats in the northeast corner of the bay and in **Ziegler Cove**, on the north side of the bay immediately inside the entrance.

(593) The ruins of an abandoned logging camp are at the head of Pigot Bay, and an abandoned mine is a short distance up the river, which empties into the bay. A Forest Service cabin is at the west head of the bay.

(594) **Pirate Cove**, on the west side of Port Wells, 3.5 miles north of Wells Passage, is exposed to northeast winds. There is a 2-fathom rock shoal about 350 yards northeast of the south entrance point. A rock, in the north part of the bay with a 2¾-fathom shoal just to the south, is about 350 yards offshore and 550 yards northwest of the south entrance point.

(595) **Hummer Bay**, about 1 mile north of Pirate Cove, with depths of 22 fathoms, offers protected anchorage but has numerous islands, islets, submerged reefs and rocks. Entering the bay requires caution and local knowledge.

(596) **Bettles Bay**, on the west side of Port Wells, about 2.5 miles north of Hummer Bay, is free from dangers in midchannel. A 3-fathom shoal extending 0.2 mile north from the south entrance is in 60°55'06"N., 148°16'00"W. Good anchorage is available in 25 fathoms, mud bottom, in mid-bay 1 mile above the entrance, and in 22 fathoms, mud bottom, in the northeast corner of the bay. A stream and an extensive delta from a glacier are at the head of the bay. Vessels should approach with caution because depths

(610)



rise abruptly from 20 fathoms to 1 fathom. An abandoned mine building is on the hillside northwest of the stream.

(597) **Hobo Bay**, on the west side of Port Wells just north of Bettles Bay, is crossed at the entrance by a bar that is covered about 2½ fathoms at each end, over 5 fathoms midchannel. Vessels entering should stay midchannel on a northwest course. Several rocks, bare at low water, are along the south shore of the bay. A grassy rock is close offshore near the head of the bay.

(598) About 1.5 miles northeast of Hobo Bay is a prominent wooded point connected to shore by a bare gravel bar; from a distance, this point appears as a lone wooded islet.

(599) **Harrison Lagoon**, a small shallow lagoon, is about 2 miles north of Hobo Bay, at the west entrance point to Barry Arm. A Forest Service cabin is located at the lagoon.

(600) **Golden**, 3.5 miles southeast of Point Pakenham, is an abandoned mining camp on the east shore of Port Wells and forms the southeast entrance point to College Fiord. Vessels can anchor 200 to 300 yards south of the little island off Golden in about 20 fathoms, rocky bottom. It is regarded as a poor anchorage and it is probable that the anchor will not hold with strong winds drawing down Port Wells. The area between the island and the shore uncovers.

(601) The northwest entrance to Esther Passage, 4.5 miles south of Point Pakenham, connects Port Wells with Wells Passage and is described earlier.

(602) **Granite Bay**, 2.5 miles southwest of Esther Passage, provides good anchorages for small craft; do not enter without the aid of a detailed chart. Rocks awash, 500 yards offshore, are 0.5 mile southwest of the islet forming the south entrance point of the south arm.

(603) **Barry Arm**, at the head of Port Wells, is the west of two arms extending north. A submerged moraine completely crosses the south entrance from Harrison Lagoon to Point Pakenham with dangers extending off both ends. A low spit extending well off the west shore has depths of less than 2 feet, ¾ mile from shore. Mariners should stay midchannel, 1.5 miles from the west shore in 13 to 18 fathoms. Barry Arm is deep and free of obstructions north to Point Doran, about 4.5 miles northwest of Point Pakenham. **Caution:** The State of Alaska has indicated that a potential landslide-caused tsunami may occur in Barry Arm. Ongoing monitoring activities are occurring. The geologic makeup of the area is similar to where two previous landslide-caused tsunamis occurred, in Lituya Bay (1958) and Icy Bay (2015), both causing extremely large but localized tsunamis. Mariners should maintain vigilance when in Barry Arm or nearby waters and be prepared to depart the area if any unusual geologic activity or surface conditions are observed, such as rockfall or unexpected wave behavior or currents. Mariners should use caution when transiting the area due to delays that may occur between the observation and notification of

hazards. Additional information is available at *https://dggs.alaska.gov/ba*.

(604) **Harriman Fiord**, 5 miles above the entrance to Barry Arm, extends southwest about 10 miles and is deep and free of dangers except at the entrance and a submerged moraine around Surprise Inlet. The fiord is usually laden with small bits of glacial ice.

(605) Submerged gravel bars with least depths of between 1 and 9 fathoms extend from **Point Doran** across both Barry Arm and **Doran Strait**, the entrance to Harriman Fiord. Extreme caution should be used in this area when navigating. Gravel bars that uncover extend over 300 yards offshore at the northwest entrance to Harriman Fiord. The preferred channel up Barry Arm, north to **Cascade**, **Barry** and **Coxe Glaciers**, is slightly east of midchannel, 0.6 mile east of Point Doran. The preferred channel from the glaciers to Harriman Fiord is slightly south of midchannel, avoiding a 1-fathom sounding 0.7 mile northwest of Point Doran. The preferred channel from Harriman Fiord to south Barry Arm is 150 yards off Point Doran in about 4 fathoms, avoiding a 10-foot sounding 500 yards northeast of Point Doran.

(606) **Serpentine Cove** on the north shore of Harriman Fiord, 3 miles west of Doran Strait is shallow and almost completely blocked at the entrance by gravel bars.

(607) **Surprise Inlet** on the north shore, 5 miles west of Doran Strait, is about 0.8 mile long leading to **Surprise Glacier**. Shoaling extends out about 0.3 mile along the north shore at the entrance; a midchannel course is recommended. A submerged flat with depths of 10 feet and less extend east from the south entrance point of the inlet. In 2018, severe shoaling was reported near the head of the inlet, just off the foot of Surprise Glacier. Mariners are urged to use caution when navigating this area.

(608) **Harriman Glacier** is at the head of Harriman Fiord.

(609) **College Fiord**, at the head of Port Wells, is the east of two arms extending northeast 16 miles to **College Point** where it divides into **Harvard Arm** to the west and **Yale Arm** to the east. Caution should be exercised when entering the fiord due to a dangerous reef with rocks awash extending 1.3 miles south-southeast from Point Pakenham and shoal water with rocks awash extending as much as 0.8 mile off the southeast shore from Golden north to Coghill Point. Icebergs are common to Coghill Point but rarely extend to Port Wells.

(611) **Coghill Point** on the east shore of College Fiord is about 5.5 miles northeast of Point Pakenham. Anchorage with good holding is 0.2 mile east of the point in about 10 fathoms. The bottom rises quickly from 30 to 3 fathoms. From the head of the bay, a trail leads east-northeast along Coghill River 3.5 miles to a Forest Service cabin.

(612) **Harvard Glacier** closes Harvard Arm about 4 miles northeast of College Point. Over a half dozen glaciers line the northwest shore of the arm and upper College Fiord, with 5 of the glaciers being tidal.

(613) **Yale Glacier** closes Yale Arm about 3 miles east of College Point.

(614)

Point Pigot to Passage Canal

(615) **Point Pigot** is the southeast end of the peninsula between Pigot Bay and Passage Canal. Low valleys extend across the peninsula from Entry Cove and **Logging Camp Bay.** The south end of Point Pigot is a wooded, rocky headland 220 feet high. This headland is joined to the mainland by a sandy neck 6 feet high. **Point Pigot Light** (60°48'03"N., 148°21'25"W.), 25 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on the south tip of the point. A rock that bares at lowest tides is 0.8 mile east-northeast of the light. A similar rock is 200 yards west-northwest of the light.

(616) **Entry Cove**, immediately west of Point Pigot, affords good anchorage in 3 to 13 fathoms, soft bottom, with swinging room for one vessel up to 200 feet long.

(617) **Cochrane Bay** empties into the south end of Port Wells opposite Point Pigot. The middle of the bay has depths of 70 to 200 fathoms and the shores are steep-to.

(618)

Anchorages

(619) Anchorage is available in a cove at 60°39.7'N., 148°22.0'W. which is approximately 2 nautical miles northeast of the head of Cochrane Bay. Small vessels should stay approximately 100 yards south of a small islet in the center of the cove to avoid a reef that extends 260 yards north from the south shore. Vessels are advised to stay midchannel, least depth 2 fathoms, at the entrance to the cove. Small vessels can anchor at the junction of the fingers at the head in 3 to 5 fathoms of water, mud bottom. The cove is open to winds from the east, and local knowledge reported the cove freezes in winter. Anchorage for smaller vessels may also be found in the southernmost cove at the head of Cochrane Bay in 4 to 6 fathoms of water, mud and pebbles bottom.

(620) **Surprise Cove** is on the west side of Cochrane Bay 0.5 miles southwest of **Point Cochrane**. The southwest arm of the cove appears clear of dangers with 30 fathoms in the middle decreasing towards the head, near which indifferent anchorage is available in 7 to 15 fathoms mud and pebble bottom. The thin layer of glacial silt over the rocky bottom is poor holding ground. The west arm of Surprise Cove has a restricted entrance and can be entered only by small craft. Small craft are advised to enter the west arm of the cove south of the largest island staying midchannel in 6 to 8 fathoms of water. Continuing west past the large island, the west arm widens to 0.4 mile with average depths of 16 to 21 fathoms in the center, mud and pebble bottom. Nearby is **Surprise Cove State Marine Park**, accessible by boat or float plane only.

(621) **Blackstone Bay** empties into the south side of Passage Canal southwest of Point Pigot. The middle of the bay has depths of 100 to 200 fathoms to **Willard Island**, a large island about 489 feet high near the head of the bay. A rock, bare at low water, is 0.1 mile north of

(624)



Passage Canal and Whittier, Alaska
Image courtesy of Ken Graham/AccentAlaska (2000)

the island. A 7¾-fathom shoal is 0.4 mile north-northeast of the north end of the island. An islet and nearby rocks awash are on the east side of the bay about 3.7 miles inside the entrance at 60°45.8'N., 148°31.7'W. The area between Willard Island and the east side of the bay is constricted by rocky moraine shoal extending from both shores. A narrow channel, with depths of 2½ and 3¼ fathoms, is midway between the shoals. A shoal with two rocks awash at the end extends from the east side of the bay to about 60°42.2'N., 148°36.5'W.; extreme caution is advised. There are no known anchorages in the bay, and ice is rarely seen in the bay.

(622) Depths along the west side of Willard Island range from 4¼ fathoms off the south side to 66 fathoms off the north side. Glacial moraines, with little water over them at low water, extend from both shores of Blackstone Bay to Willard Island midway of the island's length; depths are 2½ to 3½ fathoms in a channel about 0.2 mile from the west shore. Strong localized west winds can occur over the moraine creating standing waves of 2 to 4 feet. **Blackstone Glacier**, and **Beloit Glacier** in the southeast arm, are active and there are generally numerous small icebergs in the head of the bay.

(623) **Passage Canal** has its entrance at the southwest end of Port Wells between Point Pigot and **Blackstone Point**, the north extremity of the peninsula separating Cochrane and Blackstone Bays. The canal trends northwest for 4 miles, then west and southwest about 7 miles.

(625) The principal approaches to Passage Canal and the canal itself offer little difficulty for navigation with the aid of the chart. These waters are characterized by rocky and exceedingly broken bottom. Differences of 50 fathoms between adjacent soundings are not uncommon. As a measure of safety, vessels should avoid areas where abrupt changes are indicated by the chart to depths less than 50 fathoms.

(626) Passage Canal is 1 to 1.5 miles wide, has great depth and is clear except in a very few places near the shores. The shores rise abruptly and are wooded to about 1,000 feet. The higher peaks are bare or snow-covered rock.

(627)

Decision Point to Whittier

(628) **Decision Point**, on the south side of Passage Canal about 3 miles west of Point Pigot, is marked on the north end by **Decision Point Light** (60°48'22"N., 148°27'20"W.), 35 feet above the water and shown from a skeleton tower with a red and white diamond-shaped daymark.

(629) **Shotgun Cove**, on the south side of Passage Canal 2.5 miles west of Decision Point, has depths through the middle of 21 to 32 fathoms, muddy bottom. The cove rapidly shoals at the narrow parts at the head; approaching

(635)



slowly, a small vessel can select anchorage just above the head of the bay in 15 to 20 fathoms. Several mooring buoys are in the cove used by tug and barges.

(630) The bight on the southeast side of Shotgun Cove is obstructed near the middle by a rock covered ½ fathom. Anchorage with a clear width of 0.3 mile can be had in the northeast part of this bight in 15 to 20 fathoms, mud bottom.

(631) **Trinity Point** is on the south side of Passage Canal 3 miles west of Decision Point. Tiny **Emerald Island** is 0.4 mile west of Trinity Point. A light, 39 feet above water, is shown from a skeleton tower with a red and white daymark on the outer end of the narrow point between Trinity Point and Emerald Island. Small **Emerald Bay** extends southwest from the island. Small craft can anchor just outside the bay in 2½ to 3¾ fathoms of water with mud bottom.

(632) Anchorage in 12 to 18 fathoms, sticky bottom, can be had on **Bush Banks**, which extend 0.3 mile from the south side of Passage Canal at a point 0.7 mile west-southwest from Emerald Island and 3 miles from the head. The least depth is 4½ fathoms at the southwest end of the banks.

(633) Small craft can anchor at the northwest end of the head of the canal in 6 to 12 fathoms.

(634) **Whittier** is on the south side of Passage Canal, 1.5 miles from the head. The town is the terminus for the Alaska Railroad and has a fish processing plant and a U.S. Army fuel depot. The waterfront was greatly destroyed during the 1964 earthquake and the dock facilities were rebuilt in the 1970s. The port handles large numbers of railroad cars, the Alaska State Ferry handles autos and passengers and cruise ships and tour boats bring tourists during the summer.

(636)

Prominent features

(637) In the approach to Whittier, the army tank farm at the head of Passage Canal and the buildings in town are most prominent. The three large buildings in town were built by the army during World War II. The largest is 14 stories high and almost all of the living quarters and most business activities in town are within this building.

(638)

Routes to Whittier

(639) **From the S via Prince William Sound Traffic Separation Scheme** (described earlier in this chapter under Prince William Sound). Depart the scheme north of Hinchinbrook Entrance and set courses to pass 1.5 miles northeast of Smith Island, 1.5 miles north of Point Eleanor Light, 1.5 miles southwest of Perry Island Light, 1 mile northeast of Culross Island Light, 0.5 mile south of Point Pigot Light, 0.5 mile north of Decision Point Light, 0.5 mile north of Trinity Point Light, and thence to Whittier, clearing the south shore by 0.5 mile until up to the waterfront. **Caution:** Mariners are advised to adhere

to the general principles for navigation when entering, departing or crossing a traffic separation scheme. (See **Traffic Separation Schemes**, chapter 1.)

(640) **From the W via Elrington Passage**. Clear the east side of Evans Island by 1 mile, thence 0.5 mile east of Pleiades Light, thence 2 miles east of Crafton Island Light, thence 1.5 miles southwest of Perry Island Light, thence the same as from the south to Whittier.

(641) Vessels from Valdez usually use Perry Passage when going to Whittier.

(642)

Anchorages

(643) Large vessels sometimes anchor clear of the 4½-fathom shoal on Bush Banks about 2 miles northeast of Whittier or in Pigot Bay.

(644)

Currents

(645) The currents have little velocity in Passage Canal.

(646)

Weather, Whittier and vicinity

(647) Whittier is a town located at the southwest end of Passage Canal. It is surrounded by snow-capped mountains and glaciers. Its location in the fjord accounts for weather that is common to both the coastal mountains and the open coast. Portage pass is a natural venturi, which accelerates natural wind passing through. In January, mean temperature ranges from 19°F (-7.2°C) to 30°F (-1.1°C) with 14.3 inches of precipitation, less than half of which is snow. In July, the mean temperature is 49°F (9.4°C) to 62°F (16.7°C) with about 12.5 inches of rain.

(648) The annual snowfall is estimated at about 500 inches (12.7 m) in Whittier with accumulations of 12 feet (3.7 m) during February and March. Avalanches are known to cause major problems in the port by damaging railway equipment and port facilities. Also, a portion of the south shore of Passage Canal is exposed to surge waves generated by avalanches occurring on the north shore.

(649) Generally, winds in Whittier flow from Portage Pass out Passage Canal (south-southwest) or the opposite direction (north-northeast). The wind vector with the greatest impact on Whittier is the south wind that blows off the Whittier Glacier. Such a wind may blow in the 30 to 40 m.p.h. range for considerably long periods.

(650)

Ice

(651) Whittier is a year round ice-free port.

(652)

Pilotage, Whittier

(653) Pilotage, except for certain exempted vessels, is compulsory for all vessels navigating the waters of the State of Alaska. Pilots for Prince William Sound are available from the Southwest Alaska Pilots Association (swpilots.com). (See **Pilotage, General** (indexed), chapter 3, for the pilot pickup station and other details.)

(654) Vessels en route Whittier or Valdez can contact the pilot boat by calling "EMERALD ISLAND" on VHF-FM channels 13 and 16, or via landline directly 907-255-0869, 24 hours daily.

(655)

Towage

(656) There is one 600 hp tug in Whittier. In the winter months, October to May, a second 2,000 hp tug is available. Arrangements for their services are usually made through shipping agents.

(657)

Quarantine, customs, immigration and agricultural quarantine

(658) (See chapter 3, Vessel Arrival Inspections, and Appendix A for addresses.)

(659) **Quarantine** is enforced in accordance with regulations of the U.S. Public Health Service. (See Public Health Service, chapter 1.)

(660)

Harbormaster

(661) The Port Director enforces harbor regulations. The office is located at south shore of the small-boat harbor, monitors VHF-FM channel 16, telephone 907-472-2330, FAX 907-472-2472.

(662)

Wharves

(663) There are two deep-draft facilities, a railroad-car barge facility, a ferry dock and a passenger loading dock. Whittier also has a small-boat harbor. Cargo handling equipment arrangements are made with the Alaska Railroad. The Alaska Railroad can be reached by telephone at 907-265-2617 or 907-265-2670.

(664) **DeLong Pier:** at the east end of Whittier; 675 feet of berthing space; 45 feet reported alongside; deck height, 22 feet; receipt of seafood; mooring cruise ships and fishing vessels; 40-ton mobile crane; owned and operated by Alaska Railroad Corp. and the City of Whittier.

(665) **Alaska Railroad Wharf:** In 2002, it was reported that the wharf was in ruin and no longer in use by ships. The railroad car barge facility at the northeast end of the wharf is still in use. The wharf is owned by the Alaska Railroad.

(666) **Prince William Sound Cruises & Tours Float:** Seasonal floating pier for tour boats, located just southwest of the Alaska Railroad Wharf with 20 to 30 feet alongside. The facility is owned by Ciri Alaska Tourism and operated by Prince William Sound Cruises and Tours.

(667) **Alaska State Ferry Terminal:** between Ocean Dock and the cruise float; 200-foot face; 18 feet alongside, deck height, 22 feet. The ferry terminal is owned and operated by the State.

(668) **Ocean Dock**, just west of ferry terminal; 125-foot face; 200 feet berthing space; 27 to 30 feet reported alongside; deck height, 15 feet; mooring excursion vessels. The dock is owned by the State and operated by the City of Whittier.

(669) **Whittier Small-Boat Harbor**, 0.25 mile west of the ferry terminal, is used mostly by pleasure craft and some fishing vessels. The harbor has about 334 slips; the **harbormaster** assigns berths. The harbormaster's office monitors VHF-FM channel 16.

(670) A floating breakwater, marked by a light on its west end, restricts the entrance to less than 80 feet. A rock awash is near the center of the entrance, closer to the southwest side. In 2003, 15 feet was available alongside the piers.

(671) **Whittier Passenger Loading Dock** is just west of the entrance to Whittier Small-boat Harbor and is used by small tour boats and fishing vessels. The dock is marked by private lights. Caution: significant shoaling occurs at the west end of dock from Whittier Creek, 40 yards west.

(672) A floating dock, just west of the mouth of Whittier Creek, is available for docking cruise ships. A small-boat harbor is between the dock and the shore.

(673)

Supplies and repairs

(674) Gasoline, diesel fuel, water, electricity, dry storage, launching ramps, tidal grid and a 30-ton boatlift are available. The harbor is owned by the state and operated by the city. Restaurants and two small groceries are in town. Repair services and machine shop are available.

(675)

Ferries

(676) The Alaska State Ferry provides daily stops year round with connections to Valdez and Cordova.

(677)

Communications

(678) The Auton Anderson Memorial Tunnel makes Whittier accessible by automobile and railroad. The Alaska Railroad transports automobiles to the Seward-Anchorage Highway and has passenger service to Anchorage daily in the summer and biweekly in the winter. Charter air service is available in the summer.

(679)

Port Nellie Juan to Seal Island

(680) **Port Nellie Juan** extends 23 miles southwest from its entrance between Culross Island and the mainland to the south. **Applegate Island**, on the northwest side of the entrance, is low, flat and wooded. **Port Nellie Juan Light** (60°35'52"N., 148°06'07"W.), 23 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on the north end of the point on the southeast side of the entrance.

(681) Port Nellie Juan is divided into three right-angled reaches into which many glaciers discharge. The innermost reach is **Kings Bay**. MMidchannel depths of more than 100 fathoms are available to near the head. In general, the reaches are deep close to the shores, which are indented by numerous bays and small inlets.

(682) Areas in front of the glaciers should be approached with caution. The moraines are often very large, and the water over them shoals rapidly to 1 fathom or less. This is particularly true at the head of Kings Bay where the water is shoal 0.2 to 0.5 mile from shore, then deepens rapidly to more than 50 fathoms.

(683) **McClure Bay**, the first of two bays that indent the southeast shore of the first reach, is deep and narrow and extends south for about 5 miles. It is from 80 to 100 fathoms deep, free from hidden dangers and has bold shores. The upper part of the east arm at the head of the bay is foul. Vessels requiring little swinging room may anchor at the entrance of this arm in 18 fathoms, mud bottom. The west arm is clear in midchannel and affords shelter for small vessels.

(684) Ruins of a cannery and wharf are on north side of a cove on the east side of McClure Bay near the entrance. A rock, with little water over it, is on the north side of the cove close south of the wharf ruins. A submerged rock is close off the south shore of the cove just inside the entrance. The cove accommodates only small craft.

(685) **Blue Fiord**, the second bay, is at the head of the first reach and extends south about 4 miles to the moraine of **Ultramarine Glacier**. The shores of the fiord are steep-to and depths in midchannel are 33 to 100 fathoms.

(686) **Derickson Bay**, **Deep Water Bay** and **Greystone Bay**, are three prominent bays along the south shore of the middle reach of Port Nellie Juan. Along the north shore of this reach are long and narrow East Finger and West Finger Inlets, with Shady Cove midway between them.

(687) **Nellie Juan Glacier**, at the head of Derickson Bay, is the most active glacier in the area and the bay is often filled with small icebergs.

(688)

Anchorages

(689) Because of the great depths, there are few anchorages in Port Nellie Juan. Indifferent anchorage for large vessels can be found in the bight just inside the point on the southeast side of the entrance. The south of the two coves in this bight has a wide, even, gravel shore that is excellent for beaching a small vessel.

(690) Another indifferent anchorage is available for vessels up to 250 tons 0.7 mile southwest of **Division Point** between Blue Fiord and Derickson Bay. Depths of 18 fathoms can be found 300 yards off the entrance to a small indentation. The thin layer of mud over rocky bottom is only fair holding ground.

(691) Small craft can find indifferent anchorage in some of the bights on the northwest side of the first reach. The best of these is in the area west of **Mink Island** where the depth is about 15 fathoms, mud bottom. Good anchorage is available for vessels up to 300 tons in the upper end of West Finger Inlet in 15 fathoms and in Shady Cove, 14 fathoms in the middle and 8 fathoms near the head, mud bottom.

(692) **Main Bay**, 4 miles southeast of Port Nellie Juan, is deep and generally clear away from the shores but affords no anchorage. Foul ground extends both entrance points. A fish hatchery is at the head of the bay.

(693) **Falls Bay**, 2 miles southeast of Main Bay, has a small cannery in the northern extension, where small boats and floats were anchored in 1996. The remainder of the bay affords no anchorage and is open to the prevailing northeast weather. The main part of the bay is clear and deep, but the entrance is restricted by rocks that protrude into the mouth allowing a narrow 0.2 mile width, in which the least found depth is 12 fathoms.

(694) **Crafton Island** is 1 mile long and wooded. At its north end are rocky bluffs about 100 feet high, while its south part is lower and has sandy beaches in places. Two low islets with sandy beaches are off its south end. **Crafton Island Light** (60°30'42"N., 147°56'04"W.), 70 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark at the northeast end of the island.

(695) Crafton Island is surrounded by foul ground to a distance of about 0.5 mile on its east and south sides, where no sounding has been done. An exceedingly broken area extends over 2 miles southeast from the island. Rocks, bare at about half tide, are 1 mile southeast from the south end of the islets. Vessels should avoid all broken areas in this vicinity where depths less than about 50 fathoms have been found.

(696) The passage west of Crafton Island is foul along the shore of the islets, and three rocks which uncover are in the middle of the south entrance. This passage should be used only by small craft, proceeding with care and preferably at low water. The channel favors the west shore from the south entrance until abreast the middle of Crafton Island. A 4-fathom shoal is 0.1 mile east of the west shore point opposite Crafton Island.

(697) The clearer channel to Eshamy Bay follows the shore north from Point Nowell and is about 0.8 mile wide. Differences of 50 fathoms between adjacent soundings are not uncommon in this locality. Foul ground extends 350 yards north, and rocky broken ground of 14 to 9 fathoms, or less, extends 0.6 mile north from the south point at the entrance of Eshamy Bay.

(698) **Eshamy Bay**, between Point Nowell and Crafton Island, affords anchorage only for small craft in 8 to 11 fathoms, in the small cove back of the islands and rocks in the southeast corner of the bay. The better entrance is through the middle of the deep narrow channel between the small islands and the east shore. **Eshamy Lagoon** extends west from Eshamy Bay, but its foul entrance with strong currents makes it inaccessible for strangers.

(699) **Point Nowell**, 4.5 miles south from Crafton Island Light, is a small wooded hook, about 50 feet high, back of which the land rises abruptly. The cove, formed by the hook, is about 300 yards in diameter and apparently clear and affords anchorage for small craft in about 8 fathoms.

(700) **Knight Island**, on the west side of Prince William Sound, is 22 miles long and very rugged, the peaks rising to 3,261 feet. It is wooded to about 1,000 feet, and above this is grass covered. Disk, Ingot and Eleanor Islands are mountainous and sparsely wooded islands that extend 6 miles north from Knight Island to Point Eleanor, the north end of the group.

(701) **Eleanor Island** has bluff, rugged shores. Broken ground extends 0.4 mile north and northwest from **Point Eleanor**, the north point of the island. **Point Eleanor Light** (60°34'51"N., 147°33'47"W.), 45 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on the point. **Northwest Bay**, on the northwest side of Eleanor Island, is deep and clear. Anchorage for small vessels is available in the southwest arm of the bay, about 0.4 mile from the head in about 20 fathoms.

(702) Near the east point of Eleanor Island, 1.8 miles south of Point Eleanor, is a rocky islet with a few trees and with foul ground on its shore side. A bare rock 0.2 mile south of the islet should be given a berth of 0.3 mile. A group of three prominent bare rocks, close together and about 12 feet high, is 3 miles south-southeast of Point Eleanor in 60°31'57"N., 147°32'30"W. Between them and Eleanor Island is broken ground with depths of 3½ to 7 fathoms. A bare rock about 5 feet high is 0.6 mile southwest of the group; it should be given a berth of over 0.4 mile from the southeast.

(703) **Upper Passage**, separating Eleanor and Ingot Islands, is generally deep and suitable for small craft. One mile southeast of north entrance is a 2½-fathom depth, position approximate, about 150 yards from a point on Ingot Island. **Block Island**, 1 mile long with its north end joined at low water to Eleanor Island, narrows the south part of the passage to about 400 yards. On the northwest point of Block Island is an underwater rock, position approximate, reported in 1990. About 600 yards southeast of Block Island is a ledge with 5 fathoms over it, possibly less.

(704) **Entrance Island**, high and wooded, is 0.3 mile south of Eleanor Island and on the north side of the south approach to Upper Passage. It is surrounded by deep water. A submerged rock, reported in 1990, is 0.3 mile south of Entrance Island. Foul ground extends 0.4 mile northeast of Entrance Island.

(705) **Sphinx Island**, on the south side of the south approach to Upper Passage and 0.4 mile east of Ingot Island, is high and wooded and surrounded by deep water. About 0.9 mile southeast of Sphinx Island is a rocky area with a least known depth of 18 fathoms.

(706) **Ingot Island** is between Upper and Lower Passages. A prominent high wooded island is 0.2 mile off the northwest end of Ingot Island. Two small bare rocks, close together and nearly awash at high water, are 0.5 mile southeast from the south point of Ingot Island. Broken ground extends 0.5 mile southeast from the rock to a ledge covered 3¾ fathoms.

(707) **Disk Island** is separated from Ingot Island on the east by **Foul Pass**, a narrow passage blocked by reefs. A landlocked bay with two narrow entrances makes into the west side of the island. An excellent anchorage for small craft can be found in the bay in 5 to 13 fathoms, mud bottom, with good shelter from all winds. Enter through

the south entrance which is reported to be about 80 feet wide and has a least depth of 3 fathoms. It is reported that the north side of the south entrance should be favored to avoid a ledge that is submerged at high water and extends about 10 to 15 feet into the channel. The best anchorage is reported to be in a bight on the east side of the bay. In 1998, a rock awash was reported 0.1 mile west of Disk Island in about 60°29'30"N., 147°40'21"W.

(708) **Lower Passage**, between Ingot Island and the north end of Knight Island, is a deep navigable channel suitable for small vessels. Broken ground, on which the least known depth is 6½ fathoms, extends into the passage 0.2 mile from the west entrance point of Louis Bay. A rock that uncovers at half tide is 350 yards from the west shore, 0.8 mile inside the northwest end of the passage. Foul ground extends from this rock to the head of the cove, 0.5 mile southwest.

(709) A rock covered 1 fathom is about 0.4 mile northwest from the north end of Disk Island and a 6-fathom area, position approximate, is 0.3 mile further north. These rocks are well out of the usual track of vessels going through Lower Passage.

(710) **Louis Bay** indents the northeast side of Knight Island about halfway through Lower Passage, about 2.2 miles south of Passage Point. The bay affords anchorage for small vessels 250 to 300 yards from the head of either of its two arms, in about 15 fathoms. The west arm is clear so far as is known.

(711) The east arm of Louis Bay has a very broken bottom, and small vessels entering should proceed with caution. A rock covered 5 feet is 175 yards from the east shore and 350 yards north from the entrance of the east arm. The arm is 0.1 to 0.2 mile wide; a ledge extends about 30 yards from the wooded islet on the west side of the entrance. When inside the entrance, favor the west side to avoid three rocks which bare at lowest tides.

(712) **Herring Bay**, at the northwest end of Knight Island, has no desirable anchorage and is characterized by much foul ground and very broken bottom, with deep water close to the shores and dangers. Vessels should proceed with caution, especially in the vicinity of broken areas with depths less than about 20 fathoms, and preferably at low water. The entrance is clear except along the east shore, which is foul. A prominent rock about 4 feet high is near the center of the bay; the best channel to the upper part of the bay is east of the rock.

(713) **Herring Point**, the north end of a narrow ridge about 1,000 feet high, forms the west side of Herring Bay.

(714) **Smith Island**, near the center of Prince William Sound, is high and wooded and lowest at its southwest end. Broken rocky bottom extends 3 miles northeast from Smith Island. A lighted bell buoy is 0.3 mile south of a 5-fathom patch, 1 mile east of the island.

(715) **Little Smith Island**, close west of Smith Island, is bluff, high, and wooded. Rocky patches of 4¾ to 16 fathoms are about 1.5 miles north of the island. A rocky area of 9 to 10 fathoms extends 1 mile south from the island.

(716) **Seal Island**, 5.5 miles south of Smith Island, is wooded, high, and round. **Seal Island Light** (60°25'47"N., 147°24'56"W.), 45 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on the northwest side of the island. Close to the east end of the island are two bare rocky islets, and about 0.1 mile off the west end is a small rock that uncovers 8 feet.

(717) Rocky, broken areas extend 1 mile east, northeast and north from Seal and Smith Island. **Pennsylvania Rock**, 1 mile north of the island and marked by a buoy, is covered 2¼ fathoms. About 0.8 mile southwest of the island is a 4½-fathom rocky area.

(718) Vessels generally use the channel between Seal and Smith Islands rather than the channels to the southeast.

(719) **The west entrance of Prince William Sound** between Cape Cleare and Cape Puget is divided into a number of passages between the islands. They are described in the following order: Montague Strait, Latouche Passage, Elrington Passage, Prince of Wales Passage, Bainbridge Passage and Knight Island Passage.

(720)

Montague Strait to Bay of Isles

(721) **Montague Strait**, between Montague Island on the east and Latouche and Knight Islands on the west, is the broadest of the passages west of Montague Island leading from the sea to Prince William Sound. The strait affords an unrestricted channel 4.5 miles wide. Below the north end of Latouche Island the strait is seldom used as vessels generally proceed via Elrington Passage. Above that point the regular steamer route to the east part of Prince William Sound is via the passage west of The Needle, Green Island and Seal Island, thence through the passage between Seal and Smith Islands.

(722) **The March 1964 earthquake caused bottom uplift throughout Montague Strait. Shoaling and other scattered dangers exist in the area, requiring mariners to navigate with caution. Full bottom coverage surveys of Montague Strait were completed by the NOAA Ship Rainier in 2000. Mariners are advised to consult the U.S. Coast Guard Local Notice to Mariners for the location of dangers.**

(723) The west side of Montague Island is heavily wooded to about 900 feet. Generally rugged with many deep, steep-walled recesses near its high levels, it retains numerous patches of snow and ice throughout the summer.

(724) **San Juan Bay**, an open bight just north of Cape Cleare, has a sand beach at its head that is backed by a large tidal swamp that drains through a small stream. Landings in the bay are usually difficult because of the surf.

(725) **Stair Mountain**, just north of San Juan Bay, is a prominent conical-shaped 1,595-foot peak that shows unmistakably from the south and southwest. The summit is bare and the slopes have a scattering growth of trees.

(726) **Point Bryant** is a rounding point of high eroded bluffs, about 3 miles north of San Juan Bay. The rocky shore is fringed with heavy kelp.

(727) **Macleod Harbor**, on the east side of Montague Strait, 6.5 miles north from Cape Cleare, is an excellent anchorage protected from all directions except the southwest. **Point Woodcock**, on the north side of the entrance, is a rocky bluff about 50 feet high and wooded on top. The point is fringed by a rocky, kelp-covered reef. The south entrance point is gently rounding. The head of the harbor is marked by extensive mudflats.

(728) Large vessels entering Macleod Harbor favor the north shore and anchor in 12 to 14 fathoms, muddy bottom, about 0.3 mile off the shingle beach 1 mile from the head of the bay. In making this anchorage, care should be taken to avoid the mudflats, which rise very sharply. Severe williwaws draw down through the harbor, but the holding ground is good and the anchorage is safe. Small craft find anchorage farther in close to the north shore and to the head of the bay in 4 to 10 fathoms, mud bottom. Small-craft mooring piles at the head of the harbor are now dry at low water because of the upheaval caused by the March 1964 earthquake. Drastic changes have occurred, and the overall size of the bay is greatly reduced.

(729) **Hanning Bay**, indenting the west side of Montague Island 13 miles north of Cape Cleare, is a good anchorage with east winds. Shoals to 2 fathoms extend about 0.5 mile from the south shore into the entrance to the bay and shoals to 4½ fathoms extend about 0.5 mile from the north shore into the entrance of the bay. A dangerous submerged wreck (59°57'54"N., 147°42'11"W.) with a least depth of 2 fathoms is in the center of the bay. The best anchorage in south winds is about 1.0 mile from the south shore of the bay, with Danger Island bearing, **256°** and **Point Bazil**, the north entrance point, bearing approximately north, in about 14 fathoms. Care should be taken to avoid the dangerous submerged wreck.

(730) **The Needle** is a flat-topped, steep-sided rock, about 45 feet high, in Montague Strait 3.8 miles from the nearest point of Montague Island and 5.5 miles southeast from Point Helen, the south extremity of Knight Island. Rocks that uncover are close north-northeast and south-southwest of The Needle. A shoal with a depth of 5.2 fathoms at the south end and 5.0 fathoms at the north end extends northeast about 2 miles from a point 0.5 mile south of The Needle and extends west about 0.3 mile. A depth of 1.5 fathoms is about 0.6 mile northeast of The Needle. A shoal spot with a depth of 3.7 fathoms is about 0.9 mile north-northeast of The Needle.

(731) **Little Green Island**, heavily wooded and about 100 feet high, is 6 miles north-northeast of The Needle. A fringe of rocks surrounds the island and a kelp-marked reef, baring at various stages of the tide, extends 1.1 miles southwest off the south end of the island. A rock, covered 3½ fathoms, is 1.8 miles southwest of the island, and two rocks with little kelp that uncover about 1.6 miles east of the island and close to the 50-fathom curve. A shoal area with depths of 3¾ to 9 fathoms is about 2 miles northeast of the island.

(732) **Green Island,** between Knight Island and the north part of Montague Island, is wooded. The highest elevations are near the east side of the island and slope gradually to the north and south ends. Very foul ground surrounds the island. A wooded islet, 100 feet high, several small islets and numerous rock and shoal spots are along the northwest shore of Green Island. A prominent outlying rock, 26 feet high, is 1.2 miles northwest of Putnam Point. The west side of Green Island is cluttered with rocks and shoal areas. A rock, 15 feet high, at 60°14'55"N., 147°32'26"W., marks the westernmost danger in this area.

(733) **Gibbon Anchorage** is a secure harbor for craft up to 500 tons in the cove about the middle of the northwest side of Green Island. Pass 0.3 mile south of the outlying prominent 26-foot-high rock; avoid a ½ fathom shoal about 0.6 mile southwest of the rock in 60°16'53"N., 147°28'49"W. Steer southeast for **Putnam Point**, the prominent wooded point with a small bluff on the southwest side of the cove. A 9-foot high rock in 60°16'55"N., 147°27'10"W, is 0.6 mile southeast from the 26-foot-high rock. When about 0.2 mile from shore, steer more east and pass midway between Putnam Point and the islet, 0.2 mile north of the point. Anchor in the cove southeast of the islet in about 3 fathoms. A 1½ fathom shoal is in the center of the cove in 60°16'29"N., 147°26'04"W.

(734)

Passage between Green and Montague Islands

(735) The middle of the east side of Green Island is characterized by a prominent sand and gravel point, sparsely wooded. A group of five rocky islets is 1 mile off this point. **Channel Island**, 62 feet high and the highest of the group, is tree covered. A sandspit, terminating in low rocks, extends 0.4 mile northeast from this group.

(736) The bottom is very irregular between Channel Island and Montague Island. Shoal depths ranging from ¾ fathom to 10 fathoms were found in this area. The best water apparently is about 0.2 mile southeast of Channel Island.

(737) **Caution:** The area between Green Island and Montague Island has many rocks and shallow reefs. The area is foul and should be avoided.

(738) **Port Chalmers**, on Montague Island 5 miles south of Graveyard Point, is south of **Gilmour Point** and extends northeast about 1.2 miles. At its northeast end are two small lagoons, the outer one having about 3½ feet of water along its south shore.

(739) A small wooded island, 165 feet high, is 1 mile southwest of Gilmore Point. An islet, 10 feet high, is 0.16 mile southeast of the island. Also, a kelp-marked reef that uncovers 9 feet and other dangerous rocks and shoal areas extend almost a mile north of the island.

(740) The approach to Port Chalmers is hazardous and great care should be taken due to the changes caused

by the March 1964 earthquake. A kelp-covered reef that uncovers approximately 8 feet at low water is 0.4 mile east of the wooded island directly in line with the port. This reef is left southward upon entering. Care should also be taken to avoid the reef which covers at extreme high tide and is located about 0.7 mile southeast of Gilmore Point.

(741) Anchorage for small craft can be had in all weather at the head of Port Chalmers, between the reef and the lagoon entrance. There is excellent holding bottom of mud in 6 to 10 fathoms. On the upper half of the tide small craft drawing not more than 5 feet enter midchannel into the lagoon at the head of the port; they can lay in the lagoon at all times in any weather, except during extreme ranges of tide. A range (astern) of Channel Island off Green Island with Horn Mountain on Knight Island, can be used to pass 400 yards north of the 165-foot-high island and avoid the dangers in the approach. The reef 0.4 mile northeast of **Wilby Island** uncovers approximately 4.5 feet. Another reef, which uncovers 4 feet, is 0.9 mile west-southwest of Wilby Island. **Mariners should exercise caution navigating these waters. Numerous shoals and rocks bare at minus tides because of an uplift of about 11 feet caused by the March 1964 earthquake.**

(742) Small cannery tenders frequently anchor in 10 to 12 fathoms about 0.2 mile inside the 95-foot-high island southwest of the 165-foot-high island. To enter this area pass midway between the two islands. Several dangers exist in this area. The chart is the best guide.

(743) The small bay just north of Gilmour Point offers good protection and anchorage in 2 to 8 fathoms, mud bottom. The entrance is clear of dangers on a midchannel course.

(744) **Stockdale Harbor**, just south of **Graveyard Point**, has three small tree-covered islets in the south part of the harbor that connects to one another and to Montague Island at low tide. The north half is clear except for a kelp-marked ¾-fathom reef which is 0.4 mile southwest of the north entrance point in 60°19'18"N., 147°13'12"W. Anchorage is available in 15 to 20 fathoms along the north side of the harbor providing sufficient protection for small vessels against northeast winds. The south end of the harbor is fouled with rocks and shoals and should be avoided.

(745) A 3/4-fathom submerged reef marked by kelp, is 1.4 miles southwest of Graveyard Point.

(746) **Montague Point** is the large rounded north end of the west side of Montague Island. The shoreline is foul from Graveyard Point to Montague Point. A 1-fathom spot depth (60°22'42"N., 147°04'38"W.) is about 0.4 mile northeast of Montague Point.

(747) **Applegate Rock** is actually a reef that bares approximately 10 feet for a distance of 0.4 mile at high water. The reef is marked by **Applegate Shoal Light** (60°21'19"N., 147°23'34"W.), 24 feet above the water and shown from a skeleton tower with a red and white diamond-shaped daymark. A second reef 0.25 mile northeast of Applegate Shoal Light extends 0.3 mile and bares about 3 feet at high water. Numerous rocks are in the vicinity of the reef. Foul ground extends to about 2.8 miles southwest of the light.

(748) The passage between Seal Island and Applegate Rock reef area has ample depth for a width of about 2 miles. The broken bottom within 1.5 miles of Seal Island and that adjacent to the reef area should be avoided.

(749) The passage between the reef area and Green Island has ample depth for a width of about 0.7 mile. A 6.2-fathom shoal at 60°19'39"N., 147°22'33"W. and the area within 0.7 mile of Applegate Shoal Light should be avoided. The 25-foot-high rock 1.2 miles north-northwest of Putnam Point is a good leading mark in entering this passage from the north.

(750) **Latouche Island**, on the west side of Montague Strait, is wooded to about 500 feet and above this is covered with moss and bushes, except the highest peaks, which are bare. The east shore is precipitous and the 100-fathom curve is less than 0.3 mile off in places.

(751) **Danger Island**, 1.4 miles south of Latouche Island, is low and wooded. The entire island is surrounded by reefs and rocks extending to 0.1 mile along the south side, to 0.7 mile to the southwest and to 0.5 mile to the northwest. A kelp bed extends from Latouche Island to Danger Island. Passage between the two islands should not be attempted.

(752) **Point Helen**, the southeast extremity of Knight Island, is marked by **Point Helen Light** (60°09'11"N., 147°45'59"W.), 35 feet above the water and shown from a skeleton tower with a red and white diamond-shaped daymark.

(753) **Hogan Bay**, on the east side of Knight Island, 2.5 miles north of Point Helen, has anchorage in the middle, 0.6 mile inside the entrance, in 16 to 20 fathoms. The bottom is rocky and uneven, and the anchorage is exposed east. A rock covered ¾-fathom is about 0.1 mile off the north shore of the bay and about 0.5 mile inside the entrance. Small craft can pass through the narrow channel at the head of the bay and find secure anchorage in the inner cove in 13 fathoms or less, having a coarse pebble bottom. There is a ledge on the east side of the inner cove that extends outward about 109 yards that should be avoided. Favor the steep sloping spit on the west side of the channel when entering the inner cove.

(754) **Snug Harbor** is on the east side of Knight Island, 6.7 miles north of Point Helen. Its west arm is 0.3 mile wide and clear near midchannel, except for a 6.7-fathom shoal east-northeast of its entrance in about 60°15'19"N., 147°44'09"W. Secure anchorage is available at its head in 9 to 17 fathoms. Anchorage, exposed to north and northeast winds, can be had in the broad cove on the south side of the harbor in 12 to 15 fathoms, rocky bottom. **Discovery Point**, the south entrance point to Snug Harbor, is bold and high.

(755) A 14-fathom pinnacle is 1.5 miles northeast, position approximate, and a 5½-fathom rock area is 2.0 miles north-northeast from Discovery Point.

(756) **Marsha Bay**, 5 miles north of Discovery Point, has a crooked narrow entrance and is suitable only for small

craft. The depths are great except at its north end, where anchorage can be selected in 9 fathoms or less. The best entrance is north of the island that chokes the mouth of the bay. The north passage is deeper and wider than the south passage. Extreme caution is advised because rocks and shoal areas abound.

(757) **Manning Rocks**, about 1.5 miles off the entrance to Bay of Isles, are three pinnacles which, because of the 1964 earthquake uplift, are now bare at low water. Surrounded by deep water, they are the worst dangers on the east side of Knight Island. Between Manning Rocks and the foul ground in the entrance to Bay of Isles the bottom is very irregular, although the least depth found is 2 fathoms. This area should be avoided.

(758) **Bay of Isles**, on the east side of Knight Island, has numerous islets and pinnacle rocks, submerged and awash, and is suitable only for small vessels proceeding with caution and preferably at low water.

(759) Foul ground extends 0.5 mile southeast from the north point of the entrance to Bay of Isles. At the end of the foul ground is a rock covered 1¾ fathoms, 0.9 mile east-northeast from an island near the north shore.

(760) To enter Bay of Isles, pass in midchannel north of the islets in the middle of the bay. Continue 0.5 mile past the islets, and pass in midchannel west of the islands near the south shore. Then keep about 150 yards off the north shore in entering West Arm. Anchor in the middle of the broad part of the arm in 9 to 11 fathoms.

(761)

Latouche Passage to Point Countess

(762) **Latouche Passage** has its seaward entrance between Danger Island and Erlington Island. The entrance bar, with depths of 3.3 to 9.0 fathoms, has sometimes been crossed by large vessels proceeding west from Latouche. The recommended route, however, is by way of Erlington Passage and the north part of Latouche Passage. Numerous submerged rocks and shoals with depths from 3.0 to 4.4 fathoms are about 1 mile north of Danger Island in 59°56'39"N., 148°05'25"W. to about 2 miles south of Point Erlington in 59°54'10"N., 148°14'22"W.

(763) Occasionally with west winds large pieces of glacial ice drift into Latouche Passage from Knight Island Passage.

(764) Latouche Passage, east of Elrington Island, is 7 miles long and 0.7 to 1.3 miles wide with depths under 30 fathoms in most places. Anchorage can be selected nearly anywhere in this channel in suitable depths, but it should be avoided in strong south winds. Avoid the east part of the passage in the vicinity of Izmaylov Island, the crescent-shaped islet 2.2 miles southwest of Chicken Island. Rocks and kelp are in the passage between **Izmaylov Island** and Latouche Island.

(765) A rocky ledge extends 220 yards from the west shore of Latouche Island and lies directly east of Izmaylov Island. A rock lies 120 yards from the northwest tip of Izmaylov in about 60°00'42"N., 147°59'25"W.

(766) From **Point Grace**, the north point of Latouche Island, to the north end of Elrington Island, a distance of 5 miles, Latouche Passage is about 1.8 miles wide, with deep water. A ledge extends about 200 yards off the east shore of Latouche Island 0.3 mile southeast of Point Grace, and a dangerous rocky reef, awash at low tide, lies about 300 yards off the west shore of Latouche Island 0.8 mile southwest of Point Grace in 60°04'20"N., 147°52'27"W.

(767) The southeast shore of the east end of **Evans Island** between Johnson Cove and **Bishop Rock** is foul with pinnacle rocks. A dangerous rock, awash at minus tide levels, lies 1.9 miles southwest of Bishop Rock, in about 60°04'46"N., 147°55'58"W., about 0.1 mile off Evans Island. An unnamed wooded island, is near the east end of Evans Island, 0.8 mile north of Bishop Rock. The island is connected to the shore by a gravel bar at low tide.

(768) **Latouche**, on the west side of Latouche Island 2.3 miles south of Point Grace, is the site of the abandoned copper mine of the Kennecott Copper Corp. The buildings are in ruins. Girwood, 0.3 mile north of Latouche, is the site of a homestead. There are piles on the beach in this vicinity.

(769) The cove immediately east of **Powder Point** is shoal, and a reef extends 100 yards from the point. Anchorage can be had about 600 yards north of Powder Point in 10 to 15 fathoms.

(770) Two rocks lie about 300 yards west of Powder Point at 60°03'00"N., 147°54'37"W. Another rock lies about 500 yards southwest of Powder Point at 60°02'56"N., 147°54'43"W.

(771) **Chicken Island**, 3.5 miles southwest of Point Grace, is separated from Latouche Island by a pass 200 yards wide with a depths less than 3½ feet. A rocky ledge extends about 130 yards west of Latouche Island towards the southeast end of Chicken Island. Only small craft should attempt the passage between Chicken Island and Latouche Island, and then only at high water. A reef, 200 yards in length, runs northeast to southwest and lies in the middle of **Wilson Bay**, just east of the north end of Chicken Island.

(772) **Horseshoe Bay** is on the west side of Latouche Island, 4.5 miles southwest of Point Grace. Its south half is shoal with depths of 1/3 fathom. Small craft should enter near the north shore of the bay where they can anchor in about 3 fathoms. A mooring pile is in the north part of the bay. Vessels can also anchor about 0.3 mile off the entrance in 16 fathoms.

(773) **Elrington Passage**, west of Elrington Island, is generally used by vessels proceeding between Prince William Sound and points to the west. It is 8 miles long, 0.5 to 1 mile wide, deep and clear. Anchorage is not easily found because of the great depths. The passage is well marked.

(774)

Currents

(775) The flood current sets northeast and the ebb southwest with a velocity of about 1.5 knots.

(776) **Elrington Island**, high and mountainous, is between Latouche Passage and Elrington Passage. The southwest end of the island has three prominent points between which are South Twin Bay and North Twin Bay.

(777) **Point Elrington**, the southwest end of the island, is a small hill, high and wooded, with cliffs at the water and is joined to the island by a sand and gravel neck just above high water. A hill, 1,060 feet high, 1.4 miles east of the point, has a low divide about 100 feet high at the east end, separating it from the main island.

(778) **Point Elrington Light** (59°56'09"N., 148°15'02"W.), 30 feet above the water and shown from a skeleton tower with a red and white diamond-shaped daymark, marks the extremity of the point.

(779) **South Twin Bay** is free from dangers and affords convenient anchorage in 14 to 17 fathoms, hard bottom with patches of sand and gravel. It is exposed to west and southwest winds.

(780) **North Twin Bay** is free from dangers except for a rock covered 1.9 fathoms in 59°57'40"N., 148°12'36"W. and about 300 yards off the south shore. Anchorage can be found in the center of the bay in 13 to 17 fathoms. Of the twin bays, the best shelter is usually found in the south one.

(781) The north point at the southwest end of Elrington Island is a high hill, connected with the island at its southeast end by a long, low, wooded neck. **Lonetree Point**, the most north extremity of the point, is marked by a prominent lone tree and **Lonetree Point Light** (59°58'56"N., 148°12'00"W.), 30 feet above the water, shown from a skeleton tower with a red and white diamond-shaped daymark.

(782) On the southeast end of Evans Island is **Evans Island Light** (59°59'06"N., 148°07'28"W.), 20 feet above the water, shown from a skeleton tower with a red and white diamond-shaped daymark.

(783) A high island is in the bend at the south end of the passage close to Elrington Island, from which its southeast point is separated by a narrow pass dry at low water. Anchorage in about 34 fathoms with mud bottom and limited swinging room is reported south of the high island in what is locally called **Fox Farm Bay**. This anchorage offers good protection in most weather.

(784) A pyramidal pinnacle rock, about 8 feet high with grass on top, is about 250 yards off the north point at the southwest entrance to Elrington Passage, about 1.4 miles northeast of Lonetree Point Light. A grass-covered rock, 32 feet high with some brush on its summit, is near the angular mountain point on the east side of the passage, 3.2 miles east of Lonetree Point Light. In the southeast angle of the passage, 1.4 miles southwest of the grass-covered rock, anchorage can be had in 5 to 20 fathoms, muddy bottom, depending on the swinging room required.

(785) The north end of Elrington Passage is marked by **Elrington Passage Light** (60°02'46"N., 148°00'40"W.), 25 feet above the water and shown from a skeleton tower with a red and white diamond-shaped daymark, on the south extremity of the island west of Bettles Island.

(786) **Sawmill Bay** indents the east side of Evans Island near the north entrance to Elrington Passage. The end of the long peninsula on the southeast side of the inner part of the bay is marked by **Sawmill Bay Light 3** (60°03'13"N., 148°02'13"W.), 14 feet above the water, shown from a skeleton tower with a green square daymark, and visible through the entrance north of Bettles Island. The entrance from Elrington Passage is 700 yards west of Elrington Passage Light between two islands west of Bettles Island; a daybeacon marks a reef about 0.5 mile northwest of Elrington Passage Light that uncovers 3 feet.

(787) There is a 2.2-fathom shoal at the east approach to Sawmill Bay, approximately 800 yards south of Johnson Cove at 60°03'25"N., 147°58'34"W. A rocky 8-fathom patch is about 900 yards north of the peak of Bettles Island. A shoal of 7½ fathoms lies 850 yards east of the daybeacon northwest of Elrington Passage Light at 60°03'10"N., 148°00'37"W. There are two sets of oil deflection booms deployed at the entrance to Sawmill Bay. The first set of buoys runs about 2,200 yards southwest from the west point of the mouth to Johnson Cove. The second set of buoys runs from Port Benney (60°03'48N., 148°00'54"W.), in a southwest direction to Sawmill Bay Light 3. In the event of an oil spill, containment booms will be extended along the buoys.

(788) **Local magnetic disturbance** was reported in Sawmill Bay and in the waters between Elrington and Bettles Islands in 1974. Extent of the disturbance is not known.

(789) **Johnson Cove**, on the northeast side of Sawmill Bay entrance, has an abandoned saltery at its head. The cove is foul with 4 feet in the basin near its head.

(790) **Bettles Island**, the largest of the high wooded islands at the entrance to Sawmill Bay, has foul ground along its north and south shores.

(791) **Crab Bay** is a small indentation on the north shore of Sawmill Bay. A saltery just inside the west entrance point has a wharf in ruins. A small boat harbor with a floating pier available for seaplanes and small craft is on the west side of the bay and marked by a daybeacon. A reef covered 1 fathom is about 300 yards southeast of the daybeacon in about 60°03'48"N., 148°00'18"W. Two steel pilings are reported to lie across from the small boat harbor in about 60°04'02"N., 148°00'29"W.

(792) **Chenega Bay**, a Native community on the west entrance point to Crab Bay, is home to about 21 families. The village has a school, church and a community center, which includes a post office, health clinic and Village Council Office; electricity and telephone; an Alaska State Ferry pier with ferry service to Seward and Valdez (weekly service in summer and monthly service in winter); a small boat harbor with 15 slips, diesel fuel, gasoline, water and a 3,000-foot gravel air strip. Chenega

Bay was established in 1984 after Chenega, on the south end of Chenega Island 13 miles north, was abandoned after the 1964 earthquake.

(793) **Port Benney** (abandoned) was formerly the site of a saltery just west of Crab Bay. There is a small floating pier in the protected cove at the port.

(794) **Port Ashton**, on the northwest shore of Sawmill Bay, has been destroyed by fire and a series of pilings and dolphins mark the extent of the pier ruins. A group of rocks, awash at extreme low water, are about 115 yards offshore and about 260 yards northeast from the wharf ruins.

(795) **Port San Juan** is at the southwest end of Sawmill Bay and is the site of a fish hatchery. A wharf with a 200-foot face had a reported least depth alongside of about 22 feet in 2000. A waterfall is behind the fish hatchery. A fish pen lies 90 yards east of the hatchery pier and is marked by orange buoys on each corner. A daybeacon lies about 500 yards east of the pen. A rock covered ½ fathom, is about 150 yards south of the daybeacon. Another rock, covered 1¼ fathoms, is about 325 yards northeast of the wharf. In the approach to the wharf, there are spots with less than 4 ½ fathoms over them. A small boat pier is opposite of Port San Juan about 0.3 mile southwest of Sawmill Bay Light 3.

(796) Careful maneuvering is required for a large vessel to get away from this wharf safely. The practice is to swing the stern out and back toward the island before turning.

(797)

Anchorages

(798) Sawmill Bay has no good anchorage for larger vessels and the holding ground is poor. Smaller craft may find suitable anchorage in some coves throughout Sawmill Bay.

(799) Sawmill Bay can be entered by either the northeast or the southwest entrance. The former is recommended because of its greater width. In proceeding toward the southwest end of the bay, vessels can pass on either side of the small oval-shaped island in the middle of the bay. If passing on the north side, the island should be favored to avoid the rocks off Port Ashton. When entering through the southwest entrance, care should be taken to avoid a reef on the east side of the entrance in about 60°02'54"N., 148°01'03"W.

(800)

Currents

(801) Little or no current exists in Sawmill Bay.

(802) **Prince of Wales Passage**, between Evans Island and **Bainbridge Island**, is about 11 miles long and from 0.5 to 2 miles wide. It offers a direct route from Knight Island Passage for vessels bound southwest along the coast; otherwise Elrington Passage is more direct and is generally used.

(803) Prince of Wales Passage has several dangers. The principal channel at the north entrance is east of Flemming and Ship Islands, and the 2¼-fathom shoal in 60°08'19"N., 148°02'07"W., about 0.5 mile south of Flemming Island, then west of Iktua Rocks. A shoal area with a depth of 8 fathoms in about 60°06'15"N., 148°04'48"W., is about 500 yards offshore and about 0.4 mile southeast of a prominent point on the east side of Bainbridge Island. A shoal area with a least depth of 8 fathoms extends about 375 yards offshore to about 60°05'17"N., 148°05'56"W. Several wooded islands are on the east side of the passage from 3.2 to 5 miles south of Flemming Island. The area between them and Evans Island is foul and the tidal currents have a velocity of 2 to 3 knots. Near midchannel west of the middle island is an area of broken ground on which the least depth is 4 fathoms and extends over 0.7 mile southwest from 60°05'09"N., 148°05'27"W. A shoal area with a least depth of 2½ fathoms in about 60°03'54"N., 148°07'28"W., extends about 500 yards off Bainbridge Island and lies about 1.2 miles northeast of **Amerk Point**, a prominent low sand point with a fringe of trees on Bainbridge Island. These areas should be avoided by vessels.

(804) The channel west of **Flemming Island** has considerable foul ground and should be avoided without local knowledge, except possibly small craft proceeding with caution and preferably at low water. Good anchorage in 4 to 16 fathoms, mud bottom, is west of the south end of Flemming Island at **Panhat Point** on Bainbridge Island. To enter the anchorage area from the south, pass 300 yards off the point on the north course until 500 yards north of the point, head west and then south to the anchorage.

(805) **Gage Island**, wooded and with a group of partly bare rocks off its south side, is 0.5 mile north of Flemming Island and is a good mark for the north entrance of Prince of Wales Passage.

(806) **Ship Island**, with a few trees, is the south of two on the east side of Flemming Island. A reef bare at low water extends 225 yards southeast.

(807) **Iktua Bay**, in the northwest shore of Evans Island, opens to the north on the east side of the passage about 1.5 miles south of Flemming Island. The bay, 1.5 miles long, is about 0.6 mile wide at the entrance and narrows to about 0.4 mile midway of its length. The east shore of the bay has several off-lying dangers and may be followed 300 to 350 yards offshore to the head of the bay and anchorage in 3 to 14 fathoms, mud bottom. The west shore of the bay may be followed about 200 yards off for 0.7 mile until abeam of the south of two small islets. Good anchorage for small craft in 2 to 10 fathoms, mud bottom, is east of these islets.

(808) **Iktua Rocks**, a group of bare rocks, highest about 3 feet, are 0.4 to 0.5 mile off Evans Island and 1.5 miles south of Flemming Island.

(809) **Guguak Bay** is on the east side of the passage about 1.3 miles south of Iktua Rocks. A rock that bares at half tide marks the west side of the narrow entrance. Rocks, which uncover, are across a narrow portion of the bay, about 0.2 mile south of the entrance. There is anchorage in 3¾ to 7 fathoms outside the bay entrance.

(810) The only good anchorage in Prince of Wales Passage is in circular **Squirrel Bay**, at the southwest point of Evans Island. Anchorage can be found near the center of the bay in 12 to 22 fathoms, sand and mud bottom of fair holding qualities.

(811)

Ice

(812) Glacial ice is sometimes discharged through Prince of Wales Passage.

(813)

Currents

(814) Off Amerk Point at the narrowest part of the passage, the flood sets north at a velocity of 0.8 knot and ebbs southwest at a velocity of 2.5 knots. Between Flemming and Evans Islands at the north end of the passage the velocity is from 1.5 to 2 knots. See the Tidal Current prediction service at *tidesandcurrents.noaa.gov* for specific information about times, directions, and velocities of the current at numerous locations throughout the area. Links to a user guide for this service can be found in chapter 1 of this book.

(815) **Bainbridge Passage**, between Bainbridge Island and the mainland, extends northeast for 10 miles from Port Bainbridge to Knight Island Passage. A 6.7-fathom shoal in 60°06'33"N., 148°17'22"W., is in the middle of the west entrance to the passage.

(816) **Point Waters** is the northwest point of the southwest entrance to Bainbridge Passage. A ledge with rocks awash is 250 yards offshore.

(817) Two outlying dangers, submerged at high water, are in the passage. A ledge that uncovers 3 feet is about 200 yards off the point about 3 miles south of **Point Countess**, the northwest point of the northeast entrance to Bainbridge Passage. Another ledge that uncovers 4 feet is about 250 yards off the north shore, 1.8 miles east of Point Waters, the northwest point at the west entrance to the passage. Although there is deep water between both these ledges and the north shore, vessels should pass southeast of them.

(818) A recommended anchorage in the passage is in the small bay about 2.2 miles southwest of Point Countess. Care should be taken, however, to avoid the rock that uncovers 6 feet in the middle of the bay and the ledge that extends off the northeast entrance point. A 2-fathom shoal in 60°10'39"N., 148°07'05"W., is about 0.3 mile southeast of the entrance to the bay.

(819)

Currents

(820) The tidal current in Bainbridge Passage floods northeast at a velocity of 3.1 knots and ebbs southwest at 2.4 knots. See the Tidal Current prediction service at *tidesandcurrents.noaa.gov* for specific information about times, directions, and velocities of the current at numerous locations throughout the area. Links to a user guide for this service can be found in chapter 1 of this book.

(821)

Knight Island Passage to Pleiades Islands

(822) **Knight Island Passage**, on the west and south sides of Knight Island, is used by vessels calling at bays on the west side of Knight Island. With east winds it offers a smoother channel from Latouche Passage to the north end of the Naked Island group than the generally used route east of Knight Island.

(823) From its north entrance between Herring Point and Crafton Island, where it is 5 miles wide, the passage extends south for about 16 miles to Pleiades Islands, with a least width of 2 miles at the southeast end of Chenega Island. The channel leads east of the Pleiades, where it is 1.2 miles wide between them and Point of Rocks. From these islands the passage has a southeast trend for 10 miles, with widths of 3 to 4 miles, to Montague Strait between Point Helen and the north end of Latouche Island.

(824) The waters of both shorelines of the Knight Passage are characterized by rocky and exceedingly broken bottom. Differences of 50 fathoms between adjacent soundings are not uncommon. As a measure of safety, deep-draft vessels should avoid areas where abrupt changes are indicated by the chart to depths less than 50 fathoms. The depths in the passage range from 40 to 400 fathoms. The west side is generally bold, except for the bight between Crafton Island and Point Nowell. From Lower Herring Bay to Pleiades Islands, the east shore is foul for 0.8 mile off, with islands, rocks and reefs. The bays on the west side of Knight Island are not good anchorages. Small craft can anchor in nearly all the arms of the bays, but the bottom is generally rocky.

(825) **Pleiades Islands**, in the middle of the bend in Knight Island Passage, are a chain of seven wooded islands 1 mile long. The southernmost and largest is about 90 feet high. One hundred yards northwest of the northernmost island is a bare rock islet and south of the southernmost wooded island is a long, low lying reef that extends 300 yards. A rock, about 400 yards west of the middle of the chain, bares at low water. Two large rocks, covered 3 feet, are on the 9-fathom bank about 200 yards east of the north end of the southernmost island. **Pleiades Light** (60°14'23"N., 148°00'38"W.), 30 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on the north end of the northernmost island of the group.

(826)

Currents

(827) The tidal currents in Knight Island Passage have a velocity of 1 to 2 knots. See the Tidal Current prediction service at *tidesandcurrents.noaa.gov* for specific information about times, directions, and velocities of the current at numerous locations throughout the area. Links to a user guide for this service can be found in chapter 1 of this book.

(828)

Ice

(829) Considerable glacial ice has been seen in the passage south of Pleiades Islands. It comes east between Point Countess and Chenega Island and drifts as far as Latouche Passage with the ebb.

(830)

Little Bay to Thumb Bay

(831) **Little Bay**, on the south side of Knight Island, 1.8 miles northwest of Point Helen, has no known dangers except for the rocks awash close to the head. The depths are 13 to 18 fathoms, rocky bottom, and it is a fair anchorage except with south winds.

(832) **Mummy Bay**, in the south end of Knight Island, is deep and clear, but rocks extend 0.3 mile from the head. Small vessels can anchor 0.5 mile from the head in 15 to 20 fathoms. **Northeast Arm** is an anchorage for small craft. Caution should be used when anchoring to avoid the shoal that extends 200 yards from the east side of the small tree covered island at the entrance to the arm.

(833) **Thumb Bay** is a small inlet opening into the south part of Mummy Bay. The bay affords anchorage for small vessels in 12 to 22 fathoms with limited swinging room and rocky bottom. No swell makes in the anchorage and the holding ground is good. The anchorage is protected from winds from all directions except northwest.

(834) **Lucky Bay** and **Italian Bay** are unimportant inlets on the south shore of Knight Island between Long Channel and Mummy Bay.

(835)

Squire Island to Aguliak Island

(836) **Squire Island** and Mummy Island, two large islands on the east side of Knight Island Passage, are separated from Knight Island by Long Channel. Squire Island, the south one, is the higher of the two. A drying ledge is 0.3 mile southwest from **Squire Point**, the south end of the island. Two small islands are 0.3 mile off the west side of Squire Island, and from these islands a large reef extends 0.4 mile west to **Point of Rocks**, the latter awash at high water. The channel between Mummy and Squire Islands leading into Long Channel has rocky, broken bottom and should be used with caution.

(837) **Long Channel** is an inside passage, 4.5 miles long, for small craft from Drier Bay to the south part of Knight Island Passage. The channel narrows to 80 yards abreast Mummy Island. Numerous shoals to 1 fathom and a rock that uncovers at low water are between Mummy Island and the middle of the passage. Vessels should favor the east side and keep within 100 yards of Knight Island to avoid the dangers. A rock, covered at high water, is in the north entrance 0.3 mile east from the north end of Mummy Island. The tidal currents have little velocity.

(838) **Copper Bay**, on the east side of Long Channel, is abreast the north end of Squire Island. Its entrance is very narrow and foul and suitable only for small craft with local knowledge. The tidal currents have considerable velocity in the entrance.

(839) **Mummy Island**, on the south side of the entrance to Drier Bay, is high and wooded; on the south half of the island are patches of grass. Reefs extend 0.3 mile southwest from the north end of the island, and wooded islets with reefs around them extend 0.6 mile west from the middle of the island.

(840) **New Year Islands** are on the north side of the approach to Drier Bay. They are wooded, and the largest is 200 feet high. **New Year Islands Light** (60°18'46"N., 147°55'04"W.), 23 feet above the water and shown from a skeleton tower with a red and white diamond-shaped daymark, is on the southwest side of the island south of the largest island. Bare reefs extend 300 yards southwest from the light. Rocks that uncover, about 500 yards north-northeast from the north island in 60°19'24"N., 147°54'39"W., are a serious danger in the channel between New Year Islands and the islands to the north.

(841) **Drier Bay** has its main approach between New Year Islands and Mummy Island. The southeast shore of the bay is indented by a number of smaller bays and coves. Drier Bay has been examined from the 50-fathom curve at the entrance to the head of the north arm and found to be clear of dangers except those charted.

(842) Local knowledge may be required in recognizing the entrance to Drier Bay, as there are several groups of islands on the east side of Knight Island Passage, both north and south of the entrance. Approaching from north, the island in the mouth of Johnson Bay is a good mark. The chart is the guide.

(843) **Clam Islands**, two in number, low and wooded, are between New Year Islands and **Rocky Point**, the north point of Drier Bay. A 3.1-fathom rocky patch is 0.3 mile south from Clam Islands, about in the middle of the entrance.

(844) **Range Isle**, small and wooded, is close to the north side of Drier Bay and 2 miles east of New Year Islands. The line of Range Isle just clear of the north shore east of it, leads about midway between Mummy Island and New Year Islands and is sometimes used as a range for entering the bay.

(845) **Cathead Bay** is on the south side of Drier Bay, 2 miles from Mummy Island. Two islands are in the upper part of the bay. In the entrance of the bay, 0.1 mile from the west side, is a 0.6-fathom shoal. A depth of 1.9 fathoms is midway between the two islands and depths to 1.2 fathoms are 150 yards east of the south island. A large foul area extends 175 yards south of the south island almost to shore.

(846) **Cathead Shoal**, with a least known depth of 3½ fathoms, is about 500 yards northeast from **Cat Head**, the point on the west side of Cathead Bay entrance. Entering Cathead Bay, favor the east side to avoid Cathead Shoal and the 0.6-fathom shoal, then proceed with caution on either side of the islands at its head.

(847) **Mallard Bay**, on the south side 2.5 miles inside Mummy Island, is foul for a distance of 0.2 mile from its

head. Approaching with care, anchorage can be made 0.4 to 0.7 mile from the head in 17 to 26 fathoms. No swell makes into the anchorage, but williwaws are possible during heavy southeast weather.

(848) **Barnes Cove** is obstructed by ledges at its entrance, and shoals extend from the shores. Small craft entering with care can find good anchorage in 6 fathoms. Vessels can anchor 300 to 500 yards off the entrance in 18 fathoms.

(849) The point on the northeast side of Barnes Cove is prominent and high, with bare rocky slides. A reef extends 150 yards off the northwest side of this point.

(850) **Chase Island**, small and wooded, is 700 yards from the northwest side of Drier Bay and 1.8 miles east of Range Isle. A ledge awash and numerous rocks, covered and awash, extend 200 yards southwest to 200 yards southeast of Chase Island.

(851) A ledge awash at half tide is 0.4 mile northeast of Chase Island. A rock that uncovers at lowest tide is 275 yards north-northwest of the half-tide ledge.

(852) **Northeast Cove**, at the head of Drier Bay, is small and has shoals at its entrance and also inside for 0.1 mile from its head. Small craft entering with care can find good anchorage in 2 to 3 fathoms. Vessels can anchor 300 to 500 yards off the entrance in 17 to 19 fathoms. A 2.5-fathom shoal in 60°19'33"N., 147°45'43"W., is about 200 yards offshore and 0.4 mile west from the entrance. Anchorage can be selected about 0.3 mile from shore in the northeast end of Drier Bay, in about 20 fathoms.

(853) **Port Audrey** is the north arm of Drier Bay. A rock covered 1.2 fathoms in 60°20'26"N., 147°46'04"W., is about 500 yards south of the entrance to the lagoon at the head of the arm. The lagoon has a depth of 0.5 fathom in the entrance and good anchorage inside for small craft in 4 to 5 fathoms. A flat extends 250 yards from the head of the lagoon. Violent winds blow in and out of Port Audrey.

(854) **Squirrel Island**, 1 mile north of New Year Islands and 0.5 mile from the east shore, is the northernmost of the islands extending 1.5 miles north of the entrance to Drier Bay. It is high and wooded.

(855) **Johnson Bay** is suitable only for small craft; mariners without local knowledge should enter at low water only and proceed with caution in the vicinity of all broken ground. A wooded island is in the mouth of the bay. The entrance, north of the island, is about 125 yards wide between reefs that bare. The axis of the channel is about 125 yards from the north shore. From Knight Island Passage, a course for the north point at the entrance in range with a pyramidal peak of black rock, 2,090 feet high, above the head of the bay, will lead between the outlying dangers to the entrance.

(856) A covered rock, dangerous for small craft, is 0.1 mile south of **Aguliak Island** and a 2½-fathom shoal is about 0.4 mile southwest of the island. In 1999, there was a 5-fathom shoal about 0.47 mile south of Aguliak Island in about 60°21.2'N., 147°53.3'W, and about 0.93 mile southwest of Aguliak Island, there was a 4-fathom shoal in about 60°20.9'N., 147°53.9'W.

(857)

Channel Rock to Jackpot Bay

(858) **Channel Rock**, a prominent, bare, black rock about 6 feet high, is about 1 mile off the entrance of Lower Herring Bay and is a good mark for Knight Island Passage. A rock that uncovers is 1.4 miles north-northeast from Channel Rock and 0.6 mile from the shore of Knight Island. From this rock south, the east side of Knight Island Passage is very broken and foul, with deep water extending close to the dangers.

(859) **Lower Herring Bay** is suitable only for small craft. The best entrance is east of Channel Rock. The principal danger in the bay is a rock that uncovers 9 feet, which is in the middle, 600 yards from the east end of the bay. The passage between this rock and the point north, between the two arms, should be used with caution. A midchannel course should be followed in the arms. Small craft can anchor in the cove on the south side 1.2 miles inside the entrance of the bay, in not less than about 10 fathoms.

(860) A narrow deep passage, suitable for small craft, follows the shore inside the islands between Lower Herring and Johnson Bays. Mariners without local knowledge should take it at low water and exercise care. In 1968, a reef was reported at the entrance to Lower Herring Bay in 60°22.8'N., 147°52.3'W., and, in 1974, a 1¼-fathom spot was found about 0.4 mile southwest of the reef in 60°22.7'N., 147°52.8'W.

(861) **Chenega Island**, on the west side of Knight Island Passage, has a bold but fairly regular shore bordering on Knight Island Passage. Its highest summit is near the center. The south shore of Chenega Island is indented by several small bays where small vessels can find anchorage and shelter from the prevailing northeast storms.

(862) **The March 1964 earthquake caused a bottom uplift of 4.9 feet at Chenega Island. Shoaling and new dangers may exist requiring extreme caution until a complete survey is made of the area**.

(863) **Chenega**, an abandoned village, is at the head of a cove indenting the south end of the island, which is marked by three small wooded islets. A rock bares 4 feet 150 yards north of the northernmost islet. A school in the village is in ruins. There is a prominent landslide back of the abandoned village. The residents of Chenega relocated to Chenega Bay in Sawmill Bay at Evans Island, 13 miles to the south.

(864) Small vessels can anchor in the cove fronting Chenega, in 5 to 15 fathoms, soft bottom. The anchorage is only partly protected from the south by the entrance islets and is not recommended in south weather. To enter, pass 300 yards west of the entrance islets on a **000°** course until within 300 yards of the shore, then swing sharply to the right and head for the school in ruins. Anchor in a suitable depth.

(865) **Whale Bay** indents the mainland 4 miles southwest of Chenega. A low portage at the head of the west arm connects with the head of Port Bainbridge. The bay is

deep, but small craft can find anchorage along the east shore of the south arm and in 6 to 10 fathoms, mud bottom, in the small bight in the north side of the west arm; the latter is a very good anchorage and is directly off a bare cliff that is visible for some distance. Ice from Icy Bay often obstructs the entrance to Whale Bay.

(866) **Dangerous Passage** separates Chenega Island from the mainland. The north entrance of the passage is obstructed for a distance of about 0.6 mile off the north end of Chenega Island by a group of islets and rocks, including **Junction Island**, which is high and wooded. The northernmost obstruction of the group is a 4¾-fathom shoal 0.5 mile north-northwest of the island. It is difficult to pick up the north entrance at night.

(867) About 5.5 miles from the north entrance, Dangerous Passage is restricted by an island and a group of islets. **Delenia Island**, in the middle of the passage, is wooded. A small grassy islet is 275 yards north of Delenia Island; a 1¾-fathom shoal is 425 yards north of the grassy islet. The deepest and straightest channel is between this shoal and the nearby west shore of Dangerous Passage and is 300 yards wide. The channel to the east and south of Delenia Island is wider, but a rock, bare only at lowest tides, is 225 yards east of the grassy islet. There are numerous shoals between the island and the east shore. Deeper draft vessels should pass to the west of Delenia Island, maintaining a distance of not more than 200 yards off the west shore of Dangerous Passage in the vicinity of the 1¾-fathom shoal.

(868) The best anchorage in Dangerous Passage is in the vicinity of Delenia Island. There is good holding ground about 0.3 mile southwest of the Island in 15 to 20 fathoms.

(869) **Granite Bay**, on the north side of the north entrance to Dangerous Passage, has irregular depths and is not recommended for anchorage.

(870) **Paddy Bay** is about 3 miles southwest of Granite Bay. Vessels entering should favor the east side to avoid a 2½-fathom submerged ridge located 0.3 mile west of **Paddy Point**. To avoid dangers, a distance of 200 yards should be maintained from the shore throughout the bay. The small embayment found north of the islets in the lower bay contains numerous shoals and rocks and should be avoided by those without local knowledge. A rock exposes 6 feet at low water, 300 yards west of the south end of the islet near the head of the bay and near the middle of the entrance to the northwest arm. The bay affords anchorage for moderate-sized vessels in either of the two arms at the head.

(871) **Masked Bay** indents the Chenega Island shore of Dangerous Passage opposite Paddy Bay. The wooded islets in the entrance leave a channel only 100 yards wide. Small vessels will find excellent anchorage in the bay but local knowledge is required to anchor. Caution is advised as the bay has numerous rocks.

(872) **Ewan Bay** indents the north shore of Dangerous Passage about 5 miles from the north entrance. Many rocks and shoals extend from the head and both shores of the bay, but midchannel is deep and clear except near the head. The entrance to the lagoon at the head of the bay is obstructed by rocks and rapids. Avoiding the shoal areas extending from the shores, small vessels can anchor near the head of the bay; however, it is rather deep.

(873) **Jackpot Bay** is about 3 miles southwest of Ewan Bay. **Jackpot Island**, wooded, is near the middle of the entrance. The narrows, 1.5 miles above the entrance, have a width of 250 yards. At the upper end of the narrows, a midchannel rock uncovers 8 feet. This rock is on range with the east tangent of the narrows and the highest point of Jackpot Island. Depths in the bay are generally too deep to anchor. Small craft can find good all-weather anchorage in either of the two basins in the north part of the bay; the entrances are narrow but free of dangers.

(874)

Icy Bay

(875) **Icy Bay**, at the southwest extremity of Dangerous Passage, is separated from Port Bainbridge by a narrow neck of land of moderate height. **Verdant Island**, a precipitous, high, wooded island, is off the east entrance point. Active glaciers in **Nassau Fiord** and at the head of Icy Bay keep the bay filled with ice most of the time and make it dangerous for small boats to enter. Anchorage and good shelter from ice can be found in **Gaamaak Cove** on the west shore of Icy Bay, 0.8 mile north of the entrance to Nassau Fiord.

(876)

Ice

(877) All the bays in this vicinity are likely to freeze over in cold weather. The ice floes from Icy Bay at times make navigation difficult west of the Pleiades Islands and extend north into Dangerous Passage. The discharge is continuous but irregular in volume and is mainly southeast. When heavy it blocks the entrance to Whale Bay and passes south of the Pleiades Islands. Isolated bergs of considerable size frequently drift east as far as Latouche and are a menace to navigation. Ice floes have been known to pass south through Bainbridge Passage and then north into Prince of Wales Passage. No ice has been observed east of Delenia Island.

(878)

Procession Rocks to Auk Bay

(879) **Procession Rocks**, 4.3 miles north of Point Elrington Light, are a group of small islets and jagged rocks, the highest rising to about 70 feet. There are twelve principal islets, with a number of smaller rocks and reefs surrounding them. Deep water extends close up to the rocks.

(880) **Port Bainbridge** is a deep body of water that extends about 12 miles north from a line joining Cape Puget and Procession Rocks. Depths of over 100 fathoms are found nearly to the head of the bay. A 7.2-fathom shoal in 60°07'38"N., 148°20'51"W., and on the west side of the bay is about 1.5 miles northwest of Point Waters.

(881) **Point Pyke**, the east entrance point to Port Bainbridge, is a prominent headland that rises almost vertically.

(882) At the head of Port Bainbridge, the west arm extends about 1.5 miles to the north. The water in this arm is deep, but the entrance is blocked by a gravel bar with a least depth of about 1½ fathoms. The best water is close to the east entrance point.

(883) **Bainbridge Glacier**, about 1 mile wide, discharges into Port Bainbridge opposite Bainbridge Passage.

(884) **Auk Bay**, on the west side of Port Bainbridge, opposite Point Pyke, is small but affords good anchorage in 20 fathoms, muddy bottom. A rock that uncovers is about 150 yards off the north shore, 1 mile inside the entrance. The south entrance point is marked by a prominent pinnacle rock.

(885) A prominent brown rock about 10 feet high is 0.3 mile offshore, 2.5 miles north of Cape Puget.

(886)

Swanson Bay to Hogg Bay

(887) **Swanson Bay**, a long narrow bay just north of Point Pyke and extending 3.5 miles to the east, is deep, but no good anchorages are available. Indifferent anchorage can be found near the head of the bay in 28 to 30 fathoms, mud bottom.

(888) **Hogg Bay**, about 2 miles north from Point Pyke, is the largest bay in Port Bainbridge. It is free from dangers except for a rock that uncovers 3 feet, 0.2 mile off the north shore about 1 mile inside the entrance, and a rock awash at low water 180 yards off the south shore, 1.7 miles from **Swanson Point.**

(889) Fair anchorage can be had near the head of the bay at the entrance of the north arm, in 25 fathoms, hard bottom, with patches of sand and gravel. Small craft can find excellent shelter at the head of the north arm. A beach suitable for beaching small craft is behind the north island near the entrance to the north arm.

(890) Bainbridge Passage was discussed earlier in this chapter.

(891)

Cape Puget to Driftwood Bay

(892) The coast between Cape Puget and Cape Resurrection is high and rugged, with numerous glaciers showing in the valleys. No shelter is available except in Day Harbor, where the anchorage is very good. The coast is clear except for a few rocks extending not more than 0.3 mile offshore. The first range of mountains varies from about 2,000 to 3,500 feet in height, while the back range is about 5,000 feet high. Much of the hinterland is covered by an ice cap.

(893) A constant current sets southwest along the Kenai Peninsula. (See remarks on currents in chapter 3.)

(894)

Caution

(895) A danger zone of an air-to-air gunnery practice area is in **Blying Sound**. (See **33 CFR 334.1300**, chapter 2, for limits and regulations.)

(896) **Cape Puget** is a prominent headland with an eroded bluff. At the foot of the slope is a conical rock that is prominent from the east or west. Several bare rocks are off the cape, the farthest being about 0.2 mile.

(897) **Puget Bay**, the first indentation west of Cape Puget, is funnel shaped and extends north for about 6 miles. The bay is deep throughout and free from dangers except for rocks and reefs close inshore.

(898) **Goat Harbor** is an inlet on the east side of the bay about 4 miles from Cape Puget. It affords good anchorage in 12 to 14 fathoms, sticky mud bottom, but is exposed to the swell from the southwest. A gravel and shingle bar with a least known depth of 5½ fathoms extends across the entrance. A rock awash is 0.2 mile west of the small islet off the north entrance point.

(899) Near the head of Puget Bay, and on the east side, is a small cove that affords shelter for small craft. A rock awash is about 100 yards off the south entrance point.

(900) **Cape Junken** is a bold, rounding headland with eroded bluffs and landslides. At the foot of Cape Junken are two steps that show up prominently from offshore. In thick weather this feature is valuable in identifying the cape. In 1998, a rock awash was reported about 0.4 mile south of Cape Junken in about 59°54.7'N., 148°38.15'W.

(901) **Johnstone Bay** is a large open bight west of Cape Junken. A black sand beach is across the head of the bay. Deep water extends close with 50 fathoms 0.5 mile of the beach. **Excelsior Glacier** terminates 0.5 mile north of Johnstone Bay and drains through a stream at the east end of the sand beach. An unnamed cove with a shingle beach is at the east entrance to the bay, just northwest of Cape Junken. It is wide open to the southwest and affords little shelter. A black rock, 35 feet high, marks the west entrance, and there is a low rock nearly awash at the east entrance.

(902) **Cape Fairfield** is a bold, rounding cape with eroded bluffs and many rockslides. A large pinnacle rock, 126 feet high, is off the southeast pitch of the cape.

(903) **Whidbey Bay**, a large open bight just west of Cape Fairfield, has a black sand beach at the head. Up the valley is a prominent hanging glacier.

(904) Depths shoal to 12 fathoms about 1 mile from the sand beach, and anchorage can be had in black sand and glacial silt. Both sides of the bay are foul, with numerous rocks and reefs extending 100 to 200 yards off the rocky beaches. A stream enters at the west end of the sand beach.

(905) **Cape Mansfield** is bold, with high eroded bluffs and rockslides. A small pinnacle rock awash at high water is about 0.3 mile off the cape. Deep water is close to this rock.

(906) Just west of Cape Mansfield is **Horsehead Bay**, approximately 1 mile wide at the entrance, with rocks awash extending 0.3 mile southeast at the west entrance

point. It is exposed to the south and has a sand beach at its head. Both sides of the bay are foul with numerous rocks and reefs. Except for this sand beach, the shore between Cape Mansfield and Day Harbor is rugged, with high bluffs and rockslides. Numerous rocks are at the foot of the bluffs and close offshore.

(907) **Day Harbor**, a spacious body of water just east of Resurrection Bay, is free from dangers except close inshore. Deep water extends to the head of the bay, which is formed by the moraine of **Ellsworth Glacier**. This glacier shows up prominently when entering the bay.

(908) **Fault Point**, the east entrance point to Day Harbor, terminates in a narrow point showing several remarkable faults in the rock formation.

(909) **Anchor Cove**, about 2 miles north from Fault Point, is a small cove affording excellent shelter for small craft. A short distance off the east shore of the cove near its head is a reef awash at high water. The shores are heavily wooded.

(910) **Bowen Anchorage**, 4 miles north of Fault Point, affords the best anchorage in Day Harbor. It is about 500 yards wide at the entrance and narrows gradually to the head of the cove. Anchorage can be had in the center in 14 fathoms, sticky mud bottom. In the entrance is a small reef cleared to 25½ feet. Bowen Anchorage is suitable for a vessel up to about 400 feet long.

(911) Deep water extends close up to the head of Day Harbor, and the 50-fathom curve is about 350 yards offshore. A flat in the northwest corner of the bay, northwest of Bowen Anchorage, affords anchorage 0.4 mile offshore in 15 to 18 fathoms.

(912) **Talus Bay** is a small cove on the west shore of Day Harbor, affording anchorage in 10 to 15 fathoms, but it is exposed to the southeast. A rock bare at low water is about 100 yards off the east entrance point.

(913) **Safety Cove** is a small deep cove about 1 mile south of Talus Bay. Anchorage can be had in the center of the cove in 25 to 30 fathoms.

(914) **Killer Bay**, a small cove about 2 miles south of Safety Cove, is too deep for convenient anchorage, with 32 to 39 fathoms in the middle of the bay. A rock, 15 feet high, is about 100 yards off the south entrance point.

(915) **Driftwood Bay** is about 3 miles north from Cape Resurrection. It is about 0.5 mile wide at the entrance and is free from dangers. Anchorage can be had in the middle of the bay in 25 to 30 fathoms, hard bottom. Small craft will find excellent shelter in a bight in the south shore of the bay.

(916)

Cape Resurrection to Thunder Bay

(917) **Cape Resurrection** (59°52.1'N., 149°17.0'W.), at the east entrance to Resurrection Bay, is a precipitous headland of solid rock, with little vegetation except some trees on the lower slopes. From the east two dome-shaped peaks, the north one the higher, show at the end of the cape, and a low saddleback of the peaks rises to higher mountains farther north. These are the only dome-shaped peaks in the vicinity, which assures easy recognition of the cape.

(918) **Barwell Island**, 0.4 mile south from Cape Resurrection, is small, bare, rounded, precipitous, and high.

(919) The passage between Barwell Island and Cape Resurrection is deep and clear, midchannel depths ranging from 43 to 48 fathoms. This passage is reported to be dangerous for small craft in east weather because of tide rips, confused seas and seas bouncing back off the cliffs of Cape Resurrection.

(920) **Resurrection Bay** extends about 16 miles inland north from Cape Resurrection. The depths are great throughout, and there are no dangers in the usual track of vessels. A flat extends 0.5 to 0.6 mile from the entire north shore at the head of the bay. The shores and islands are steep and high, with precipitous slopes in many places. The valleys are wooded up to about 1,000 feet. Anchorages, few and indifferent because of the great depths, are subject to strong williwaws.

(921) **Harding Gateway**, the south entrance to Resurrection Bay, is between Cheval and Rugged Islands.

(922) **Seal Rocks**, the southernmost land feature in the west approach to the bay, are a group of four small, rocky islets. The northernmost and largest is 278 feet high and has an arch through the middle. **Seal Rocks Light** (59°31'14"N., 149°37'47"W.), 285 feet above the water, is shown from a skeleton tower with a diamond-shaped red and white daymark on the summit of the largest islet.

(923) **Lone Rock** stands well southwest of Chiswell Islands and is a good mark. It is a round rock, 154 feet high, and has a rock covered at high water, about 0.1 mile north of it. The passage between Seal Rocks and Lone Rock is clear and is frequently used by vessels between Resurrection Bay and the coast southwest.

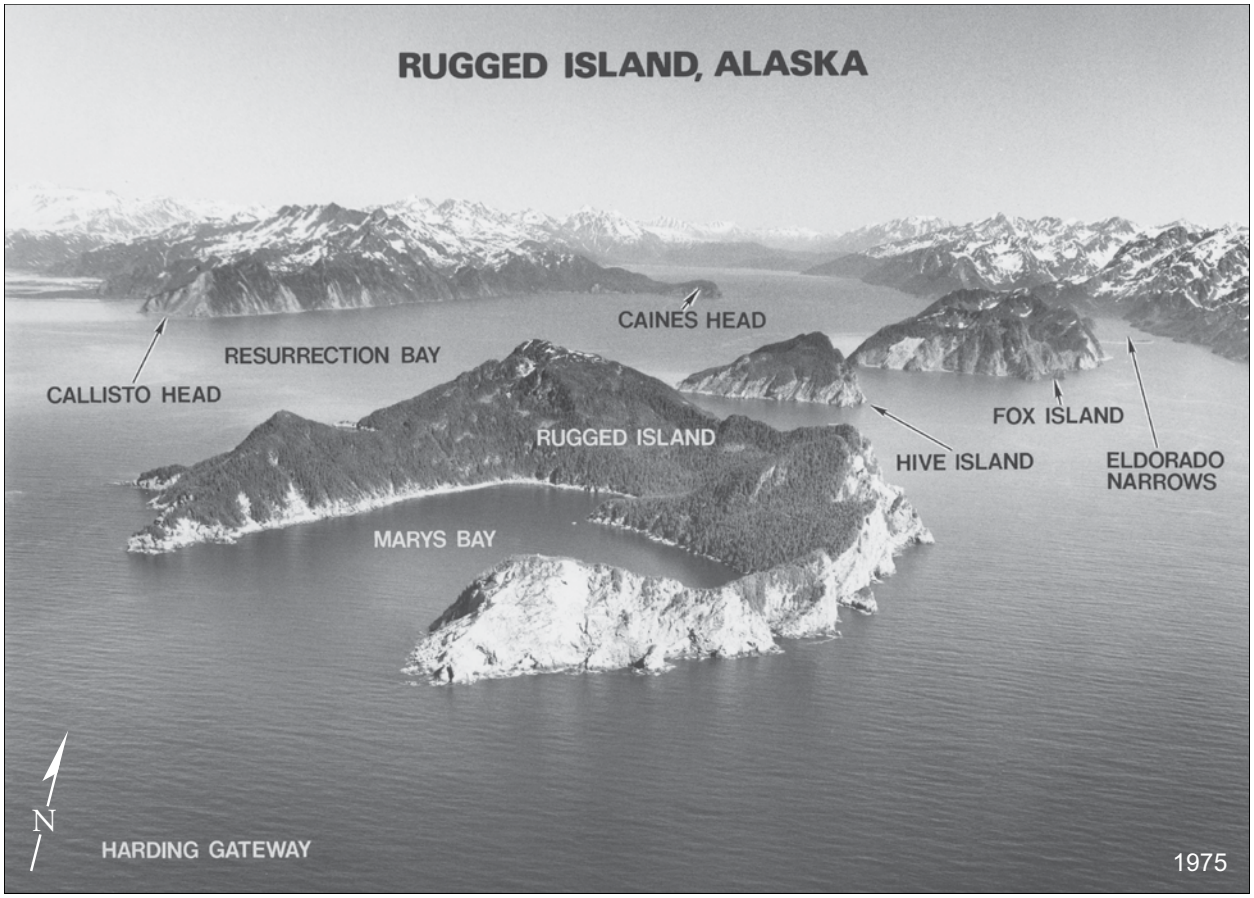
(924) **Chiswell Islands**, a group of high precipitous, rocky islands, on the west side of the approach to Resurrection Bay, are sparsely wooded, most have off-lying rocks and there are strong tidal currents between them.

(925) **Pilot Rock**, 9.5 miles southwest of Cape Resurrection, is a bare, rounded, rocky islet about 100 feet high. **Pilot Rock Light** (59°44'32"N., 149°28'12"W.), 100 feet above the water, is shown from a skeleton tower with a diamond-shaped red and white daymark on the highest part of the rock.

(926) **Agnes Cove**, just west of Cheval Island, is sheltered from the southeast but is too deep for convenient anchorage. However, it is reported that during east gales small vessels can find good anchorage in the E part of the cove.

(927) **Porcupine Cove**, about 4 miles south from Bear Glacier, offers a good anchorage for small craft in all except southeast weather. Two shoals are in the entrance to the cove. A depth of 1.6 fathoms is on the west side of the entrance in 59°50'42"N., 149°35'04"W. and 2.3 fathoms is on the east side of the entrance in 59°50'52"N., 149°34'27"W. Two islets are in the cove about 200 yards

(932)



off the west shore in 59°50'58"N., 149°35'17"W. At the head of the cove is a gray sand beach with stumps below the high-water line that indicates that there has been a subsidence of the beach. A depth of 7 fathoms is available about 400 yards from the head of the cove.

(928) **Bulldog Cove**, the first cove south from Bear Glacier, affords a good anchorage for small craft in southwest weather. In north weather it is exposed to winds sweeping off the glacier. The best anchorage is in the south bight in about 10 fathoms, sticky mud bottom.

(929) **Bear Glacier**, large and prominent, is on the west shore west of Cape Resurrection. It is inactive and has an earthy appearance.

(930) Toward the east shore in the entrance of Resurrection Bay are three large, high, rugged islands, named in order from south, Rugged, Hive and Fox. The passages between the islands are deep. Their shores are generally bold, but two rocks bare at low water are about 200 yards off the southeast end of Fox Island.

(931) **Marys Bay**, a large cove indenting the south shore of **Rugged Island**, affords fair anchorage in east weather. Anchor in the east part with Pilot Rock about on range with the south entrance point. An Army pier, in poor repair, is on the south shore of the cove. **Rugged Island Light** (59°50'18"N., 149°22'26"W.), 438 feet above the water, is shown from a square frame with a diamond-shaped red and white daymark on the southeast end of the island.

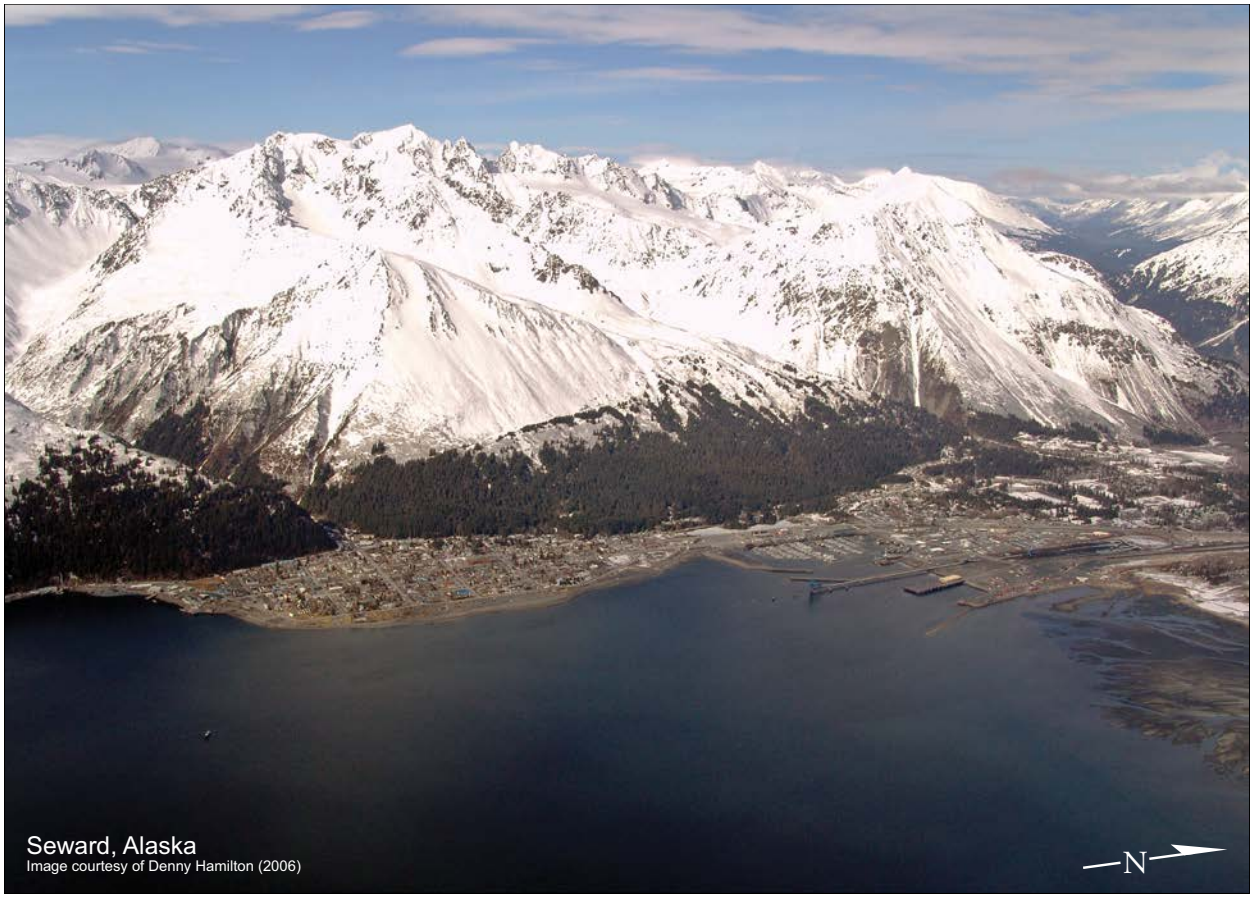
(933) **Sunny Cove**, the south bight on the west side of **Fox Island**, is the best anchorage in Resurrection Bay. No ocean swell makes into the cove, and it is sheltered from all but west winds. The williwaws are bad with east winds. The cove, wide and clear, has anchorage in the middle, 300 to 800 yards from its head, in 15 to 25 fathoms, muddy bottom.

(934) Small craft can also anchor in the southeast arm of **Humpy Cove**, the two-arm bay on the east shore 1.7 miles north-northeast of Fox Island. In the winter this bay affords better protection than Sunny Cove, which is bad for small craft in northwest weather. The anchorage is in 7 to 8 fathoms, sandy bottom. The narrow bight extending east is filled with a sandflat that bares at low water.

(935) **Thumb Cove**, on the east shore northeast from **Caines Head**, is 0.8 mile wide. The cove is subject to strong williwaws in east weather. In north weather, good protection is reported close to the bluff just west of **Likes Creek**, at the north end of the cove. Anchorage can be selected 0.4 to 0.5 mile from its head in 25 to 35 fathoms, soft bottom. A flat makes out 200 to 300 yards from the north shore for a distance of 0.4 mile from its head. The point on the north side of the entrance is marked by a light. Caines Head is marked by a light.

(936) **Seward** is on the west side of the north end of Resurrection Bay. The town is the south terminus of the Government-owned Alaska Railroad. Seward is 1,234 miles from Seattle via the outside route from Strait of

(937)



Juan de Fuca and 1,398 miles via the inside passage to Cape Spencer.

(938)

Prominent features

(939) Cape Resurrection, Bear Glacier and the mountains that rise precipitously from the shores of the bay are conspicuous in the approaches.

(940)

Channel

(941) The approach to Seward is in depths of over 50 fathoms and is clear of obstructions.

(942)

Anchorages

(943) Suitable anchorage in 30 fathoms is available for deep-draft vessels at the head of the bay in 60°06.5'N., 149°22.1'W. and in 60°06.5'N., 149°25.3'W.

(944)

Dangers

(945) The bay is clear but care should be taken when approaching the head of the bay to avoid the flats that extend 0.6 mile from the head.

(946) Submerged ruins and obstructions exist in an area about 450 yards channelward of the high water line at Seward.

(947)

Routes

(948) Eastward: From the entrance point, 0.6 mile south-southwest of Barwell Island, set courses to pass 0.6 mile west of the southwest part of Fox Island, 0.5 mile east of Caines Head Light, and thence to the waterfront at Seward.

(949) Westward: From the entrance point, 1 mile east of Pilot Rock, set courses to pass 2.5 miles west of the south extremity of Rugged Island, 0.5 mile east of Caines Head Light, and thence to Seward.

(950)

Weather, Seward and vicinity

(951) Winter gales strike suddenly and considerable sea makes into the bay with south winds. At Seward the prevailing wind is from the south from April to September and north during the remainder of the year. The high mountain ranges give some protection, but the region is subject to violent williwaws. The annual snowfall averages 78 inches (1981 mm).

(952)

Pilotage, Seward

(953) Pilotage, except for certain exempted vessels, is compulsory for all vessels navigating the waters of the State of Alaska. (See **Pilotage, General** (indexed), chapter 3, for the pilot pickup station and other details.)

(954) Vessels en route to Seward can contact the pilot boat by calling "SEWARD PILOT BOAT" on VHF-FM channel 16 or on a prearranged frequency between pilot and agent/vessel.

(955)

Towage

(956) Tug services are available 24 hours a day at Seward and can be obtained through ships' agents.

(957)

Quarantine

(958) A U.S. Public Health Service Contract Physician is located at the hospital in Seward. (See Appendix A for additional information.)

(959) **Quarantine** is enforced in accordance with regulations of the U.S. Public Health Service. (See Public Health Service, chapter 1.) There is a hospital in Seward.

(960)

Coast Guard

(961) A Coast Guard cutter is stationed at Seward in the small-boat harbor.

(962)

Wharves

(963) Seward has a deep-draft terminal, coal terminal, ferry terminal, small-boat harbor and many shallow-draft wharves.

(964) **Alaska Railroad Cargo Dock:** northwest corner of Resurrection Bay; west side of breakwater; 500-foot face; 570 feet berthing space with dolphins; 35 feet alongside; deck height, 24 feet; receipt and shipment of conventional and containerized general cargo; landing for passenger-and-vehicular ferry, and mooring vessels; railroad connections; owned by Alaska Railroad Corp and operated by Alaska Railroad Corp and various operators.

(965) **Alaska Railroad Cruise Dock:** 400 feet west of Cargo Dock; 200-foot face; 38 feet alongside; 735 feet each side; 33 to 35 feet alongside; deck height, 24 feet; receipt and shipment of conventional and containerized general cargo; occasional receipt of petroleum products; mooring cruise ships; landing for passenger-and-vehicular ferry, and fueling vessels; railroad connections; owned by Alaska Railroad Corp and operated by Alaska Railroad Corp and various operators.

(966) **Coal Dock:** 500 feet west of Cruise Dock; 1,763 feet of berthing space with dolphins; 52 feet alongside; shipment of coal; owned by Hyundai Merchant Marine America, Inc. and operated by Seward Terminal, Inc.

(967) **Seward Small-Boat Harbor**, adjacent west of Coal Dock, is protected by breakwaters. The entrance and breakwaters are marked by lights. The harbor has 12 feet alongside the docks for mooring commercial vessels, recreational craft, excursion vessels, U.S. Coast Guard vessels and tugs.

(968) The basin has about 550 berths with 2,500 feet of transient moorage available. The harbormaster assigns berths. Vessels over 150 feet long are requested to contact the harbormaster on VHF-FM channel 17 before entering the small boat harbor. Water, electricity, limited pump-out facilities, gasoline and diesel fuel are available. Two launching ramps and a 50-ton boatlift are in the basin. The basin is owned and operated by the City of Seward.

(969) The **City "T" Dock** and **Seward Fisheries Wharf** are at the north end of the small-boat harbor with depths alongside of 13 feet and deck heights of 18 feet. These facilities are used mostly by fishing vessels and are owned by the City of Seward.

(970) **University of Alaska Institute of Marine Science Wharf:** south side of the City of Seward; 150 feet of berthing space; 40 feet alongside; deck height, 18 feet; water, electricity and a 20-ton mobile crane are available for the research vessels using the wharf; owned and operated by the University of Alaska Institute of Marine Science.

(971) **Note:** A section of sheet metal, submerged 3 feet, extends 10 feet southwest of the southwest end of the wharf. Also, a deepwater intake pipe extends 900 feet seaward from the wharf. Mariners are advised to seek local knowledge before approaching the wharf.

(972) **Smoky Seafoods Wharf:** 300 yards south-southwest of the University of Alaska Wharf; 250-foot face; 14 feet alongside; deck height, 18½ feet; receipt of seafood and icing fishing vessels; owned and operated by Smoky Seafoods, Inc.

(973)

Supplies

(974) Some marine supplies are available and there are stores in town. Fuel is available from numerous wharves in Seward and on the east side of Resurrection Bay at the North Dock.

(975)

Repairs

(976) Limited small boat hull and engine repair facilities are available. A 50-ton boat lift is at the Small Boat Harbor.

(977) **Seward Marine Industrial Center**, is in a basin on the east side of Resurrection Bay, just above the mouth of **Fourth of July Creek**. The basin is protected on the west by a rip-rap breakwater, marked by a private light on the outer end. The entrance to the basin is marked by a private light and daybeacons. In 2019, the basin had a depth of 17 feet. Local knowledge is recommended for larger vessels attempting to enter the basin. A 400-foot berth is on the north side of the basin and a floating dock for smaller vessels is on the east side. Services available include a 5,000 long-ton marine lift and a 330 long-ton mobile lift owned by the City of Seward and operated by JAG Alaska Shipyard.

(978)

Communications

(979) The Alaska Railroad maintains service throughout the year from Seward to Anchorage and Fairbanks; large amounts of supplies and equipment bound for all parts of Northern Alaska are moved over the railroad. Seasonal passenger service is available. The Alaska Marine Highway System maintains ferry service to

Valdez-Cordova and Kodiak-Seldovia-Homer. Charter air service is available. Seward has scheduled highway transportation to Anchorage.

(980) Seward has radio and cable communications with the other Alaska ports and Seattle. Telephone communications are maintained.

(981) **Aialik Bay**, west of Resurrection Bay, extends 16 miles inland from the north end of Harbor Island. It is enclosed by rugged mountains and glaciers and is of no importance except occasionally as an anchorage. The shores are steep and high, with precipitous slopes in many places, and are partly wooded in the south part of the bay to an elevation of about 1,000 feet. The north shores are covered with alders in places.

(982) Aialik Bay is deep except for rocks near the shores and a bar that crosses the bay from the glacial flat fronting **Pedersen Glacier**. The least depth found on the bar in midchannel is 5.1 fathoms, but it and the broken ground near the shores at the entrance of Holgate Arm are likely to have boulders and less water than charted. As a measure of caution, vessels should avoid the passages among the islands in the mouth of the bay. To take advantage of smoother water, small vessels coasting southwest from Resurrection Bay sometimes enter the bay at Aialik Cape, pass south of Chat Island, round the north end of Harbor Island and pass out at Granite Cape.

(983) **Chat Island** is a steep, high, rocky, and wooded island; two conspicuous pinnacles are close to its south shore. Between it and **Aialik Cape** are a smaller island and a number of rocks.

(984) **Harbor Island** is the largest of a group of high, precipitous, rocky, and partly wooded islands in the mouth of the bay and northwest of Chiswell Islands. The shores in many places are sheer cliffs, especially the east shore of **Natoa Island**. Midway in the channel between **Beehive Island** and the small island at the southeast end of the Harbor Island group is a rock that is awash at lowest tides.

(985) Small vessels proceeding along the coast use the pass locally known as **Petes Pass**, between Harbor Island and the first island to the east. A depth of 2.5 fathoms is available in the pass. Vessels using this passage should favor Harbor Island when passing through this narrow opening.

(986) **Granite Cape**, the south end of Granite Island, is bold, with almost vertical rocky bluffs. Rocks awash at low water, are a short distance off the cape. Between Granite Cape and the main shore are two small, high, wooded islands with a rock about 10 feet high between them.

(987) **Twin Islands**, in Dora Passage, resemble each other in contour and are high and wooded. The arch off the south end of the north island is conspicuous.

(988) **Holgate Arm** is the largest indentation on the west side of Aialik Bay. The arm is too deep for anchorage and terminates in **Holgate Glacier.**

(989) **Slate Island**, long, narrow, and high, is close to the west shore near the head of the bay. The head of Aialik Bay consists of sunken rocks and icebergs that are discharged from the glaciers feeding into the bay.

(990) **Coleman Bay**, **Tooth Cove** and **Bear Cove** are bays on the east side of Aialik Bay. None of them afford good anchorage except the southeast arm of Coleman Bay. It is reported that good protection from east and south weather can be had for small craft in about 6 fathoms.

(991)

Anchorages

(992) The anchorages in Aialik Bay are few and indifferent because of the great depth. With south weather a swell makes well into the bay.

(993) The best anchorage is in 30 fathoms, good holding bottom, near the head of **Paradise Cove** in **Three Hole Bay**, on the east side of Aialik Bay about 3 miles north of Harbor Island. Small craft find good shelter along the south shore of the cove in 3 to 10 fathoms, mud bottom.

(994) Anchorage can be had in 28 fathoms near the center of the cove on the west side of the bay, west of the north end of Harbor Island. On each side of the entrance to this cove is a sharp conical, high, wooded hill. Close inshore off the point at the north entrance is a sharp pinnacle rock about 12 feet high; about 600 yards northeast of this pinnacle is **Hub Rock** which covers at high water.

(995) Vessels can find convenient anchorage in the area about 1 mile southeast of the south end of Harbor Island. There is good shelter here with winds from north around to southeast.

(996)

Ice

(997) There are discharging glaciers at the heads of Aialik Bay and Holgate Arm, and ice is frequently driven to Harbor Island by north winds. Holgate Arm and the entire bay above the bar are frequently filled with ice.

(998) **Harris Bay** is about 5 miles northwest of the peninsula terminating in **Aligo Point**. The bay is deep throughout. The 50-fathom curve extends to within 0.5 mile of the head of the bay. Inside the 50-fathom curve, at the head of Harris Bay, there is a rock submerged 7 fathoms in about 59°43'37.5"N., 149°51'59.7"W.

(999) **Granite Island** is a high, long narrow island. Its shores are bold and its slopes are very steep except at the north end.

(1000) **Taz Basin** is a remarkable cliff-walled harbor on the southwest side of Granite Island about 2 miles from its northwest end. It has depths of 15 fathoms and is an ideal shelter for launches. The entrance is narrow and has a rock 5 feet high in the middle. It is reported that vessels enter on the north side of the rock where there is a reported depth of about 2 fathoms. Once inside there is plenty of room. The channel south of the rock is shoal and foul with rocks nearly awash at low water.

(1001) **Granite Passage**, which leads from Aialik Bay to Harris Bay, is deep and free from dangers. At the narrowest part of the passage, just north of Fire Cove, a ridge with 4 fathoms extends across the passage. The ridge affords convenient anchorage in any but heavy weather.

(1002) **Fire Cove** is the southernmost of three coves in the mainland opposite Granite Island. It is deep throughout and affords no satisfactory anchorage. The shores are precipitous and rocky.

(1003) **Ripple Cove**, the next cove to the north, is also deep and affords no anchorage except in 28 to 30 fathoms, hard bottom. The third cove is also deep and not suitable as an anchorage.

(1004) **Crater Bay** is a large inlet about 1 mile north from the north end of Granite Island. A good anchorage will be found in the bight just east of the projecting point on the south shore, in 25 fathoms, sticky bottom. This anchorage is well protected but is subjected to severe williwaws. In the south cove at the head of Crater Bay is a stream where water can be obtained.

(1005) **Cataract Cove**, just north from Crater Bay, is another of the characteristic small deep bays of this region. It is exposed to the south and is not recommended as an anchorage. Water can be obtained from cascades at the head of the bay.

(1006) A terminal moraine bar, about 4 miles north of Granite Island, is at the head of Harris Bay and separates the bay from **Northwestern Fiord**. The passage from Harris Bay to the Fiord is locally referred to as **Northwest Passage**. The passage, about 600 yards from the east shore, is subject to huge swells and changes. The passage should only be entered by small craft with local knowledge. In 2000, a depth of 3.2 fathoms was in the passage. The Fiord extends about 9 miles northwest and may be filled with floating ice. **Northwestern Lagoon**, in the southwest part of the Fiord, is separated from the Fiord by the terminal moraine bar covered 0.1 fathom and is also subject to changes. Depths of 12.7 fathoms are in the lagoon. A large island, about 5.4 miles northwest of the passage, is steep and barren with a height of 1,263 feet. A steep-walled fiord extends about 3 miles north from this island and heads into **Northwestern Glacier**, from which small icebergs are discharged. An inlet over 1 mile long and with shoals at its head is southwest of the island. In 2009, shoaling to bare was reported at about 59°46'59"N., 150°03'51"W. Most of the shoreline of Northwestern Lagoon is barren as a result of the recent rapid recession of the glaciers.

(1007) **Harris Point**, a prominent point on the west side of the entrance to Harris Bay, is easily recognized by a succession of rocks and islets that extend 0.3 mile off. The outer rock of this group is 78 feet high.

(1008) **Cup Cove** is a small indentation just north of Harris Point. It has depths of 5 to 9 fathoms, mud bottom, and affords good anchorage for small craft except that it is exposed to east winds.

(1009) **Sandy Bay** is an indentation about 1 mile long between Harris Point and Two Arm Bay. The depths decrease gradually from 20 fathoms at the entrance to 3 fathoms at the head with sand bottom throughout. It is exposed to the south and suitable for anchorage in fine weather only.

(1010) **Two Arm Bay** has Paguna Arm on the north and Taroka Arm on the west.

(1011) **Surok Point** is on the east side of the entrance to Two Arm Bay. It is bold and high, with deep water extending close up.

(1012) **Paguna Arm** is deep and affords no anchorage except at the very head, where vessels may anchor in 20 to 25 fathoms, hard bottom. There are several coves along the east shore where small craft can find anchorage close to the beach. The shores are steep and precipitous except for a small sandspit on the east shore near the head. There are numerous places in Paguna Arm where water can be obtained.

(1013) **Bear Point** is a bold, high point separating Paguna and Taroka Arms. A group of rocks extend 100 yards off the point.

(1014) **Taroka Arm** is deep but affords anchorage near the head in 20 to 25 fathoms, hard bottom with occasional patches of sand and mud. Small craft can find shelter in several of the bights along the south shore.

(1015) **Cloudy Cape**, on the south side of the entrance to Two Arm Bay, is bold and high. On the coast about midway between Cloudy Cape and Thunder Bay are lines of corrugated strata on two light-gray cliffs.

(1016) **Thunder Bay** is 2 miles wide at the entrance and about 2.5 miles long with the upper end extending in an east direction. Safe anchorage for small craft can be had in the cove at the head of the bay in 10 to 20 fathoms, mud bottom. Water is available from several waterfalls at the head of the bay. A cup-shaped bight on the north side of the entrance to the bay affords anchorage in 12 fathoms, gray sand and rock bottom. A landslide is on the coast about 0.5 mile southwest from Thunder Bay.

(1017)

Black Mountain to Front Point

(1018) **Black Mountain** (59°32.0'N., 150°11.5'W.), the highest peak between Thunder and Black Bays, has a large granite boulder at its summit.

(1019) The point on the north side of the entrance to **Black Bay** is marked by a 660-foot hill; reddish-brown tinted cliffs form the base on its seaward side. The island immediately adjacent to the point is wooded, 150 yards in diameter and 165 feet high.

(1020) The northwest arm of Black Bay is not recommended as an anchorage because it is too deep and narrow. The northeast arm of the bay is 0.4 mile wide. There is safe anchorage close in near the head in 16 to 20 fathoms, mud bottom. A shoal of gravel and boulders extends 100 yards offshore on the east side of the head of this arm. The anchorage is subjected to usual williwaws. A high, light-gray granite peak separates the two arms of Black Bay.

(1021) The point 1.2 miles south of the west entrance point of Black Bay has a large granite rock about 150 feet high close to the south side. The rock makes a good mark when it is seen clear of the point. Between this point and Black

Bay is a low grassy wooded ravine that extends inland from the coast. Between the ravine and Black Bay are rocky, almost perpendicular cliffs several hundred feet high and light gray in color. The open bay to the west of the point is not recommended as an anchorage.

(1022) **Nuka Bay** has its main entrance between Pye Reef and Nuka Point. The bay may be entered from the east through McArthur Pass or Wildcat Pass and from the west through Nuka Passage. It extends into the mainland above the passes in two long arms. Good protected anchorage can be found in several small bays and coves. There are several small gold mines in the West Arm and North Arm.

(1023) Nuka Bay is generally deep throughout. There is, however, a considerable area of irregular depths, less than 25 fathoms, adjacent to the west shores of the lower bay.

(1024) **Pye Islands**, on the east side of Nuka Bay, are three rugged mountainous islands, densely wooded on the lower slopes. **Outer Island**, the outermost and smallest, has a high prominent peak at its east end. A good landmark, this peak is part of a ridge whose top is covered with huge granite boulders. A prominent bare rock, 70 feet high, is 20 yards off the southweast shore of the island. A large reef, part of which shows at all stages of tide, is 300 yards south of the rock. A large, bare, granite rock, 82 feet high, is close to the southwest point of the island.

(1025) A 2½-fathom shoal that breaks is 0.4 mile southeast of the east point of Outer Island. A 10-fathom shoal is 1.8 miles 130° from the point, and a 9-fathom shoal is 0.9 mile 200° from the same point.

(1026) The south shore of Outer Island is a Steller sea lion rookery site. There is a 3-mile vessel exclusionary buffer zone around the entire island. (See **50 CFR 224.103**, chapter 2, for limits and regulations.)

(1027) **Pye Reef**, awash at high water, is 2.1 miles 205° from the high peak of Outer Island. The line of the west ends of Outer Island and Rabbit Island barely clears to the west of the reef, and the line of the east end of Outer Island and Hoof Point on Ragged Island leads 0.4 mile east of it.

(1028) **Rabbit Island**, the second of the Pye Islands, is densely wooded. The east shore of the island is bold and rocky, with no dangers except close inshore.

(1029) Between Outer and Rabbit Islands is a deep body of water with no good anchorage. At its east end is a small opening called Kitten Pass. The pass is between a small islet and a group of three bare rocks to the north. The islet has a few scrub trees on it. A rock, covered 13 feet and marked by kelp, is in the pass; it is nearer to the islet than to the rocks.

(1030) **Kitten Pass** is only 65 yards wide. By favoring the group of rocks on the north side, a depth of 5 fathoms can be carried through; but because of strong tidal currents and the narrowness of the pass, it should be attempted only by very small craft, at slack water and with a smooth sea. In rough weather, breakers obstruct the pass.

(1031) **Ragged Island**, the third and largest of the Pye Islands, is very mountainous and is partly wooded on the lower slopes. The island is broken by numerous coves and bights, most of which are too deep to afford good anchorage. The few known dangers around this island are the rocks close inshore, a rock awash at high water 200 yards off the rounding point 1.2 miles north of Wildcat Pass and the rocks off Hoof Point.

(1032) **Hoof Point**, 3.5 miles northeast of Wildcat Pass, is the southeast end of the east part of Ragged Island. Bold and rocky, it is at the base of a detached hill. A bare granite rock, 105 feet high, 60 yards off the point, makes a good mark. Bare ledges are 400 yards south of the point. A rock, covered at high water 0.5 mile south of Hoof Point, can be cleared to the south by keeping open water showing through Wildcat Pass. Fair anchorage for small craft can be had in the cove behind Hoof Point, in 10 to 20 fathoms.

(1033) **Wildcat Pass**, between Rabbit and Ragged Islands, is about 400 yards wide in its narrowest part, and is deep and free from danger. A shoal marked by kelp with a least depth of 6 fathoms over it is in the center of the west approach to the pass, 400 yards west of the line of the west ends of Rabbit and Ragged Islands. This shoal has deep water all around it. In the east approach the only known dangers are the rocks off Hoof Point. In the narrow part of the pass a bank, with 8 fathoms over it, extends from the north point to the center of the pass, but 20 fathoms and over can be found 100 yards off the south point. The tidal currents in Wildcat Pass have an estimated velocity of 4 to 5 knots.

(1034)

Anchorages

(1035) Anchorage can be found in the cove just south of the pass, in 24 to 27 fathoms, rocky bottom. Small vessels can find indifferent anchorage in the cove in the west end of Rabbit Island, close inshore, in 8 to 10 fathoms, rocky bottom.

(1036) **Wildcat Cove** is a large arm in the southeast shore of Ragged Island, 2.8 miles north from Wildcat Pass, and is the second cove west from Hoof Point. Protected anchorage for small craft can be had about 100 yards from the head of this cove in 11 fathoms, mud bottom. There is also anchorage in 22 fathoms, mud bottom, opposite the indentation on the east shore of the cove.

(1037) **Roaring Cove** is a small bight in the west shore of Ragged Island, 2 miles north from the west approach to Wildcat Pass. A small wooded island is on the north side of the entrance, and a wooded point, resembling an island, is on the south side. Partially protected anchorage for small craft can be found in the center of this cove in 4 to 5 fathoms, mud bottom.

(1038) **McArthur Pass**, between Ragged Island and the mainland, is about 120 yards wide in its narrowest part but is straight and easily navigated. **McArthur Pass Light** (59°27'47"N., 150°20'12"W.), 45 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on the north side of the pass.

(1039) There are no known dangers in the approaches, and a clear channel 60 yards wide is in the center of the narrowest part of the pass, with a depth of 6¼ fathoms. Both shores of the pass are lined with thick kelp that extends approximately out to the 5-fathom curve. The bottom is composed of smooth rock and small boulders. A spit of gravel and boulders makes out from the south shore, in the narrowest part, with deep water close-to.

(1040)

Currents

(1041) The tidal currents in McArthur Pass have an estimated velocity of 3 to 4 knots. All except low-powered vessels will have little difficulty through the pass at any stage of tide, but east weather and ebb tide may cause dangerous seas in the entrance. See the Tidal Current prediction service at *tidesandcurrents.noaa.gov* for specific information about times, directions, and velocities of the current at numerous locations throughout the area. Links to a user guide for this service can be found in chapter 1 of this book.

(1042) Extensively used by small vessels proceeding along the coast, McArthur Pass affords a shorter and more protected route than the route outside the Pye Islands, and is especially valuable when used in connection with the route through Nuka Passage.

(1043) **McArthur Cove** is a large cove in the north side of Ragged Island, 1 mile southwest from the narrowest part of McArthur Pass. Large vessels can find good anchorage near the head of this cove in 28 to 30 fathoms, mud bottom; small craft anchor closer inshore in 5 to 10 fathoms, good holding bottom and good shelter. The two small coves on the north side of Ragged Island, west of McArthur Cove, are deep and clear of dangers but are subject to strong williwaws in stormy weather. Indifferent anchorage for small craft can be found in the first cove to west, in the center of the bight near its head, in 16 to 18 fathoms, rock and gravel bottom; or in 11 to 12 fathoms in the bight on the south side of the cove, near the center.

(1044) **Morning Cove**, on the south side of the east approach to McArthur Pass, affords protected anchorage for small craft near its head in 10 to 12 fathoms, rocky bottom.

(1045) **Chance Cove**, on the north side of the east approach to McArthur Pass, is deep and is a poor anchorage. **Chance Lagoon**, at the head, has a large flat rock in its entrance. The passage east of this rock is foul, but a depth of 8 feet can be carried into the lagoon through the passage west of the rock, the best water being found by favoring the west side of the passage. Protected anchorage for small craft can be had in this lagoon in 8 to 12 fathoms, mud and rock bottom, but anchors will not hold well in heavy weather.

(1046) Small vessels can find good anchorage in the small bight on the south side of McArthur Pass, close west of the narrowest part, in 7 to 11 fathoms, mud bottom. This anchorage is subject to strong williwaws, and local fishermen prefer to anchor close inshore, in the open bight on the north side of the pass, northwest from McArthur Cove, in 10 to 15 fathoms, rocky bottom.

(1047) **McCarty Fiord (East Arm)**, the northeast extension of Nuka Bay, has average depths of over 100 fathoms except for a terminal moraine shoal, with depths of 10 fathoms or less, which crosses the fiord between McCarty Lagoon and James Lagoon. Between the moraine shoal and **McCarty Glacier**, 15 miles north, water depths of more than 150 fathoms have been sounded, but caution should be exercised as the area has not been surveyed. McCarty Glacier, which ends in shoal water at the head of the fiord, discharges occasional small icebergs. The north part of McCarty Fiord is barren because of the recent recession of McCarty Glacier.

(1048) The square-shaped bay on the east side of McCarty Fiord, 2 miles north from the west entrance of McArthur Pass, affords indifferent anchorage off its southeast side in 12 to 15 fathoms, rocky bottom. The small bight on the northeast side of the bay is foul.

(1049) **Moonlight Bay**, on the east side of McCarty Fiord, about 1.8 miles from the terminal moraine, is deep and clear. Large vessels can find good anchorage near its head in 15 to 30 fathoms, sticky mud bottom. Small vessels can find better protection in **Midnight Cove**, a long bight making off to east from the north side of Moonlight Bay, but they must avoid a 5-foot shoal about 300 yards off the north side of the entrance.

(1050) Good anchorage is available in the middle of the cove, just past the turn, in 9 to 10 fathoms, mud bottom, or near the head of the cove in 14 to 16 fathoms, mud bottom. A spit, bare at low water and covered with boulders, extends out 150 yards from the head of the cove. This cove is the best anchorage for small vessels in McCarty Fiord, as it is doubtful that ice would drift in here in quantity. Midnight Cove funnels strong easterly winds. During these conditions, small vessels may find milder conditions along the southern and eastern shore of Moonlight Bay.

(1051) The small cove just north from Moonlight Bay has depths of from 5 to 8 fathoms, mud bottom, but with west winds is apt to be filled with ice. A narrow spit, bare at low water and covered with boulders, extends out from the head of the cove for 75 yards.

(1052) **McCarty Lagoon**, on the east side of McCarty Fiord and about 1.5 miles north of Moonlight Bay, has not been surveyed. The entrance nearly bares at low water, but shallow-draft vessels can enter at high tide. The tidal currents in the entrance have an estimated velocity of 8 to 12 knots, so that high water slack is the only time to enter. Depths of 15 to 20 fathoms, mud bottom, are reported inside the lagoon. The entrance is narrow, with sand and mud bottom. The lagoon probably freezes over in the winter.

(1053) **James Lagoon**, on the west side of McCarty Fiord opposite McCarty Lagoon, is about 1 mile long and 0.8 mile wide. There is a prominent 90-foot dirt cone on the northeast side of the entrance. The entrance, about 0.8 mile long, has a least midchannel depth of 3 feet. In

entering, favor the west shore to avoid a long sandspit, partly bare at low water, which makes out to south for about 300 yards from the west end of the large, flat, sandy island on the east side of the channel. The tidal currents in the entrance have an estimated velocity of 6 to 10 knots.

(1054) Vessels should not attempt to enter James Lagoon except at high water slack. The entrance is often obstructed by ice that is carried through the entrance into the lagoon. The lagoon has general depths of 8 to 15 fathoms, mud bottom. Vessels should approach the shore with caution, since large mudflats make off for a considerable distance, especially along the north shore. The lagoon may freeze over in the winter.

(1055) **Harrington Point**, the south tip of the peninsula separating McCarty Fiord and West Arm, is bold and rocky, with rocks close inshore. A bank with a least depth of 10 fathoms is 0.6 mile south of the point. Another bank, with a least found depth of 11 fathoms, is 0.5 mile west of a large rock, 35 feet high, close to the southwest side of the peninsula.

(1056) **West Arm** of Nuka Bay is about 7 miles long in a northwest direction from Harrington Point. **Nuka River** and **Ferrum Creek** empty into **Beauty Bay**, the head of West Arm. A large mudflat makes out from the head of Beauty Bay with deep water close-to.

(1057) **Shelter Cove**, on the south side of Beauty Bay, is small but affords anchorage with moderate swinging room in 14 to 16 fathoms, mud bottom. At the head of the cove is a grassy flat, in front of which is a large mudflat that covers at high water.

(1058) **Diablo Peak**, on the west side of Beauty Bay, is a good mark.

(1059) **Yalik Bay**, on the west side of West Arm, opposite Harrington Point, has a shoal with a least found depth of 3½ fathoms in midbay, 1.2 miles from the entrance. Depths of over 20 fathoms can be found all around this shoal, the better channel lying to south. This shoal is the only danger in the bay except rocks close inshore and two rocks, bare at low water, 150 yards off the north shore 0.6 mile from the head.

(1060)

Anchorages

(1061) Anchorage can be had in the center near the head in 14 to 16 fathoms, mud and gravel bottom, but there is limited swinging room for large vessels. Small vessels can find partially protected anchorage in the small bight on the north side of the bay, 0.5 mile from the entrance, in 3 to 5 fathoms, and sand bottom.

(1062) A reef makes out for 0.2 mile east from Yalik Point, the south entrance point to Yalik Bay. A least depth of 2 fathoms was found at the outer end of this reef. A rock, covered 1 foot and possibly marked by kelp, is about 0.2 mile off the north entrance point to Yalik Bay.

(1063) **Surprise Bay** indents the east side of West Arm. Anchorage can be had 0.3 mile from the entrance to the lagoon at its head, in 17 to 20 fathoms, mud bottom.

(1064) **Palisades Lagoon**, at the head of Surprise Bay, has a narrow entrance 40 yards wide and 350 yards long that is too narrow and crooked to be navigated by any except very small vessels. A depth of about 4 fathoms can be carried by favoring the east side of the entrance until past the point on the west side, to avoid a rock lying east of this point; thence favor the west side of the channel into the lagoon. A large sandspit with boulders on it, is on the east side of the entrance of the inner end.

(1065) General depths in the lagoon range between 18 to 20 fathoms, mud and rock bottom, and afford secure anchorage. The lagoon may freeze over in winter. **Babcock Creek**, a small stream, empties into the lagoon over a large sandflat that uncovers at low water.

(1066) **Ariadne Cove** is behind prominent **Ariadne Island** on the south side of the entrance to Surprise Bay. There is good anchorage for small vessels in this cove in 5 to 10 fathoms, mud bottom, but in the winter, with northwest winds, the cove becomes quite rough. There are two entrance channels, one on each side of Ariadne Island. The north entrance has a rock, bare at low water, near midchannel southeast of the island; the best water is east of this rock, but care should be taken to avoid reefs that make out from the north shore of the cove.

(1067) The west entrance has a shoal of 2½ fathoms in midapproach. A reef bare at low water makes off for 125 yards from the point on the south side of the entrance. The best water in this entrance is found by favoring the island, being careful to avoid a reef awash at high water that extends 60 yards south from the second point from the entrance on the south side of the island.

(1068) **Quartz Bay** is on the east side of West Arm, 4 miles northwest from Harrington Point. **Beautiful Isle**, a wooded islet with a cluster of bare rocks, is on the south side of the entrance. A shoal with a least depth of 31 feet is 300 yards west. Another shoal is 0.2 mile off the north shore of the entrance. A rock, reported covered 6 feet, is in the south part of the shoal in about the middle of Quartz Bay. Anchorage can be found in the center of the bay, 0.3 mile from its head, in 14 to 18 fathoms, mud bottom. The 10-fathom curve is about 325 yards from shore at the head of the bay. The water shoals very rapidly inside this curve.

(1069) **Moss Point** separates Beauty Bay from North Arm. It has a number of grass-covered rocks and wooded islets close-to.

(1070) **North Arm** branches off for 5 miles to north from West Arm. A large flat back of the head of the arm is covered with grass and alders, in front of which is a mudflat that covers. Deep water approaches to within 250 yards of the head of the arm and to within 100 yards of the low water line.

(1071) **Pilot Harbor** is on the east side of North Arm about 1 mile from its head. A bare rock, 3 feet high, is 275 yards off the south point of the entrance and a submerged rock is 100 yards northeast. A large bare rock, 4 feet high, is 125 yards south of a wooded islet close off the north point of the entrance. There is a clear entrance between these rocks. A large shoal area, 200 to 300 yards wide and

mostly bare at low water, extends across the head of the bay. Entering in midchannel, a secure anchorage will be found in the middle in 14 to 16 fathoms, mud bottom.

(1072) Small vessels can anchor 100 yards to west of the point that resembles a small wooded islet, on the northeast side of Pilot Harbor in 5 to 8 fathoms, mud bottom. This is the best anchorage for small craft in North and West Arms in stormy weather.

(1073) A small cove, on the west side of North Arm about 1 mile from its head, is very deep and has no anchorage. A large, prominent waterfall, with a sheer drop of about 900 feet, is about 1.5 miles northwest from the head of the cove.

(1074) **Nuka Island**, on the west side of Nuka Bay, is mountainous and densely wooded on the lower slopes in the north part and grass covered in the south part. The east shore rises precipitously to the mountain tops and is bare shale and talus formation. The west shore, bordering on Nuka Passage, is broken up into numerous bays and coves.

(1075) **Nuka Point**, the south end of Nuka Island, is fairly prominent. This point is formed by a peninsula with a high peak near its inshore end. The peninsula is connected with the main part of the island by lowland; from a distance it appears to be an island. The east and south shores rise in sheer cliffs, making a landing impossible. Two rocks about 4 feet high are 0.3 mile off the point east of the peak, and a reef covers the area inshore of them.

(1076) **Nuka Rock**, 4 feet high and 20 feet across, is 0.4 mile south of the southeast tip of Nuka Point. Irregular depths of less than 25 fathoms extend about 3 miles south from Nuka Point. A rocky patch of 7 fathoms is 1.5 miles east-southeast from Nuka Rock; another patch of 7 fathoms is about 2.8 miles northeast from Nuka Rock, 1.2 miles offshore.

(1077) **Pinnacle Rock**, 3 miles northeast of Nuka Rock and 0.3 mile offshore, is 68 feet high and the most prominent landmark along this coast. Numerous small rocks and reefs, marked by kelp, are inshore from this rock.

(1078) Along the coast between Pinnacle Rock and Nuka Point, and for 0.5 mile north of Pinnacle Rock, are numerous rocks, some of which are 250 yards offshore. About 1.5 miles north of Pinnacle Rock, a small foul bight is filled with a cluster of rocks and islets.

(1079) An area with sandy bottom extends about 1 mile south of the bight and offshore from two prominent sand beaches. The bottom is smooth, with gradually increasing depths to the 10-fathom curve, nearly 0.5 mile offshore.

(1080) A prominent reef 5.2 miles northeast of Nuka Point and 3 miles south of the entrance to Nuka Passage makes a good mark. This reef is formed by two large rocks, 25 and 30 feet high, the outermost being the smaller and 400 yards off the east shore of Nuka Island. Many rocks are along the coast inshore of this reef, but deep water approaches within 200 yards on the offshore side.

(1081) The small inlet about 1 mile south from the east entrance to Nuka Passage is the only important indentation in the east shore of the island. Off the north point of the entrance is a prominent wooded islet about 70 feet high, the outer face of which is bare white granite. There are numerous high bare rocks and wooded and grassy islets on both sides of the entrance. The inlet is exposed to southeast, and the south side is foul, but small craft can approach its head as follows:

(1082) Enter in midchannel and when 200 yards past the wooded islet on the north side, anchor in 6 to 9 fathoms, sandy bottom. If going to the head of the inlet, favor the north side above this anchorage to avoid submerged rocks almost in midchannel. A large sandflat is at the head, with shoal water 125 yards offshore from it. Very small craft can anchor abreast the last point on the south shore, 200 yards from the low-water line, in 2 fathoms, sandy bottom, but there is very little swinging room. This inlet affords fair-weather anchorage only.

(1083) For 1.5 miles northwest of the inlet there are rocks as much as 250 yards offshore. The last of these is 2 feet high, 300 yards offshore, and makes a good mark for entering Nuka Passage. Deep water is fairly close outside these rocks; the 100-fathom curve is 0.4 mile offshore.

(1084) **Nuka Passage**, between Nuka Island and the mainland, is about 12 miles long from the east entrance to the south entrance.

(1085) When used with McArthur Pass, this passage affords a shorter and protected route for vessels proceeding along the coast. It is of special use to small low-powered craft. The passage is deep and is easily navigated in clear weather.

(1086) In the approach to the east entrance is a bank with a least depth of 8 fathoms 1 mile south of the point on the north side. Between this bank and the north shore of Nuka Island are depths of over 100 fathoms. A shoal, with a least depth of 4¾ fathoms, is in midpassage, 1 mile southwest of the north point of the entrance, and nearly 0.5 mile southeast of a prominent wooded islet on the north side of the pass. Between this shoal and the south shore are depths of 90 fathoms. About 1.5 miles inside the east entrance, on the north side, is a small cove open to the east; good anchorage is available for small craft in 4½ to 10 fathoms, mud bottom, and water may be obtained from the stream.

(1087) **Division Island**, a group of three wooded islands connected at low water, is in midpassage about 2.2 miles from the east entrance. The ship channel is south of the islands.

(1088) A rock awash at high water is 180 yards south of the east tip of Division Island. A rock bare at minus tides is in midchannel north of the island. A shoal with a rock awash extends south from the west extremity of the Division Island group, reaching almost halfway across the channel towards Hardover Point.

(1089) A near midchannel course, slightly favoring the south shore, is recommended in making this passage. The tidal currents have considerable strength.

(1090) From **Hardover Point**, the northwest end of Nuka Island, the pass trends south toward Gore Point. About 0.6 mile northwest of Hardover Point, on the north side of the

channel, a large sand-and-gravel flat extends northwest for about 1.5 miles to the foot of the moraine of Yalik Glacier, a prominent mark. Deepwater approaches close to this flat except at its southwest end where it is shoal for a considerable distance offshore.

(1091) **Home Cove**, 1.5 miles south from Hardover Point, is small.

(1092) **Berger Island** is a prominent wooded islet, 25 feet high, about 5 miles south from Hardover Point. The island is the outermost of a group making off from the east shore and appears from north to be in the center of the channel.

(1093) A rock 8 feet high is 250 yards northeast from the island, and a reef bare at low water extends 85 yards off this rock. A rock awash at low water and not marked by kelp is 1.2 miles 213° from Berger Island.

(1094) About 0.6 mile south of Berger Island is a grass-covered islet, 45 feet high and topped by a spruce tree that shows up well from the north or south but blends into the background when viewed from the west. The spruce tree in range with the west tangent of Berger Island to the north marks the 3½-fathom spot in the middle of the entrance to Westdahl Cove.

(1095) **Westdahl Cove** is 1 mile south of Berger Island. A rocky patch of 13 to 18 fathoms extends nearly across the bay. The anchorage is inside this rocky patch in 22 fathoms, mud bottom. A reef bare at low water and marked by thick kelp is 0.3 mile west of the south entrance point. A 3½-fathom shoal is in the middle between the entrance points.

(1096) **Yalik Glacier** formerly discharged into the west arm of Nuka Passage. There is good anchorage off the southwest end of the glacier moraine in 17 fathoms, soft bottom; however, care should be taken to avoid a 1-fathom rocky shoal about 0.4 mile south of the low waterline of the moraine and about 0.3 mile east of the west shore. An unusual rocky reef, bare at low water, extends 300 yards in a southeast direction from the extreme southwest end of the moraine.

(1097) **Petrof Point**, on the west side of the passage opposite the middle part of Nuka Island, is a prominent, low, rounding point with a wide sand beach.

(1098) **Petrof Glacier**, which shows prominently from the south, discharges into the west side of the passage around the base of a prominent ridge about 2 miles south of Petrof Point.

(1099) **Brown Mountain**, between Petrof Glacier and Tonsina Bay, is of a distinctive brown shade during the summer and has a prominent round shoulder jutting to the east.

(1100) **Tonsina Bay**, 7 miles north from Gore Point, is small and marked by a large island, known locally as **Long Island**, nearly in the center of the entrance. The entrance north of Long Island is preferred, as it is deeper and wider. Firm sandflats are at the head of the bay where vessels of any size can be beached in an emergency. On the north side of the north entrance is a bold wooded islet. About 380 yards south of this islet is a reef awash at high water. Thick kelp extends between the reef and the islet.

(1101) A rock awash at half tide is 660 yards 275° from this reef; it is 250 yards south of the north shore, and there is kelp inshore of it. Numerous rocks and islets make off to north from Long Island. The northernmost is a well-defined rocky islet sparsely covered with grass and about 25 feet high.

(1102) Entrance should be made at low water when the various rocks and reefs are visible. Anchorage can be had in 22 fathoms, mud bottom, northwest of Long Island in the basin formed by Long Island, the islets, and the mainland. Good anchorage for small craft can be had near the head of the bay in 5 to 10 fathoms, sand bottom.

(1103) **Front Point**, rising abruptly to 170 feet, is 5 miles north-northwest of Gore Point, on an island that is separated from the mainland by a narrow band of water about 25 yards wide.

(1104) A reef bare at minus tides is 0.4 mile east from the point, and there are several covered rocks and kelp patches inshore from this danger. The coast from the south entrance to Tonsina Bay to the bight north of Gore Point has numerous rocks awash at low water and kelp patches that extend about 0.3 mile offshore.

(1105) Anchorage can be had anywhere in the bight north of Gore Point by keeping clear of the kelp and avoiding the rock, which bares 3 feet at low water, 300 yards northeast of the well-defined rock point at the west end of the bight.

(1106)

Gore Point to Chugach Bay

(1107) **Gore Point** (59°11.8'N., 150°57.8'W.) is the southeast end of a prominent headland on the east side of the entrance to Port Dick. From east and west, the headland has the appearance of an island, with **Gore Peak**, near the middle and a broad, high shoulder at the ends and separated from the highland north by a narrow gap. The arch in **Arch Rock**, at the east end of Gore Point, shows over a small arc from south, and a folding in the strata in the face of the cliff shows on the south side of the headland.

(1108) Within a radius of 1.2 miles of Gore Point, the bottom is very irregular, depths of 14 fathoms being found at that distance off. A depth of 5½ fathoms was found 0.4 mile south of the point in general depths of 10 to 15 fathoms.

(1109)

Caution

(1110) Tide rips with steep, short choppy seas have been reported 3 to 5 miles south of Gore Point, especially on an ebb current with either a strong west or southeast wind.

(1111) The neck joining the headland at Gore Point to the mainland is low and wooded. On the west side of the neck is a cove affording indifferent anchorage with east winds. The south point of the cove is the west end of the headland and is a shelving ridge of bare rock. Close to this point is a rocky islet, from which rocks bare at low water and kelp extend about 200 yards northwest. A rock,

covered at high water, is about 100 yards from the cliff at the southeast end of the cove. A large kelp area extends about 200 yards northwest from the rock. The anchorage is in 18 to 25 fathoms, soft bottom, 250 to 300 yards from the beach of the low neck and about 0.3 mile from the cliff on the south side. The water deepens rapidly northwest, the swinging room is scant, and the anchorage is uneasy. It is recommended only as a temporary anchorage.

(1112) **Port Dick**, west of Gore Point, extends north for 2.5 miles to the junction of its three main arms. Abrupt shoals are within a radius of 2 miles about the point at the west side of the entrance to Port Dick. The areas near the point are foul.

(1113) **Takoma Cove** and **Sunday Harbor** are branches of the arm or bay on the east side of Port Dick, 2.5 miles above the entrance. A dangerous reef, covered 1¼ fathoms, is 0.3 to 0.5 mile west from the south side of the entrance to the arm. Takoma Cove and Sunday Harbor are the anchorages generally used in Port Dick, weather permitting. Sunday Harbor has irregular depths but is used as an anchorage by smaller vessels for the increased protection from southeast weather. The holding ground is fair in Sunday Harbor.

(1114) Anchor in the entrance to Takoma Cove with the shore to the southwest open with the point at the west side of the entrance to Port Dick; select a depth of 17 to 18 fathoms, sticky mud bottom. In the lesser depths near the head of the cove, the bottom is rocky, has poor holding quality and has many off-lying rocks. Tacoma Cove offers fair protection from east and northeast weather but poor protection for southeast through southwest weather.

(1115) **Taylor Bay**, the north arm of Port Dick, extends in a north direction for 3.5 miles and is 1.5 miles wide at the entrance. Except for rocks fringing the shores, no dangers were found in the bay. A rock, 4 feet high, is 1.5 miles north of the entrance and 130 yards off the first well-defined point on the east shore. At the beginning of the narrows are two rocks, awash at half tide and about 100 yards off the east shore.

(1116) At the upper end of the bay is a basin, with depths of 20 to 25 fathoms, surrounded by extensive mudflats.

(1117) **West Arm** extends west for a distance of 7.5 miles. There are two coves on the north side of the arm, 1.5 and 4 miles, respectively, from the entrance. The first cove has two islands in the center. Anchorage can be had east of the islands in 16 to 19 fathoms, rock and mud bottom. Smaller vessels anchor west to northwest of these islands in 17 fathoms, especially during west and east winds. Another anchorage for small vessels can be had behind a short peninsula 3 miles in on the south side of the arm. Good protection from east weather is found close to the beach. The westernmost cove is practically bare at low water. At the head of the arm on the south side are two islets, the west one marking the low-water line that extends directly across the arm at this point.

(1118) In the SW approach to Port Dick is dangerous **Gore Rock**, covered 1¼ fathoms, 7.5 miles 244° from Gore Point and approximately 3.5 miles from shore.

(1119) **Qikutulig Bay**, 5 miles west of Port Dick, has good anchorage for small craft in about 8 to 10 fathoms taking care to allow low-tide swinging room away from shoals connecting the islets. Between Port Dick and this bay the shore should not be approached closer than 2 miles because of rocks awash that extend 1.5 miles off.

(1120) **Rocky Bay**, the large bay north of East Chugach Island, is broken by numerous rocks, islets, rocks that uncover and shoal spots. The depths are irregular and of little use as guides for navigation. Small and medium-sized vessels can find sheltered anchorage in mud bottom with good ground in **Picnic Harbor**. The harbor is at the head of the bay and 220 to 300 yards wide. Use care to avoid the rocks on the northeast side of the entrance when entering the harbor. An unmaintained trail connects Picnic Harbor with Jakolof Bay, then it continues as a gravel road to Seldovia.

(1121) Two rocks that uncover 9 feet are 1.2 miles south from the large wooded island in the middle of Rocky Bay. There is also a 2½-fathom spot 1.3 miles southwest from the east entrance point of the bay. A sunken wreck is on the northeast side of the bay in about 59°14'43"N., 151°23'43"W.

(1122) **Windy Bay**, just west of Rocky Bay, extends 3.5 miles west and is 440 yards wide near its head. Though the bay has a good holding mud bottom in 4½ to 8 fathoms near the head, it is not recommended as a desirable anchorage because of heavy swell during southeast weather and a strong west breeze that draws through the bay. Boats entering this bay should favor the south side, keeping about 440 yards offshore when north of the south entrance point.

(1123) **Chugach Bay**, the large bay south of Windy Bay, has a north bight with deep water close inshore, and a west arm, 2 miles long, with good holding mud bottom. The west arm anchorage is not recommended for small boats because of its exposure to east weather and the strong west breeze that draws through the anchorage. The bottom in the south half of the entrance is broken, with a rocky spot covered 1¾ fathoms.

(1124)

Cook Inlet

(1125) **Cook Inlet**, on the west side of Kenai Peninsula, merges with Shelikof Strait through a wide unobstructed passage west of the Barren Islands. Leading from the Gulf of Alaska to Cook Inlet are Kennedy Entrance and Stevenson Entrance, north and south, respectively, of the Barren Islands, and Chugach Passage, inside the Chugach Islands. The distance is 1,254 miles from Seattle to the entrance to Cook Inlet at a point 3 miles south of East Chugach Light, via the outside route by way of Strait of Juan de Fuca. From the entrance it is 48 miles to Seldovia, 59 miles to Homer, 110 miles to Kenai and Nikiski and 175 miles to Anchorage.

(1126)

Prominent features

(1127) The shore on both sides of the inlet can be seen in clear weather. Conspicuous landmarks in the lower inlet are Augustine, Iliamna and Redoubt Volcanoes. Four lighted, parabolic antennas are prominent along the east shore from Cape Starichkof to Kenai River. The bluff between Anchor and Bluff Points is prominent and Cape Ninilchik; Chisik Island; Kalgin Island; East, West and North Forelands; numerous charted oil well platforms in the upper inlet; Point Possession; Fire Island and Point Woronzof are prominent.

(1128)

Anchorages

(1129) Port Chatham, Port Graham, Seldovia Bay, northeast of Homer Spit in Kachemak Bay, Iniskin Bay and Tuxedni Channel are the secure harbors in the inlet. Temporary anchorage can be selected in 10 fathoms or more at most places in the inlet with the aid of the chart. The great range of the tides must always be kept in mind when anchoring.

(1130)

Dangers

(1131) The shoals in Cook Inlet are generally strewn with boulders that are not marked by kelp. These boulders, on the otherwise flat bottom, are not normally found by echo sounder or lead lines unless directly over them. Most of those located by the survey were found by sighting them at low water. It was noted in places that the boulders rise as much as 30 feet above the general level of the bottom. The boulders may be moved during the ice breakup in spring and by the action of strong currents. As a measure of safety, it is considered advisable for vessels to avoid areas having depths no more than 30 feet greater than the draft. At low water, deep-draft vessels should avoid areas with charted depths of less than 10 fathoms, except for the channel approaches to the ports of Anchorage and Nikiski.

(1132) In general, the shoal banks fronting the marshy parts of the shores in the upper inlet are free from boulders but there are indications that boulders do exist in the deeper water outside these banks.

(1133) The shoal that extends 16 miles south from Kalgin Island (**South Kalgin Bar**) is marked at its south end by a lighted bell buoy. Care should be taken for the entire distance to avoid drifting into shoal waters.

(1134) With an average tidal current there are swirls throughout the inlet, but they do not necessarily indicate dangers as they show in depths of 15 fathoms if the bottom is uneven. Heavy swirls with slight overfalls should be avoided, and any disturbance that has a recognizable wake in the water should be considered as indicating a dangerous rock or shoal. A dangerous wave condition exists over the shoals in Cook Inlet when the current opposes winds over 12 knots. Significant ground swells are experienced in the Kenai River approach and at the Nikiski docks when a southwest wind accompanies a flood current. Vessels north and south bound past Turnagain Arm should be alert to the potential for heavy sets from a combination of winds and currents emanating from Turnagain Arm. (See specific area descriptions for more.)

(1135) The waters of the inlet are much discolored by glacial silt. At the end of the ebb current the discoloration may extend to Anchor Point, and at the end of a spring flood current it may be comparatively clear to East and West Forelands. Frequently with either a flood or ebb current the water above Ninilchik appears as liquid mud. The silty water is very damaging to the seals of salt water pumps and shaft bearings. Ship's evaporators should be secured and vessels avoid taking on any more ballast water than absolutely necessary.

(1136) The Cook Inlet area is affected by land uplift due to forces such as postseismic crustal rebound. As a result, the tidal datums including mean lower low water, the plane of reference used for depth soundings, have changed throughout the region. As the uplift rates can only be estimated and areas continue to rise, depths may be shoaler than charted. Mariners are urged to be prudent.

(1137)

Under Keel Clearances

(1138) Calculated under-keel clearance of 10 feet is recommended for deep draft vessels transiting Cook Inlet. It should be noted that the determination of an appropriate minimum under-keel clearance for a specific vessel transiting a specific waterway must consider many factors in addition to vessel draft and least depth, including but not limited to; environmental conditions, speed, tides and hydrography of the waterway. Masters and pilots should use prudent seamanship and should evaluate the need for additional clearance to accomodate the effects of roll, list, pitch and squat.

(1139)

Oil Production Platforms, Cook Inlet

(1140) Oil drilling and production operations continue in Cook Inlet extending as far north as Susitna Flats. The heaviest concentration of these operations is in the vicinity of Middle Ground Shoal. In general, the oil well platforms, depending on their size, depth of water in which located, proximity of vessel routes, nature and amount of vessel traffic and the effect of background lighting may be marked with a combination of flashing lights, sound signals and retro-reflective material.

(1141) Obstructions in these waters consist of marked and unmarked submerged wells, and oil production platforms, including appurtenances thereto, such as mooring piles, anchor and mooring buoys, pipes and stakes. Submerged wells may or may not be marked depending on their location and depth of water over them. All obstruction lights and sound signals used to mark the various structures are operated as privately maintained aids to navigation. (See **33 CFR, 67.01** through **67.10**, chapter 2, for regulations.)

(1142) Mariners are cautioned that uncharted submerged pipelines and cables may exist in the vicinity of these

structures or between such structures and the shore. These structures and aids are subject to heavy damage and/or destruction from ice in winter; unlocated debris and remains may exist. Mariners are advised to navigate with caution in the vicinity of these structures and in those waters where oil exploration is in progress and to use the latest and largest scale chart of the area. Mariners should avoid anchoring their vessels anywhere in the vicinity of oil well platforms or their associated structures. (For more information, see the description of Oil Production Platforms immediately following East Foreland.)

(1143) During winter months all buoys in Cook Inlet north of Anchor Point are removed from station. (See the Light List.)

(1144)

Winter Guidelines for Operating in Cook Inlet

(1145) During the coldest months, generally beginning in November and continuing until April, mariners need to remain vigilant and exercise the utmost caution when operating in Cook Inlet. The extreme frigid temperatures contribute to a number of additional hazards that mariners should identify and account for during the planning process for any voyage to be undertaken in Cook Inlet during these months.

(1146) Ice in the waterway could hamper a vessel's ability to maneuver and could cause malfunctioning of main, auxiliary and other vital systems. Vessels moored at facilities could also encounter heavy ice flows that can exert unusually high forces on mooring lines. Additionally vessel operators should ensure that the crews are equipped with the appropriate personal protective gear for extreme weather.

(1147) As a result of this period of increased hazard, the Captain of the Port (COTP), Western Alaska, in consultation with the marine community has published special winter operating guidelines for all vessels transiting Cook Inlet. The COTP announces via Navigation Advisories and Local Notice to Mariners when conditions exist that require mariners to evaluate their operations and consider the application of measures contained in these guidelines to adequately mitigate the risk of conducting vessel operations safely in Cook Inlet when ice is present.

(1148) The published guidelines fall into two categories. The first category is applicable to vessels operating in Cook Inlet when ice is present or when ice can reasonably be expected to be present prior to a vessel's departure. These guidelines address concerns for engineering systems, crew safety and vessel mooring safety during ice conditions in extreme cold temperatures. The second category applies to vessels operating in Cook Inlet when ice extends south to Nikiski and address additional guidelines for the safety of vessels mooring at the Nikiski area terminals.

(1149)

Vessel Examinations

(1150) When ice conditions exist in Cook Inlet, vessel operators or their agents are to contact COTP Western Alaska to arrange for an examination at least 24 hours in advance of arriving at the pilot station in Kachemak Bay. If the Coast Guard chooses to examine the vessel, the exam will be conducted in Kachemak Bay. The COTP Western Alaska will issue Navigation Advisories throughout the winter period advising operators of conditions and that these examinations are being conducted. The National Weather Service publishes a forecast for Cook Inlet ice conditions that can be found at: *www.weather.gov/afc/ice.*

(1151)

General Requirements

(1152) All vessel operators should ensure that main and auxiliary machinery and all vital systems, particularly cooling and fuel systems, are winterized for operation in ice-filled waters and ambient air temperatures to -40°F. Winches, ballast systems, anchoring and auxiliary equipment must be adequately prepared for operation under these conditions at all times, while moored or at anchor in Cook Inlet.

(1153) The vessel master should maintain an adequate draft to keep the sea suction and propeller well below the ice to prevent ice from sliding under the vessel. It is recommended that the most forward point of the bulbous bow be submerged. If it is necessary for a non-tank vessel to deviate from the ship’s normal ballast procedures, i.e., place water ballast in a cargo hold to meet these requirements, approval from the vessel's classification society must be obtained.

(1154) Vessel crews should have adequate personal protection for cold weather during deck operations.

(1155) While transiting Cook Inlet, vessels should not force ice at any time. If, in the opinion of the vessel master and/or pilot, the vessel is forcing ice, the transit should be aborted. A good indication of forcing ice is when the vessel slows to 50% or less of the speed being made before entering the ice.

(1156)

RECOMMENDATIONS SPECIFIC TO VESSEL TYPE

(1157)

Self Propelled Cargo Vessels with Internal Combustion Engines:

(1158) Any vital systems that are cooled via a sea chest must have a means to prevent the accumulation of any ice or slush within the system. This should be achieved by delivering steam to both the primary and secondary sea chests. Only lines or hoses designed for steam service are acceptable. Steam should be continuously supplied to both sea chests from the time the vessel passes Anchor Point inbound until the time the vessel passes Anchor Point outbound.

(1159) All vessels propelled by gas turbines should ensure that the auxiliary gas turbine is ready for immediate use and engagement in the event of a main gas turbine failure.

(1160)

Tug and Barge Operating Guidelines:

(1161) When Ice conditions exist, the COTP will carefully evaluate barge movements within Cook Inlet. Voyages into Cook Inlet with tug and barges that hold a Certificate of Inspection (COI) are required to file a voyage plan with the COTP, Western Alaska, via the following email address: D17-pf-anc-sdoanc@uscg.mil. Typically, the voyage plan should include an assessment of ice conditions based on information collected from ice over-flights, review of National Weather Service reports and observations made by marine pilots and other operators. The plan should advise the COTP of intentions to contract with an additional tug to lead the tow through the ice pack if necessary.

(1162) At any time while ice is present, in addition to filing a voyage plan with the COTP, the following actions should be considered:

(1163) The assistance of at least one tug to lead the barge and attending tug through the ice pack and to provide assistance into the berth.

(1164) A minimum of one tug is recommended in addition to the attending tug to stand by the tow while at berth.

(1165) The attending tugs' main engines should remain running while the tow is moored at a facility.

(1166) Barges mooring in the Port of Anchorage are recommended to moor with their bow facing the flood tide (port side to) to stem the force of ice during the stronger flood tide.

(1167) Only tow vessels with keel-cooled engines should be employed for operations during periods when ice is present.

(1168) If ice build-up between barge and pier or under a moored barge is a possibility, the barge should be pulled away from the berth prior to max ebb tide to flush away ice that has accumulated.

(1169)

WHILE MOORED AT FACILITIES

(1170) All vessels should be moored in such a fashion that “worst case” ice conditions may be immediately mitigated, with their bow facing the flood tide to stem the force of ice during the stronger flood tide. The vessel should have additional mooring lines available. Lines of different types may be used in mooring arrangements provided that they are not used in the same service.

(1171) When ice is in the vicinity of the vessel, the following actions are recommended:

(1172) Vessels with engines and propulsion systems should be continuously manned (to include a pilot(s)) if necessary in a fashion that would allow the most expeditious means of mitigating ice conditions by relieving strain on mooring lines and/or getting the vessel underway. Steam should be continuously delivered to both the primary and secondary sea chests.

(1173)

FACILITIES

(1174) Facility operators should also follow their own ice procedures when deemed necessary.

(1175) Additional Guidelines for Operations when Ice Extends South to Nikiski

(1176)

GUIDELINES FOR SELF PROPELLED CARGO VESSELS MOORED AT KPL, AGRIUM AND CONOCO PHILLIPS DOCKS

(1177) The Southwest Alaska Pilots Association's (SWAPA) Tide & Current Handbook has been agreed upon to be used as the reference for forecasted tides and currents at the Nikiski docks.

(1178) **KPL and Agrium dock:** When the referenced flood current is greater than 4 knots alongside the KPL or Agrium dock, it is highly recommended that the following actions be taken:

(1179) Discontinue all transfer operations.

(1180) Disconnect all transfer hoses/loading arms.

(1181) A designated vessel should be positioned up current of the moored vessel as an ice scout. The ice scout should work under the direction of the moored vessel’s navigational watch.

(1182) Vessels should not remain alongside the KPL or Agrium dock when the referenced flood current is 5 knots or greater.

(1183) **Conoco Phillips dock:** When the referenced flood current is greater than 5 knots, it is highly recommended that the following actions be taken:

(1184) Discontinue all transfer operations.

(1185) Disconnect all transfer hoses/loading arms.

(1186) A designated vessel should be positioned up current of the moored vessel as an ice scout. The ice scout should work under the direction of the moored vessel’s navigational watch.

(1187) The vessel Master, Pilot or Person in Charge (PIC) should make a decision to discontinue transfer operations, disconnect hoses and get the vessel underway anytime that circumstances warrant.

(1188) The vessel Master or Pilot may also make a decision to utilize an ice scout vessel anytime that circumstances warrant.

(1189)

GUIDELINES FOR TUG AND BARGE OPERATIONS

(1190)

Nikiski Docks Barge Operating Guidelines:

(1191) In addition to filing a voyage plan with the COTP, the following actions should be taken-

(1192) A tug should assist the barge and attending tug to the facility.

(1193) When the published current is 2.0 knots or greater an assist tug should be alongside the tow in addition to the attending tug. Both the attending and assist tug main engines should remain running and ready for immediate operation.

(1194) When no ice is present at the dock, the assist tug should act as an ice scout up-current of the barge. The assist tug should reposition itself alongside the moored barge anytime ice becomes a threat.

(1195) The barge(s) should moor with their bow facing the direction of the flood tide to stem the force of ice during the stronger flood tide when the current exceeds 2 knots.

(1196) The facility Person in Charge, Towing Vessel Operator or Tankerman may determine that it is prudent to suspend transfer operations and disconnect hoses during maximum flood currents, since the ice flow is heaviest on the flood tide at the Nikiski docks.

(1197) Only tow vessels with keel-cooled engines should be employed for operations during periods when these guidelines are applicable.

(1198) These guidelines and recommendations have been developed in cooperation with the U.S. Coast Guard and Cook Inlet operators and represent a culmination of best practices based on the combined experience of maritime operators who have operated in the severe tidal and winter climate of Cook Inlet over many years. Vessel operators, masters, marine pilots and facility operators should consider these recommendations as well as any additional actions to ensure safe operations in Cook Inlet.

(1199) If extreme ice conditions preclude safe operation of vessels at the berths in Nikiski, Drift River, Port Mackenzie or the Port of Anchorage, the COTP may terminate cargo operations or close the terminal or port until conditions improve.

(1200) All vessels transiting Cook Inlet are subject to Coast Guard examination to ensure their ability to implement these guidelines. Failure to follow these guidelines may result in the issuance of a COTP Order under Title 33 USC 1221. Vessel operators or their agents should contact the COTP, Western Alaska, at their earliest opportunity to present their vessels to the Coast Guard for examination. To avoid unnecessary delays to vessel and port operations, notification and requests for examination should be at least 24 hours in advance of the vessel's arrival to the Homer Pilot Station. This examination program is in addition to any other Coast Guard inspections and/or examinations that may be applicable to a particular vessel. Any questions concerning these guidelines contact the Anchorage office at 907-428–4200 or Marine Safety Detachment Kenai at 907-235–5233.

(1201)

Routes

(1202) For vessels approaching Cook Inlet, the chart is the best guide. Descriptions for routes at the entrance follow immediately. Courses inside the inlet should be set as prudent navigation demands, with due allowance for weather conditions and set of the currents. See the section on Kachemak Bay and the Port of Anchorage, later in this chapter, for more information on Cook Inlet routes.

(1203) Kennedy Entrance and Stevenson Entrance are the main deep-draft entrances to Cook Inlet from the east. When entering Kennedy Entrance, between Perl and Amatuli Islands, caution is necessary to avoid the three off-lying dangers: the 4½-fathom rocky shoal about 16.2 miles east of East Amatuli Island Light; Cowanesque Rock, covered 2½ fathoms, 7.3 miles southeast of East Amatuli Island Light; and Dora Reef covered 1¼ fathoms, on the north side of Kennedy Entrance and 2.7 miles west-southwest of Perl Island. In addition, for more westerly-bound traffic, those in transit especially from Prince William Sound to Chugach Passage should use care to avoid Gore Rock about 8.2 miles east-northeast from the light at the south end of East Chugach Island.

(1204) Some smaller vessels approaching from the east pass north of East Chugach Island and enter the inlet via Chugach Passage, while others pass between Perl and East Chugach Islands to enter the passage. Local knowledge is desirable in using Chugach Passage. Vessels approaching from the south and passing between East Amatuli Island Light and Cowanesque Rock to the southeast should make due allowance for the set of the tidal current and, especially during periods of low visibility, keep a sharp lookout for the 2½-fathom Cowanesque Rock.

(1205) Navigation in the inlet is primarily done by use of bearings to navigation lights, radar (ranges to significant land features and parallel indexing), GPS, DGPS and fathometer. Note: Large exposed tidal flats in front of the shore will often give a strong radar return.

(1206)

"Securite" (Se-cur-it-tay) Broadcasts

(1207) It is the practice for large ships and tugs with barges to make broadcasts when abeam the following eight places in Cook Inlet: Perl Island/E Amatuli Light, Flat Island, Anchor Point, Cape Ninilchik, Cape Kasilof/S tip of Kalgin Island, East Foreland, North Foreland/Moose Point and Fire Island abeam of Point Possession. Broadcasts are also made when departing any anchorage or berth or the Pilot Station. These broadcasts include the vessel's name, speed, course, destination and general position and are made on VHF-FM channel 16 (if transmitted in 60 seconds or less). In addition, VHF-FM channel 13 is monitored to comply with Bridge-to-Bridge radio regulations and channel 10 is monitored for radio communications with tugs.

(1208)

Currents

(1209) Tidal currents in Cook Inlet are strong and must be considered at all times. Low-powered vessels should plan their trips so as to have favorable current and anchor rather than steam against the current of a large tide. A vessel with a speed of about 10 knots, picking up the flood current of a large tide a little north of Anchor Point, can carry it to Fire Island.

(1210) At the entrance to Cook Inlet the tidal currents have an estimated velocity of 2 to 3 knots and in general increase up the inlet, with very large velocities in the vicinities of Harriet Point, East and West Forelands and the entrances to Knik and Turnagain Arms, where

they are reported to be strongest. The current velocity measured by the survey ship McARTHUR was 5 knots at anchorage near East and West Forelands, Tyonek and Point MacKenzie. These anchorages were out of the full strength of the current, and it is estimated that the velocity of the current during a large tide is as much as 8 to 9 knots between East and West Forelands and probably more between Harriet Point and the south end of Kalgin Island. A 6-knot ebb current was reported east of the shoal that extends 8 miles north-northeast of Kalgin Island at a point about 5 miles northeast of Light Point. Ebb currents are reported to last 1 hour longer than predicted in this area.

(1211) In general, the direction of the current is approximately parallel to the trend of the nearest shore and/or parallel to the 10-fathom curve. Off the various bays a set may be expected, toward the bay on a flood current and away from the bay on an ebb current. It is reported that vessels may steer **10°** to **25°** offset from their desired course to account for this set. (For example see Turnagain Arm.)

(1212) Information for several places in Cook Inlet is available from the Tidal Current prediction service at *tidesandcurrents.noaa.gov*. Links to a user guide for this service can be found in chapter 1 of this book. The available current information for Cook Inlet is derived largely from observations near the shores. In the middle of the channel it is likely that velocities are larger and times of current somewhat later than near the shore.

(1213) This chapter also provides tidal current descriptions for some localities in the Cook Inlet not in the Tidal Current Tables. This information is reported and anecdotal. Reports indicate that slack waters do not occur at the times of local high and low tides, and the navigator is cautioned against assuming such a relation to exist. It is also reported that the difference in the Inlet between predicted and actual times of slack water (minimum before a maximum) can differ by as much as 1 hour, especially with small tides, and actual tidal heights can differ from predicted by 1 foot, especially with strong winds.

(1214)

Ice

(1215) The upper part to Cook Inlet is generally obstructed during the winter by ice that normally forms on the flats and in the shallower waters. Tidal currents then move in and break them up into ice pans that are then pushed out into the Inlet. The Winter Operating Guidelines should be followed when operating in the winter in the Inlet. (Contact COTP W Alaska, in Anchorage, for further information.)

(1216) During a mild winter or after a period of several days of mild weather, even low-powered vessels will probably have no difficulty in reaching the head of the inlet and lying at the docks long enough to discharge their cargoes.

(1217) During a severe winter or after a considerable period of severe cold, full-powered vessels can reach the head of the inlet but because of the heavy masses of ice floating in the strong currents, use the assistance of a tug and/or their anchors to dock.

(1218) During severe winters, ice pans in the Inlet can attain a diameter of 200 to 500 yards, ice packs can be continuous in the whole upper inlet, and ice formation will take place out in the inlet on small tides. Another phenomenon of severe cold periods is the grafting and stacking that occurs in two ways. Ice on the flats freezes to the surface, and when another high water comes in, ice will form on top of the earlier layer, eventually being broken free by tidal action and then called stamukhi. Secondly, out in the Inlet on a strong current, one ice pan will ride up onto another. These stacks have been reported to attain heights of 20 to 30 feet, especially at Middle Ground Shoal, and often contain gravel and boulders. The edges of ice pans normally appear on radar, but their extent can be misconstrued because the interior of a large, unbroken, flat pan often appears as open water.

(1219) Ice does not generally interfere with navigation south of Ninilchik except on the west side of the Inlet, where large fields of ice are sometimes carried by wind and tides just past Cape Douglas, closing Iliamna Bay for brief periods. (See the descriptions for the various ports in the inlet for more details about ice in that particular area.)

(1220)

Pilotage, Cook Inlet

(1221) Pilotage, except for certain exempted vessels, is compulsory for all vessels navigating the waters of the State of Alaska.

(1222) Pilots for the Cook Inlet are available from the Southwest Alaska Pilots Association (swpilots.com) office at Homer; telephone 907-235-8783, cell 907-299-7513 (24 hrs/day), email: Dispatch@swpilots.net, FAX 907-235-6119. A 36-hour notice is required.

(1223) Vessels en route to Cook Inlet ports and facilities begin their transit by contacting the Southwest Alaska Pilots dispatch at 907-299-7513, one and a half (1.5) hours before arriving at the pilot station, 1 NM south of the Homer spit. The vessel will then contact the pilot boat "Katmai" or "Mary Dele" by VHF-FM Channel 10 or 16, when one half (0.5) hour out. It is a common practice for vessels to shape a course (weather permitting) ¾ mile south of Homer Spit Light 3 with a starboard pilot ladder 1 meter from the water and a speed of 8 to10 knots. This proximity to the Homer Spit will allow for a starboard turn for vessels bound for central or northern Cook Inlet ports. (See **Pilotage, General** (indexed), chapter 3, for the pilot pickup station and other details.)

(1224) **Note:** With prior arrangements, any mooring lines needed can be delivered when embarking a pilot, (especially for the Winter Operating Guidelines or moorage requirements at Nikiski).

(1225)

Towage

(1226) Tugs for docking assistance are available 24 hours a day in Homer and Anchorage. Prior arrangements for

their use should be made. See the descriptions (indexed as such) for Homer and Anchorage.

(1227)

Supplies

(1228) The principal communities along Cook Inlet are Seldovia, Homer, Kenai, Nikiski and Anchorage; supplies, water and some repairs are available.

(1229)

Oil Spill Response Resources

(1230) Tank vessels carrying oil in bulk are required to have an approved vessel response plan and spill response resources (owned or contracted) to enter U.S. Ports. (See Oil Pollution, indexed as such, chapter 1.) In addition, all vessel spills are the responsibility of the spiller to remove. Spill response resources are available in Nikiski, Seldovia, Homer and Anchorage. (Contact U.S. Coast Guard Captain of the Port, Western Alaska, in Anchorage, for further information.)

(1231) **Cook Inlet**, north of a line from Cape Douglas to Point Adam, is a Marine Protected Area.

(1232)

Barren Islands to Ushagat Island

(1233) **Barren Islands**, a group of mountainous islands in the middle of the entrance to Cook Inlet between Chugach Islands and Shuyak Island, occupy an area about 13 miles long and 5 miles wide. East and West Amatuli Islands are bold and precipitous and mostly devoid of trees. They are thickly covered with grass in the depressions and on the less precipitous slopes. In general, the anchorages around Ushagat Island are preferable to the others in the group; however, all are insecure, because they are subject to sudden changes in wind speeds and directions.

(1234)

Dangers

(1235) In the approach to Cook Inlet, there is an unmarked pinnacle rock covered 4½ fathoms at 58°55'48"N., 151°25'52"W. The top of the rock has a very small area and apparently is the high point of a larger shoal. It may or may not be marked by a current slick. Cowanesque Rock (58°50'54"N., 151°45'13"W.), with associated shoal area, is unmarked and has a least depth of 2½ fathoms. Mariners are cautioned to give both of these shoals a wide berth.

(1236) Closer to the Barren Islands, a rock awash at half-tide is at 58°58'14"N., 152°02'43"W. An 8-foot high rock is off the west side of Ushagat Island at 58°57'29"N., 152°20'44"W. Two rocks awash at half-tide are just northwest and 0.5 mile east-southeast of the bare rock.

(1237) Operators of small boats should take particular care to avoid being caught in the tide rips off the Barren Islands. With a moderate west sea, wind force 4 to 5, coaming seas in series of three to four high waves have been seen north of Nord Island with sufficient height and force to seriously endanger, if not swamp, the ordinary fishing launch. In moderate weather small boats should not leave these islands until the current sets with the sea.

(1238)

Currents

(1239) **Tidal currents** of considerable velocity are found in Kennedy Entrance and Stevenson Entrance, the flood current setting approximately northwest and the ebb southeast Heavy tide rips occur with strong winds in the vicinity of the islands and are frequently dangerous for small vessels. On spring tides an especially dangerous, steep tide rip occurs southwest off Ushagat Island that can constitute a hazard to small craft. The wind among the Barren Islands is often twice as strong as it is a few miles away and the seas are often three times higher, attaining speeds of 100 knots and heights of 30 feet, respectively. Because of these conditions and the greatly increased chance of winter icing, vessels often use the lee of Chugach Passage. Those vessels transiting amongst the islands will often be subject to confused seas in this confluence of waves generated from the Gulf of Alaska, Cook Inlet/Kamishak Bay and Shelikof Strait.

(1240) In the deep waters of Kennedy and Stevenson Entrances and their approaches, the current usually is regular and appears to have less force than along the sides of the passages. At the edges of the banks bordering the islands and on the detached 20- and 30-fathom banks, in fact wherever there is much change in depth, the current increases greatly in force. Such currents are usually, but not always, marked by ripples, eddies or boils.

(1241) Ebb currents set strongly to the east along the edge of the bank bordering the north side of the Barren Islands, to the south between Ushagat and Amatuli Islands and to the east, north of Sugarloaf Island. The ebb currents are variable for a few miles south from the Barren Islands. Farther south, they set steadily southeast.

(1242) On the flood a narrow band of strong current will be felt a few miles north of the Barren Islands. Some lee from the flood current is afforded closer inshore, but even there a steady set to the west will generally be found.

(1243) The current in general probably does not exceed 4 knots. Reports indicate that slack waters do not occur at the times of local high and low tides, and the navigator is cautioned against assuming such a relation to exist.

(1244) **Kennedy Entrance**, one of the two main deep-draft entrances to Cook Inlet from the E, is between East Amatuli and Perl Islands. It has a clear width of about 7 miles, with general depths of 30 to 110 fathoms, though detached rocks and reefs extend 3 miles off Perl Island and 1.5 miles off East Amatuli Island. This location is the first of the "Securite" Broadcast reporting points used by large vessels. (See "Securite" Broadcasts, indexed as such, earlier this chapter for more.)

(1245) **Stevenson Entrance**, south of the Barren Islands, is the second main entrance to Cook Inlet from the east. It has a clear width of about 8 miles between the dangers that extend off the Barren Islands on the north and off Shuyak Island on the south, with general depths of 26

to 100 fathoms. The S shore of Stevenson Entrance is described in chapter 5.

(1246) **East Amatuli Island**, at the east end of the group, has high peaks along its length, except 0.8 mile from the southwest end where it drops to a valley having a level of less than 200 feet. A rocky islet, 118 feet high and 200 yards off the east end of the island, is marked by **East Amatuli Island Light** (58°54'57"N., 151°57'08"W.), 120 feet (36.6 m) above the water and shown from a skeleton tower with a diamond-shaped red and white daymark. A rock awash is 250 yards east of the light.

(1247) **Puffin Peak**, with a conical top on East Amatuli Island, is the highest peak in the E group of the Barren Islands.

(1248) **Amatuli Cove**, on the north side of East Amatuli Island and close to the west end, affords insecure anchorage near its head for small craft, in 6 to 8 fathoms, sand and gravel bottom. With a heavy northeast wind, considerable sea makes into the cove and the williwaws are heavy. Winds draw through the cove with great force, especially from the southeast and south. The holding ground is not good. (See the earlier introduction description for Barren Islands anchorages.) Kelp grows along the shores, and there is a small stream at the head of the cove.

(1249) **West Amatuli Island** is mountainous. A cluster of rocks about 30 feet high is 0.5 mile east from the northeast end of the island, with a reef between. A rock, 6 feet high, is 370 yards off the north point of the island. A rock awash at half tide, which does not always break, is 1 mile north of the 6-foot rock.

(1250) **Sugarloaf Island** is 1.1 miles south from East Amatuli Island; deep water is between it and the other Barren Islands. A large grass-covered rock, 75 feet high, is 0.4 mile south of Sugarloaf Island, with foul ground between. A rock awash is 200 yards from the southwest corner of the island and a 10-fathom bank, on which tide rips are common, is about 0.4 mile west.

(1251) Sugarloaf Island is a Steller sea lion rookery site. There is a 3-mile vessel exclusionary buffer zone around the entire island. (See **50 CFR 224.103**, chapter 2, for limits and regulations.)

(1252) **Nord Island** is 1.3 miles north from the east end of Ushagat Island with deep water between. Its south half is a dome 690 feet high, while its north half is lower and irregular. Strong currents with tide rips are reported just north of Nord Island.

(1253) **Sud Island**, 1.1 miles off the southeast side of Ushagat, is high near its southwest end. Near its northeast end is a knob 203 feet high. Islets, covered rocks and rocks awash at low water extend out 400 yards in many places around the island.

(1254) A small rocky grass-topped island, 380 feet high, is 1.5 miles south-southeast from the southwest point of Ushagat Island. Foul ground surrounds the island and extends almost to a bare rock 48 feet high, about 1 mile to the south. A low rock is between the island and the bare rock. Strong tide rips in this vicinity extend to the south of Ushagat Island. A barrier against the ebb current is formed by the island, rocks and shoal area, which reduces the strength of the current along the southeast shore of Ushagat Island.

(1255) **Ushagat Island**, the westernmost and largest of the Barren Islands, is wide near its west end. Ushagat Island is grass covered except on the tops of peaks and where the cliffs are steep. The trees are spruce, ranging from about 50 feet high near the lake to 3 feet high near the west end. The island is practically inaccessible except at the low neck near the northeast end and at the beaches fronting the valley in the northwest part. The summit of the island is the highest in the Barren Islands. **Table Mountain**, at the northeast end, is separated from the other high land of the island by a low narrow neck.

(1256) Outlying rocks are to the north and west of the northwest point of Ushagat Island. Outlying rocks and islets are to the south and west of the southwest point of the island. The west side of the island is indented about 1 mile by a wide open bay with two bights. Poor anchorage with a rocky bottom for all east winds can be had in the bight at the north end of the bay. (See the earlier introduction description for Barren Islands anchorages.)

(1257)

Anchorages

(1258) Anchorage with shelter from south weather, and some protection from west weather, can be had off the north side of Ushagat Island near the head of the deep bight 2.5 miles from the northwest promontory. Anchor in 12 to 15 fathoms with fair holding on rock bottom about 0.5 mile off the two small sand beaches. A small boat can get more shelter by anchoring close in.

(1259) Fair protection in north or west weather can be had in the bight on the south side of Ushagat Island, north of Sud Island. Williwaws are strong, but a small boat can avoid the worst of them by anchoring under the cliffs to the west of the head of the bight. In suitable weather, medium-sized vessels can anchor in 12 to 18 fathoms, rock bottom. (See the earlier introduction description for Barren Islands anchorages.)

(1260)

Chugach Islands to Flat Island

(1261) **Chugach Islands** consist of mountainous East Chugach, Perl and Elizabeth Islands near the coast of Kenai Peninsula at the entrance to Cook Inlet.

(1262) **East Chugach Island** has a low valley through the middle in a northeast and southwest direction. The south peak is 1,400 feet high, and the peak near the west end is higher. The southeast point of the island is a cliff with a 710-foot peak at its crest and slightly lower land between it and the mountains. The point is marked by **East Chugach Light** (59°06'23"N., 151°26'37"W.), 325 feet above the water, and shown from a skeleton tower with a diamond-shaped red and white daymark on the southeast end of the island.

(1263) Considerable foul ground extends from the island into the passage to the north. A rock awash at low water

is 0.5 mile off the northeast point. A 4¼-fathom, kelp-marked shoal is 1.4 miles northeast of the low-wooded spit at the northwest end of the island. The passage is apparently clear between the 4¼-fathom shoal and the shoal area making off the points at the entrance to Chugach Bay.

(1264) The passage between East Chugach and Perl Island is clear and is preferred by vessels passing inside of Perl and Elizabeth Islands because it is considered safe and easy to navigate.

(1265) If the passage from Gore Point north of East Chugach Island is used, care should be taken to make proper allowance for the currents that set in and out of Port Dick and diagonally across the approach to East Chugach Island, as well as the proximity of Gore Rock in the approach from and to the east-northeast (see earlier indexed description). This passage should not be attempted unless the weather is clear enough to use leading marks.

(1266) **Perl Island** is in the middle of the Chugach group. Its northwest point is sandy on the west side and has a high cliff on the north side. Several cabins and a gravel airstrip are on the point. **Perl Island Light 1** (59°07'04"N., 151°38'24"W.), 80 feet above the water, is shown from a skeleton tower with a square green daymark on the extreme northeast point of the island.

(1267) A pinnacle rock, covered 5½ fathoms, is about 0.6 mile off the southeast side of the island.

(1268) **Perl Rock**, 87 feet high and marked by a light, is a large prominent detached rock about 0.5 mile south of Perl Island. A rock that uncovers is 185 yards west from Perl Rock.

(1269) **Nagahut Rocks**, about 50 feet high, are large prominent bare rocks, close together and a good radar target, about 1.5 miles west of the southwest end of Perl Island. Rocks and foul ground are between them and the island. Safe passage between Nagahut Rocks and Perl Island is possible in depths greater than 20 fathoms, but extreme caution is advised.

(1270) **Dora Reef** is a small patch of rocks covered 1¼ fathoms about 1 mile southwest of Nagahut Rocks. The reef is steep-to and breaks at low water with moderate seas. This reef is a potential danger for Kennedy Entrance and Chugach Passage.

(1271) There is deep water in the passage between Elizabeth Island and Nagahut Rocks; however, a shoal of 6 to 9 fathoms is 0.4 to 1 mile east from the southeast end of Elizabeth Island, and a shoal covered 4¼ fathoms is 1 mile west from the west end of Perl Island.

(1272) **Chugach Passage** is between Perl and Elizabeth Islands and the rounded end of the mainland. A lighted buoy marks the northeast side of the south turn and southwest side of the north turn in the passage channel, respectively.

(1273) The end of the mainland is fringed with reefs, isolated rocks, and extensive kelp beds. In rounding it from the east, the outermost danger is a rock, bare at half tide, 0.4 mile off the south side of the rounding mainland shore.

(1274) Chugach Passage is commonly used by vessels entering Cook Inlet from east. Depths of 5½ to 10 fathoms were found in the shallowest part of the channel between the southeast end of Elizabeth Island and the dangerous reefs that extend from the mainland. An abrupt rocky spot, covered 7 fathoms, is about 0.5 mile northwest of the north end of Perl Island.

(1275) **Elizabeth Island** has two mountain masses, separated by a low valley that extends in a northwest direction. The northeast point is a sandspit marked at its outer extremity by a buoy. A depth of 1½ fathoms is 0.3 mile southeast and a prominent large bare rock is 0.3 mile west-southwest from the buoy. Cape Elizabeth is the west end of the island. **Cape Elizabeth Light** (59°08'47"N., 151°52'36"W.), 48 feet above the water, is shown from a skeleton tower with a diamond-shaped red and white daymark near the south end of the cape. A submerged rock, dangerous to navigation, is 0.4 mile west of the cape.

(1276)

Routes, Chugach Passage

(1277) Midchannel courses are clear in the approach to the passage north of East Chugach Island and between that island and Perl Island. When transiting the west end of the Passage, the charted waterfall scar on the mainland can be used as a range, keeping 0.6 mile south of Claim Point, 0.6 mile north of Elizabeth Island, and having due regard for existing conditions of weather and set of current. Local knowledge is desirable.

(1278)

Currents, Chugach Passage

(1279) East of Elizabeth Island the flood sets north and the ebb south with velocities of 3.1 knots and 1.8 knots, respectively. Currents of about twice these velocities have been reported during heavy weather. See the Tidal Current prediction service at *tidesandcurrents.noaa.gov* for specific information about times, directions, and velocities of the current at numerous locations throughout the area. Links to a user guide for this service can be found in chapter 1 of this book.

(1280) It is reported that the turn of the current in the main passage south of Elizabeth Island occurs earlier, possibly as much as 1 hour, than in Chugach Passage. In the area south of the Chugach Islands, tidal currents are much stronger near the islands than the deep water farther south.

(1281) Heavy tide rips occur from the northwest end of Perl Island to the west end of the passage. The heaviest rips are in the vicinity of Perl Island with an ebb current and east wind or with a flood current and a west wind. Heavy rips also occur off the southeast point of East Chugach Island. Another significant tide rip occurs 0.8 to 1.5 miles north through northwest from the northwest point of east Chugach Island, especially with ebb currents and north winds.

(1282) **Port Chatham**, indenting the end of Kenai Peninsula north of Elizabeth Island, is a secure harbor for small and medium-sized vessels and easily entered in the daytime with clear weather.

(1283) Below Chatham Island the shores on both sides of the entrance are foul, but above the island the main part of the harbor is clear. The dangers are marked by kelp with the water below half tide. The mountains on either side of the harbor rise abruptly from the water and are wooded about half way to the summits.

(1284) **Claim Point**, on the west side of the entrance, is a wooded hill with a low wooded neck in back of it. Bare rocks and kelp extend about 250 yards off the southeast side of the point.

(1285) **Chrome Bay** is on the north side of the entrance to Port Chatham, just northeast of Claim Point.

(1286) **Kelp Point** is 0.5 mile northeast from Claim Point. A bare rock is 250 yards south of Kelp Point, and a dangerous detached reef with rocks bare at low water is about 300 yards east of the bare rock. This reef is covered by kelp, but usually the kelp does not show at high water.

(1287) **Chatham Island**, small, low, rocky and partly wooded, is in the middle of Port Chatham, about 1.2 miles inside the entrance. **Port Chatham Entrance Light** (59°12'33"N., 151°46'34"W.), 40 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on the west point of the island.

(1288)

Routes

(1289) When entering Port Chatham from Cook Inlet it is well to keep 0.5 mile south of Claim Point and Kelp Point. When approaching from Chugach Passage, the white scar on the cliffs east of Kelp Point is a good mark. Keep midchannel between Chatham Island and the north shore, passing about 100 yards south of the daybeacon marking the 1¼-fathom rock north of the light. From there to the anchorage keep in midchannel.

(1290) The only known danger in the channel west and north of Chatham Island is a rock covered 1¼ fathoms, 500 yards north of the light. The rock is marked on its west side by a buoy. There is deep water on either side of the rock. A depth of 4½ fathoms was found 250 yards southwest of the light.

(1291) The passage east of Chatham Island is foul and should not be attempted by strangers. Two rocks, one covered 2 fathoms, is 0.4 mile from the east shore and 0.7 mile 165° from Chatham Entrance Light; and the other, covered 2 fathoms 1 foot, is 0.2 mile from the east shore and 0.3 mile 115° from Port Chatham Entrance Light.

(1292) On the east side, 0.6 mile northeast from Chatham Island, is a projecting rocky, wooded point, where the port changes direction. The opposite side, northeast from this point, is a low grassy spit. A submerged obstruction in 59°12'59.2"N., 151°44'17.5"W., is about 300 yards south of the spit. The ruins of a lumber camp are on the spit. At the east end of the harbor are rocks showing but little above high water.

(1293)

Anchorages

(1294) The best anchorage is in the broad part of the harbor 0.3 mile southeast of the spit, in 10 to 13 fathoms, soft bottom. During heavy east to southeast gales, some williwaws are felt at the anchorage, but they are not dangerous. This anchorage often has numerous fishing vessels in the summer.

(1295)

Currents

(1296) The tidal currents have little velocity in the entrance and harbor, but in the approach on either side of Elizabeth Island there are strong tidal currents and at times tide rips. See the Tidal Current prediction service at *tidesandcurrents.noaa.gov* for specific information about times, directions, and velocities of the current at numerous locations throughout the area. Links to a user guide for this service can be found in chapter 1 of this book.

(1297) The coastline between Port Chatham and Koyuktolik Bay is foul, and thick kelp extends as much as 0.5 mile offshore.

(1298) **Koyuktolik Bay** is about 5 miles west-northwest of Port Chatham. Its north shore consists of bare rocky cliffs, while the south shores are lower. The south entrance point is a low yellow bluff. Rocks and reefs extend 0.2 mile from the south entrance point. Poor temporary anchorage for smaller vessels, in 8 to 10 fathoms, hard bottom, can be found 0.5 mile from the head of the bay. In heavy southwest through northwest weather a considerable swell will reach this anchorage. About 0.7 mile from the head of the bay is a private mooring buoy. The bay is constricted by a sand and gravel shoal that extends from the south shore near the entrance to a lagoon and by rocks that uncover off the north shore. The lagoon is navigable with local knowledge by skiff at high water.

(1299) **Point Adam**, just west of Koyuktolik Bay, is low at the end and rises in a steep grassy slope to mountains. A significant, steep choppy sea has been reported just off Point Adam with a flood current and west through northwest winds. **Magnet Rock** is about 3.3 miles north-northwest from Point Adams and about 0.5 mile off **Point Bede**. The rock is 25 feet high, black, prominent, and a good radar target.

(1300) **Flat Island**, 1.4 miles north from Magnet Rock, is small, flat and grass covered; it is composed of two closely connected islands joined by bare reefs. **Flat Island Light** (59°19'51"N., 151°59'42"W.), 70 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on the northwest point of the northernmost island. This island forms a good radar target, is an important transit turn point and is a "Securite" Broadcast reporting point used by large vessels. See "Securite" Broadcasts, indexed as such, earlier this chapter, for more. The island is surrounded

by kelp. A group of rocks that uncover and are marked by kelp are 0.2 mile off the west side of Flat Island. Heavy tide rips occur in the area between Point Bede, Magnet Rock and Flat Island. The area has many fishing vessels in the summer.

(1301)

Port Graham

(1302) **Port Graham**, on the east side of Cook Inlet, 4 miles northeast of Flat Island, is a secure harbor inside Passage Island and with care is easily entered in the daytime. Its entrance between Russian Point on the south and Dangerous Cape on the north has extensive outlying reefs, covered at various stages of the tide. The dangers are generally steep-to and marked by kelp.

(1303) **English Bay** is an open bight on the west side of **Russian Point** (59°21.6'N., 151°55.3'W.). **English Bay Reef**, bare at low water, is about 1 mile west of Russian Point. There is broken bottom and thick kelp between the reef and the foul ground that extends from Russian Point; strangers should not cross this area. Depths of 3¼ and 5 fathoms are about 0.5 mile south-southwest of English Bay Reef. **Nanwalek**, a small native settlement, is on the northeast side of English Bay. A gravel airstrip is near the village.

(1304) **Dangerous Cape** (59°24.0'N., 151°54.3'W.) is on the north side of the entrance to Port Graham. A current of nearly 3 knots sets at times across the broken ground around the cape, causing heavy rips and overfalls. **Dangerous Cape Reef** extends 0.5 mile west from the west side of the cape. **Bird Reef**, 250 yards long, is 0.6 mile south-southwest from Dangerous Cape. The highest rock at the north end of the reef is covered at extreme high tide. The shore reef inside of Bird Reef is composed of rocks that uncover and some bare rocks. A detached rock, covered 1¼ fathoms, is in the channel between Bird Reef and the shore reef. Midway between Bird Reef and Passage Island and 0.5 mile from the north shore is a small shoal with 2½ fathoms, marked by a buoy. Vessels should pass south of it, as another shoal makes out 650 yards from the shore.

(1305) **Passage Island**, 1 mile inside the entrance, is high and wooded. It is generally fringed with reefs to a distance of 150 yards, and a shelving spit, covered at high water, extends 350 yards east from its east end. The end of the spit is marked by a daybeacon. A reef, with numerous rocks bare and covered at various stages of the tide, extends 0.9 mile west-southwest from the west end of the island. **Port Graham Entrance Light** (59°22'21"N., 151°53'07"W.), 50 feet (15.2 m) above the water, is shown from a small house with a red and white diamond-shaped daymark on the north end of the island.

(1306)

Routes

(1307) The safest time to enter Port Graham is at low water, and the preferred entrance is north of Passage Island. The chart is the guide. The route south of Passage Island should not be used by strangers. This entrance south of Passage Island is approached through a narrow unmarked channel over a rocky bar that bares in places and extends from north of Russian Point to Passage Island.

(1308)

Dangers

(1309) Rocks, bare at low water and marked by a daybeacon, are 250 yards west of the point on the north shore east of Passage Island. This is the worst danger in the entrance. The channel has a width of 250 yards between the rocks and the reef fringing Passage Island. On the outside, the shore of **Coal Cove** is fringed with kelp to a distance of 350 yards and should be approached with caution.

(1310) The only serious danger east of Passage Island is a narrow, submerged reef with kelp that extends halfway across Port Graham from the north shore 0.6 mile southeast of Passage Island and is marked at the south end by a buoy. Also, about 900 yards northwest of a cannery wharf is a shoal that extends about 300 yards offshore and is marked at its outer end by a daybeacon; the cove southeast of the wharf is shoal.

(1311)

Anchorages

(1312) Temporary anchorage for a small vessel can be selected in the bight on the north shore, north of Passage Island, in 7 to 10 fathoms. This anchorage is exposed to a heavy swell in south or west weather. When inside Passage Island, better anchorage in 10 to 17 fathoms can be had in any part of Port Graham except the cable area about 0.9 mile east-southeast of the cannery wharf. One of the best is north or northeast of the wharf, in 10 to 13 fathoms, sticky bottom. Although the port experiences occasional williwaws in southeast weather, they are not dangerous.

(1313)

Currents

(1314) Strong tidal currents, both ebb and flood, set across the mouth of the harbor, but there is little current at or inside of Passage Island. With opposing wind and current, heavy tide rips occur off and well north and south of the entrance to Port Graham. See the Tidal Current prediction service at *tidesandcurrents.noaa.gov* for specific information about times, directions, and velocities of the current at numerous locations throughout the area. Links to a user guide for this service can be found in chapter 1 of this book.

(1315)

Weather, Port Graham

(1316) As in Kachemak Bay, southwest winds predominate in the late spring to early fall, when northeast winds become most frequent. Winds are strongest in the late summer and early fall. Fog is common in both summer and winter. Summer fog hangs over the water for days, while winter fogs are associated mainly with precipitation. The yearly average temperature is 35°F (1.7°C) but can be as high as 80° (26.7°C) in the summer and well below 0°F (-17.8°C) in winter. Storms are infrequent during

the summer months and are much more common during the winter. Williwaws are occasionally experienced with strong southeast winds.

(1317)

Ice

(1318) Ice is not a major problem throughout most of Port Graham but will form in areas of little water movement or where a skim of freshwater rides over the saline water near the easternmost part of the bay.

(1319) **Port Graham** has a cannery and pier on the south side, 1.9 miles beyond Passage Island. The pier has a 100-foot face with 15 feet reported alongside; deck height 35 feet; one 1.5-ton fixed crane and water in summer. There is a barge dock about 0.3 mile northwest of the cannery pier. This second dock, used for log transfer, has a 150-foot face; 10 feet alongside; deck height, 30 feet. Port Graham Corporation owns both facilities and operates the cannery pier.

(1320) **Point Pogibshi** is a prominent flat-topped grassy point about 50 feet high, with rocky sides, on the east side of Cook Inlet 1.5 miles north of Dangerous Cape. At this point the coast changes direction northeast for about 5 miles to Seldovia Bay. **Point Pogibshi Light** (59°25'28"N., 151°53'13"W.), 94 feet above the water, is shown from a skeleton tower with a diamond-shaped red and white daymark on the south side near the end of the point.

(1321) Kelp extends 0.5 mile off the bight 2.7 miles northeast of Point Pogibshi.

(1322) **Seldovia Bay**, 7 miles northeast of Port Graham, is a secure harbor in any weather. There are several shoals covered less than 3 fathoms in the entrance, and the inner part of the bay is very shoal.

(1323) **Point Naskowhak** (59°27.2'N., 151°44.5'W.), on the west side of the entrance to Seldovia Bay, is the north of two small high rocky wooded knobs that stand on a low grassy spit surrounding a lagoon. A reef with rocks awash extends about 0.1 mile north from the point, and kelp-marked broken ground extends almost 0.5 mile northeast. Kelp-marked shoals with a least depth of 2 fathoms extend 700 yards east-northeast from the point.

(1324) **Gray Cliff**, the east entrance point of Seldovia Bay, is a bare rock cliff 60 to 70 feet high and a good radar target for entering the bay. **Seldovia Bay Entrance Light** (59°27'08"N., 151°43'16"W.), 64 feet above the water, is shown from a small house with a red and white diamond-shaped daymark at the south end of the cliff.

(1325) **Seldovia Point**, 1 mile north of Gray Cliff, is a 200-foot-high cliff, wooded on top. A shoal with a least depth of 2 fathoms is about 0.4 mile north of the point. Kelp extends 0.6 mile from shore in the bight northeast of the point.

(1326) **Red Bluff**, 0.2 mile south of Gray Cliff, is high and reddish in color. Foul ground extends from the cliff to about 0.2 mile west and 0.1 mile southwest. A rock that uncovers 4 feet is about 300 yards west of the cliff and is marked by a lighted buoy. This rock is steep-to on its west side and the principal danger in the bay.

(1327) **Watch Point**, 0.6 mile south of Gray Cliff, is a small 30-foot-high grassy head with a few trees and a short low grassy neck behind it. A high pointed rock is near the east shore 300 yards north of the point.

(1328) **Seldovia Bay Light 3** (59°26'33"N., 151°43'17"W.), 45 feet above the water, is shown from a small house with a square green daymark off the end of Watch Point. Kelp-marked rocks with a least depth of ¾ fathom are between the light and the Seldovia waterfront to the south.

(1329) **Seldovia**, on the east side of Seldovia Bay just south of Watch Point, is a tourist and fishing town. It has several stores, lodging, a clinic and churches. A police chief is in the town.

(1330)

Channel

(1331) The channel to Seldovia on the northeast side of the bay is 100 yards wide. Numerous shoals and rocks extend from either side of Seldovia Bay near the channel. Those obstructions are marked by kelp at slack water in summer and fall, but the kelp tows under during the strength of the tidal currents.

(1332)

Anchorages

(1333) The best anchorage is in the middle of Seldovia Bay, 0.8 mile south of Seldovia Bay Light 3, in 9 to 10 fathoms, sticky bottom. It is well sheltered except from strong south winds.

(1334)

Currents

(1335) The tidal currents at Seldovia have an estimated velocity of 2 to 3 knots. See the Tidal Current prediction service at *tidesandcurrents.noaa.gov* for specific information about times, directions, and velocities of the current at numerous locations throughout the area. Links to a user guide for this service can be found in chapter 1 of this book.

(1336)

Wharves

(1337) **The City Pier** (59°26'27"N., 151°43'15"W.) has a 370-foot berthing space with 20 feet alongside and a 15-foot deck height. Two 2-ton electric-hydraulic derricks and pipelines extend from the wharf to tank storage for 7,650 barrels. The pier is used for receipt of petroleum products, ferry landing, fueling vessels and occasional receipt and shipment of conventional general cargo. The pier is owned by the State of Alaska and is operated by the State of Alaska and Seldovia Fuel & Lube, Inc. A 40-foot fueling float for vessels under 70 feet is alongside the south face with 23 feet reported alongside. The back side of the face has 160 feet of berthing space and 20 feet reported alongside.

(1338) **Seldovia Small-Boat Harbor** (59°26'12"N., 151°42'52"W.) is protected by breakwaters; the north breakwater is marked by a light. A federal project provides for a dredged entrance channel leading northeast

to a basin inside the breakwaters. he area southeast of the federal project is maintained by local interests. The harbor provides moorage for about 150 vessels with some transient space available. The harbormaster's office, at the north end of the small-boat harbor parking lot, monitors VHF-FM channel 16 and can be contacted by calling 907–234–7886 for berth assignments. Supplies and repairs are limited but water, electricity, a launching ramp and lift for vessels to 48 feet are available. Two timber tidal grids are in the basin on either side of the approach. The basin is owned by the state and operated by the city.

(1339)

Oil Spill Response Resources

(1340) Limited **Oil Spill Response Resources** are available in Seldovia. However, additional resources are available in Homer, Nikiski and Anchorage. For further information, contact the Coast Guard COTP, west Alaska, in Anchorage.

(1341)

Communications

(1342) The Alaska Marine Highway System has scheduled ferry service for passengers and vehicles from Seldovia to Homer, Kodiak and Seward and down the Alaska Peninsula. This ferry runs once to twice a week for 10 months of the year. Small commercial passenger ferries make daily runs in the summer to Homer. A commercial air taxi makes runs to Homer and Port Graham, weather permitting. A maintained gravel road leads to Jakolof Bay. Landline telephone, radiotelephone and cellular telephone communications are maintained.

(1343) **Seldovia Slough**, just south of the small-boat harbor, leads east and north to **Seldovia Lagoon**. It is dry at low water and only navigated by skiffs.

(1344) The remainder of the cove is nearly dry at extreme low water. A grassy head with a few trees forms the southwest side of the cove that is joined to the main shore by a low narrow neck.

(1345)

Kachemak Bay to Peterson Bay

(1346) **Kachemak Bay** is a large bay on the east side of Cook Inlet. The entrance is between Seldovia Point (59°28.3'N., 151°42.0'W.) on the south and Anchor Point (59°46.8'N., 151°52.0'W.) on the north. It affords excellent anchorage for vessels of all classes and sizes. Kachemak Bay is frequented by large vessels picking up or disembarking pilots; numerous commercial, charter and recreational fishing vessels; tour boats; tugs with barges; an Alaska State Ferry and occasional cruise ships. The large vessel and tug and barge traffic continues year around and occasionally anchor northeast of Homer Spit. The fishing vessel and tour boat traffic is mostly a summer activity.

(1347) **Kachemak Bay Research Reserve** includes waters of Kachemak Bay east of a line connecting Anchor Point in the north with Point Pogibshi in the south. Kachemak Bay Research Reserve is a Marine Protected Area.

(1348)

Route

(1349) From the entrance to Cook Inlet about 4.5 miles south of East Chugack Island Light, set courses to pass about 6 miles south of the west end of Cape Elizabeth, on Elizabeth Island, thence about 2 to 5 miles west of Point Adam and Flat Island, thence about 1.5 to 3 miles off Point Pogibshi, and (weather permitting) shape a course to about 0.5 mile south of Homer Spit Light 3 to pick up a pilot or 1 mile south to proceed to the berths or anchorage at Homer.

(1350)

Caution

(1351) Vessels transiting to and from Homer to the north are advised to stay 3 miles offshore from Bluff Point and 5 miles offshore from Anchor Point to clear the shoals and kelp and most fishing vessel traffic and their fixed gear.

(1352)

Currents

(1353) From Dangerous Cape, a flood current sets up Kachemak Bay with a velocity of 1 to 2 knots in a northeast direction, and the ebb flows in a southwest to west direction. The currents at the mouth of the bay are uncertain and may vary from place to place, making it difficult to make correct allowance for set in crossing from Anchor Point to Seldovia. Currents of up to 4 knots have been reported throughout the bay. Eddying currents are found immediately off the east side of Homer Spit during flood and ebb currents.

(1354)

Weather, Kachemak Bay and vicinity

(1355) Winds in the Kachemak Bay area are predominantly from the northeast from late fall to early spring. During the rest of the year, southwest winds are the most frequent. Winds are strongest during the late summer and early fall. Storms are more common in the winter, with wave heights reaching 6 to 8 feet in a short period of time. Vessels in transit on the east side of Cook Inlet normally experience some of the heavier winds and seas in the area off Anchor Point.

(1356) **Fogs** are common to the area. Ground fogs occur most frequently in winter, with the heaviest fogs reported to be in summer. Homer and Seldovia occasionally report fog conditions. The more frequent occurrence is in the summer when it may last for days at a time. It is reported that fog banks frequently hang over the open water after harbors have cleared. Summer southwest winds will also hold lingering fog banks against the eastern shore.

(1357) The annual mean temperature of the area is about 38°F (3.3°C). July and August are usually the warmest months. The temperature can range from a high of nearly 90°F (32.2°C) in the summer to well below zero (-17.8°C) in the winter.

(1358)

Ice

(1359) Ice forms in the freshwater streams and within areas of relatively little water movement or where a skim of freshwater rides over the salt water. The boat harbor at Homer and the northeast side of the Spit will pack with slush and pan ice during the colder periods (especially in northeast winds) but rarely halts small-boat traffic completely. It can fill the Homer Small Boat Harbor and extend for up to 500 yards offshore. (See Homer for more.) The headwaters of Jakolof Bay reportedly form ice.

(1360) **Nubble Point**, 4.2 miles northeast of Seldovia Point, is a long sandspit, terminating in a rocky knoll, which may be mistaken for Point Naskowhak if not sure of the position. The east part of the point is wooded.

(1361) **Kasitsna Bay**, between Nubble Point and **Herring Islands**, has anchorage in 12 to 15 fathoms, good holding ground, but is subject to williwaws in strong southeast winds. The water shoals abruptly to the shore and to the flat that fills the cove formed by Nubble Point; the flat in the cove will be avoided by keeping the east end of the point bearing west of **014°**.

(1362) Two rocks close together are 0.5 mile northeast of the north end of Nubble Point and are marked by a buoy in 59°29'31"N., 151°33'09"W., on the northeast side. The west rock is covered 2 fathoms and the east rock bares at extreme low water. The buoy marks the entrance between the rocks and Hesketh Island. A shoal with a least depth of 5½ fathoms is 500 yards southeast of the rocks. A least depth of 12 fathoms was found between the rocks and Nubble Point by giving the north end of the point a berth of over 200 yards. A private mooring buoy is 1.3 miles south-southwest of the buoyed rocks.

(1363) In 2009, the area around the Herring Islands was surveyed and found to have numerous rocks and shoals; caution is advised.

(1364) **Jakolof Bay** is entered at the southeast corner of Kasitsna Bay. Private ferries make daily runs between Jakolof Bay and Homer in the summer months. An overhead power cable with a clearance of 51 feet crosses the entrance of the bay.

(1365) Jakolof Bay is a long, narrow finger of water about 1.7 miles long and 0.25 mile wide, lying in a general north-northwest and south-southeast direction. The entrance to the bay is about 0.125 mile wide and unmarked. A small island that connects to the west shoreline at lower stages of tide is located near the center of the entrance. However, a rock ledge extends outward from the island reducing the clear channel to about 250 feet or less. The bay has numerous rocks and reefs and should be attempted only with local knowledge. It is navigated by locals for about 0.5 mile. Navigation above this point is not recommended for anyone as the bottom shoals rapidly toward the south shore.

(1366)

Currents

(1367) Both ebb and flood currents reportedly run fair with the east shoreline of the bay. Small eddies formed by the current have been observed near and in the entrance during a period of approximately half floodtide. The reported maximum velocity of the ebb and flood currents is about 3 knots. The average is reported to be 1.5 knots.

(1368) A small floating pier, maintained by the state, is on the west shore about 0.2 mile inside the entrance to the bay. Berthing is available at the pier for about 10 to 15 small boats, 15 feet alongside reported. Depths of about 25 feet were reported in the center of the bay to the east of the floating pier. Two small water taxis, which run to Jakolof Bay from Homer, use this floating pier.

(1369) **Hesketh Island, Yukon Island** and **Cohen Island** are high and wooded. An islet is on the reef that extends 0.5 mile northwest from Hesketh Island. **Sixty Foot Rock Light** (59°33'01"N., 151°28'02"W.), 79 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on **Sixty-foot Rock** at the north end of a reef that extends 0.5 mile north from Cohen Island. The light shows a higher intensity beam toward Cook Inlet. There is a prominent yellow cliff on the west end of Cohen Island. The passage between Yukon Island and Hesketh Island is not recommended as it is rocky and shoals quickly from west to east. The channel is restricted by a shoal extending from the southernmost point of Yukon Island to the easternmost point of Hesketh Island with a least depth of 2½ fathoms midchannel. The passage between Yukon Island and Cohen Island is approximately 0.25 mile wide and offers 9 fathoms midchannel; a ledge extends 0.15 mile southwest from Cohen Island. **Eldred Passage**, east of the islands, is deep near the middle, except at the north end where there is a bar on which the least depths found were 10½ to 12 fathoms. A rocky shoal extends 0.35 mile west from Anisom Point into Eldred Passage.

(1370) **Tutka Bay** has no desirable anchorages for large vessels. Broken ground with two small islands and many isolated shoals and pinnacle rocks extends across the entrance. An overhead power cable with a clearance of 78 feet crosses the narrow part of the bay. Mariners are warned that numerous submerged rocks and rocks awash, some in relatively deep water, have been found in the various coves and in Tutka Bay; caution is advised.

(1371) **Tutka Bay Lagoon** is about 4 miles inside the mouth of Tutka Bay on the southwest side. The lagoon, well protected, has depths to 27 feet and contains a salmon hatchery. The entrance, a small narrow channel, is a stream except at high water. The sill that holds the lagoon is at the head of this channel and is about 10 feet above low water. Local tour and fishing boats up to 30 feet in length can enter the lagoon at high water. The entrance to the channel is protected by a rock awash and a 1-fathom submerged delta plain that extends about 0.25 mile offshore.

(1378)



(1372) **Sadie Cove**, the inlet in the east side of Eldred Passage, is clear near midchannel. Foul ground extends about 0.2 mile off the north and south entrance points. An overhead power cable with a clearance of 170 feet crosses the mouth of the cove.

(1373) **Lancashire Rocks**, 1.8 miles northeast from Cohen Island, are awash. They are 0.5 mile offshore with foul ground inshore from them.

(1374) **Gull Island**, 93 feet high, marked by a light, 5 miles northeast from Cohen Island, is among a group of prominent bare rocks that are visible about 10 miles. **China Poot Bay**, south of Gull Island, is nearly dry at low water. An overhead power cable with a clearance of 152 feet crosses near the head of the bay. A narrow channel is along the northeast side of the bay. It terminates at Moss Harbor, a small lagoon at the head of the bay. A well protected anchorage for small vessels can be found in the lagoon in 3 to 5 fathoms; the bottom is mud. Locals transit the channel in skiffs near low water and in larger boats near high water to avoid the strong currents. It should not be attempted without local knowledge due to the shallow depths, strong currents and high choppy sea seen with an ebb current and southwest winds.

(1375) **Peterson Bay**, 1.5 miles north of China Poot Bay, provides good protection from east-west winds. A foul area exists around the small islands near the head of the bay. A channel with a controlling depth of 1 fathom on the west side of the foul area runs to the head of the bay. Depths at the head of the bay are 6 to 12 fathoms.

(1376)

Homer Spit to Anchor Point

(1377) **Homer Spit**, on the north side of Kachemak Bay, is a low gravel and shingle spit, partly covered with grass. It is 4.5 miles long and from 100 to 500 yards wide. It is described as the longest inhabited spit in the world.

(1379) **Coal Point**, the outer end of Homer Spit, is marked by **Homer Spit Light 3** (59°36'02"N., 151°24'34"W.), 34 feet above the water and shown from a tower on top of a hotel roof.

(1380) **Coal Bay**, the bight northeast of Homer Spit, is shoal but there are no outlying dangers other than a submerged wreck covered 3 feet at 59°37'32"N., 151°25'11"W. **Mud Bay** is within Coal Bay.

(1381) **Homer**, at the base of Homer Spit, is a fishing and tourist town with several stores, hotels and a small hospital. From Homer it is about 143 miles to Anchorage, 158 miles to Seward and 1,313 miles to Seattle.

(1382)

Prominent features

(1383) Homer Airport, at the base of Homer Spit, has an aerolight and approach lights that are aligned with the runway. When lighted, the approach lights are highly

visible however, they are lighted only when needed by aircraft. The tower and chute of the wood chip loading facility at the Deep Water Dock and the 8 light towers surrounding the small-boat harbor are also prominent.

(1384)

Anchorages

(1385) Good anchorage for medium to large vessels can be had 1.0 mile or more northeast of Homer Spit Light 3 off the Spit, in 10 to 23 fathoms, soft bottom. Large vessels anchor on the range of Sixty-foot Rock with Coal Point, 1 mile north-northeast of Coal Point, in 22 fathoms. Smaller vessels can anchor almost anywhere northeast of the spit in 2 to 10 fathoms, mud bottom. Due to the large tidal range in Kachemak Bay, mariners should exercise caution when anchoring. The COTP, Western Alaska, in consultation with the marine community has guidelines for vessels anchoring in Kachemak Bay in response to previous instance of vessels dragging anchor. These guidelines shall be followed at all times by any vessel anchoring in Kachemak Bay.

(1386)

General Requirements for All Vessels

(1387) While anchored in Kachemak Bay, a 24-hour bridge watch shall be maintained by an English-speaking deck watch officer. If the vessel is found to be dragging anchor, the agent, master, operator or person in charge shall ensure that Sector Anchorage or Marine Safety Detachment Homer is immediately notified of hazardous conditions as soon as practical.

(1388)

Specific Actions for Heavy Weather

(1389) **Gale Warnings**, if forecasted and/or actual winds are in excess of 34 knots, the propulsion plant shall be on standby and ready to provide immediate propulsion. The vessel's position and under-keel clearance shall be confirmed at a minimum of once every 15 minutes by the licensed deck watch officer. Ensure a second anchor is made ready for letting go.

(1390) **Storm Warnings**, if forecasted and/or actual winds are in excess of 48 knots, the vessel must take the precautions for Gale Warnings and discuss the following measures with the local Coast Guard, the Southwest Alaska Pilot's Association and the vessel agent: Consider increasing the scope of anchor chain as appropriate. Determine the availability and locations of potential stand-by tugs, with the appropriate size and horsepower, that could assist the vessel in holding position. Assess the need to bring a Pilot onboard and, if the Master and Pilot deem it necessary, put to sea for the duration of the heavy weather.

(1391)

Weather, Homer Vicinity

(1392) The climate of Homer is marine but with precipitation amounts modified by the Kenai Mountains. The annual precipitation is reduced when air being lifted over the mountains leaves most of its moisture on the windward side. For this reason the usual Gulf Coast amount of near 60 inches (1524 mm) is reduced to less than half that amount. The relatively low annual snowfall is a reflection of the midwinter temperatures. Often precipitation will begin as snow but turn to rain shortly afterwards. The occurrence of the heaviest monthly amounts during the fall and winter months is the result of the increased frequency of storms into the Western Gulf of Alaska during those months.

(1393) Temperatures experienced at Homer are more nearly representative of marine climate than is precipitation. Winters are mild, seldom getting colder than 0°F (-17.8°C), and summers are cool with the maximum temperature seldom going above 70°F (21.1°C). The range between average maximum and minimum temperatures does not exceed 16°F (range of 9°C) during any of the 12 months. The freeze-free period on the average begins in late March and ends in mid-November.

(1394) Surface winds at the station are seldom strong even in winter. However, a short distance to the southwest, over Kachemak Bay, and to the west over Cook Inlet, wind speeds requiring warnings to small craft are fairly common in winter and summer.

(1395) The occurrence of a thunderstorm is rare. Heavy fog is infrequent and of short duration, but patchy ground fog is common in summer and winter.

(1396)

Pilotage, Homer

(1397) Pilotage except for certain exempted vessels is compulsory for all vessels navigating the waters of the State of Alaska.

(1398) Pilots are available from the Southwest Alaska Pilots Association (swpilots.com) office at Homer; telephone 907-235-8783, cell 907-299-7513 (24 hrs/day), email: Dispatch@swpilots.net, FAX 907-235-6119. A 36-hour notice is required.

(1399) Vessels arriving the port of Homer begin their transit by contacting the Southwest Alaska Pilots dispatch at 907-299-7513, one and a half (1.5) hours before arriving at the pilot station, 1 NM south of the Homer Spit. The vessel will then contact the pilot boat "Katmai" or "Mary Dele" by VHF-FM channel 10 or 16, when one half (0.5) hour out. It is common practice for vessels to shape a course (weather permitting) ¾ mile south of Homer Spit Light 3, with a starboard pilot ladder 1 meter from the water and a speed of 8 to10 knots. This proximity to the Homer Spit will allow for a starboard turn for vessels bound for central or northern Cook Inlet ports.

(1400)

Towage

(1401) Tugs up to 1250 hp are available in Homer 24 hours a day. Prior arrangements for their use should be made.

(1402)

Caution

(1403) Ships entering Kachemak Bay to pick up a pilot off Coal Point before continuing into Cook Inlet have been reported coming dangerously close to the **Archimandritof Shoals**, which extend west from Homer Spit and are

marked on the southeast side by a lighted buoy. These instances occur with ships piloting on small-scale British Admiralty Charts, which do not show these shoals. The strangers tend to steer for the lights of Homer or the light towers surrounding the small-boat harbor. Mariners are advised to use the largest scale chart available for this area and to give these shoals a wide berth.

(1404) **Note:** In 1996, the least depths over the southeast portion of these shoals were reported to be 2 fathoms less than charted in the area about 1 mile west to northwest of Archimandritof Shoals Lighted Buoy 1.

(1405) **Customs** and **Immigration** are handled by Anchorage officials with prior arrangements.

(1406)

Quarantine

(1407) A U.S. Public Health Service Contract Physician is located at a clinic in Homer. A hospital is in Homer. (See Appendix A for additional information.)

(1408)

Coast Guard

(1409) Two Coast Guard Cutters (a buoy tender and a patrol boat) are stationed in Homer.

(1410)

Harbor regulations

(1411) Most waterfront facilities are operated by the City of Homer. The Deep Water Dock, City Pier and Fish Dock (in the small-boat harbor) are administered by a Port Director, and the small-boat harbor is administered by a harbormaster. Their office is on the southwest side of the small-boat harbor (telephone, 907–235–3160). They monitor VHF-FM channels 16 and 10; call sign, WHG-651.

(1412)

Wharves

(1413) Homer has 2 deep-draft piers, a fish dock, and a small-boat harbor.

(1414) **Pioneer Dock:** on the north side of Coal Point; U-shaped structure with two trestles, extends 445 feet offshore; outer face, 469 feet, and mooring dolphins provide for ships up to 750 feet, 40 feet reported alongside, deck height 32 feet; northwest face, used for mooring a Coast Guard cutter; Alaska Marine Highway Ferry Terminal; receipt and shipment of petroleum products, fueling vessels, containerized cargo; landing for cruise ships; pipelines extend from the wharf to 8 storage tanks in rear, total capacity 30,500 barrels; water and electricity are at the pier; highway connections. Owned and operated by city of Homer, Petro Marine Services, division of Harbor Enterprises, Inc., U.S. Coast Guard, and the state.

(1415) **Caution:** A tidal current eddy sets Vessels E at this dock (parallel to the face) on both flood and ebb, but more so on the ebb. See the Tidal Current prediction service at *tidesandcurrents.noaa.gov* for specific information about times, directions, and velocities of the current at numerous locations throughout the area. Links to a user guide for this service can be found in chapter 1 of this book.

(1416) **Homer Deep Water Dock:** 200 yards north of Homer Breakwater Light 2 and marked by private lights, extends 532 feet offshore; 324-foot east face, additional 450 feet with three mooring dolphins and two mooring buoys; 40 feet reported alongside; deck height, 28 feet; water; highway connections; receipt and shipment of conventional and containerized cargo; receipt and shipment of logs and wood chips; and receipt of seafood. A 140-ton mobile crane, and 31-, 9- and 4-ton forklifts are available. Wood chips are loaded at up to 500 tons per hour via a loading tower and telescopic chute; 35 acres of open storage at the rear. Owned by the City of Homer and operated by the City of Homer and Gates Construction Co. Ebb currents set vessels off this dock and flood currents set vessels on, with the ebb's set off being stronger. Portside-to is recommended for vessels on the outer face, except for large vessels with certain loading operations.

(1417) **Caution:** From January to March, ice floes can impede operations at Homer Deep Water Dock and City Pier. Ice floes get blown in from the head of the Bay by strong NE winds.

(1418) **City of Homer Fish Dock:** on the southeast side of the small-boat harbor; 383-foot face with 20 feet reported alongside; deck height, 31 feet; 50-foot side faces with 10 to 20 feet reported alongside; water; highway connections; receipt of seafood; handling supplies for fishing vessels; and icing fishing vessels; two 5-ton and six 2½-ton derricks. Owned and operated by the city of Homer.

(1419) **Homer Small-Boat Harbor**, protected by a breakwater, is just northwest of the Pioneer Dock. A light on the outer end of the breakwater marks the entrance. A dredged channel leads between the breakwaters to the beginning of the piers at the southeast end, thence turns northwest to separate the basin in half. (See Notices to Mariners and the latest edition of the chart for controlling depths.) The basins on either side of the entrance channel are maintained by local interests.

(1420) The harbor has moorage for about 920 vessels with an additional 500 transient spaces; the **harbormaster** assigns berths. The harbormaster's office monitors VHF-FM channel 16; channels 10 and 68 are used as working frequencies. During the summer the harbor is very crowded. Water and electricity is available on some floats, and gasoline, diesel fuel and water are available at floating fuel piers on the southeast side of the entrance and the north side of the entrance. A 300-ton steel grid and a 5-lane launching ramp are also available. The basin is owned and operated by the city.

(1421) **Caution:** From January to March, during severe cold spells, ice floes can clog the entrance channel and cause the harbor to freeze up to 4 to 6 inches thick, impeding the operations of smaller vessels.

(1422)

Supplies and Repairs

(1423) Provisions, water, ice, gasoline, diesel fuel and marine supplies are available. Machine shops and electric motor shops are in town. Vessels of less than 200 feet perform most repairs either alongside berths, on the grids in the small-boat harbor or in shallow-water lagoons northwest of the Homer Deep Water Dock.

(1424)

Oil Spill Response Resources

(1425) Limited resources are available in Homer, with additional resources being available from Nikiski and Anchorage. (For further information, contact Coast Guard Captain of the Port W Alaska, in Anchorage.)

(1426)

Communications

(1427) Landline telephone, radiotelephone and cellular telephone service are available in Homer. Scheduled air service is available to Anchorage, and air taxies run to Seldovia and Port Graham. The Alaska Marine Highway System has scheduled ferry service for passengers and vehicles from Seldovia to Homer, Kodiak and Seward and down the Alaska Peninsula once or twice a week for about 10 months of the year. Private passenger ferries make runs to local communities during the summer. Homer is connected with the Alaska Highway System via the Sterling Highway.

(1428) **Halibut Cove**, on the south shore about 6 miles east of Homer Spit, affords excellent anchorage for large and medium-sized vessels in 23 fathoms with good holding bottom. **Halibut Cove Light 2** (59°36'01"N., 151°12'53"W.), 70 feet above the water, is shown from a small white house with a red triangular daymark on the northeast point of **Ismailof Island** on the south side of the cove. A daybeacon, 0.3 mile south of the light, marks a rock awash. Shoals of 4 and 4¾ fathoms are near the middle of the cove due east of the light. The community of Halibut Cove is on the shores surrounding an inner rocky lagoon between Ismailof Island and the mainland. This rocky lagoon is almost split by a gravel bar. Halibut Cove operates a small-craft float facility on the east side of this inner lagoon, providing about 1,000 feet of berthing space with 10 to 15 feet reported alongside; enter from the east. Another facility is on the west side of the lagoon from which a mail and passenger boat operates. The west entrance is very foul and should only be used with local knowledge. There are daily passenger runs to Homer in the summer and twice weekly mail service the rest of the year. Telephone service and summer lodging is available in Halibut Cove.

(1429) **Halibut Cove Lagoon**, at the head of Halibut Cove, has depths to 38 fathoms. The lagoon is isolated at low water by a gravel bar which reduces the entrance to a swift, shallow stream. At high water, the navigable channel on the northwest side of the entrance is not well defined; local knowledge is advised. A public dock is at the south end with 110 feet of berthage and deep water reported alongside. The dock is used by water taxis delivering hikers and local boaters.

(1430) **Bear Cove**, on the south side of Kachemak Bay near the head, offers good anchorage in 12 fathoms, although the williwaws are violent and the swinging room is constricted. A rock awash is near the middle of the cove about 0.4 mile from the head.

(1431) The head of Kachemak Bay consists of extensive mudflats. A local power company maintains a barge dock and small-craft float on the southeast side of the mouth of **Bradley River** at the head of Kachemak Bay. The barge dock has a 100-foot face, deck height of 18 feet, and dries at low water. A landing craft ramp adjoins the north side of the dock. The float is 40 feet and also dries at low water. The barge dock is used for receipt of construction materials and the float is used by recreational boats delivering hikers. A gravel airstrip is near the facility. Due to the tide restrictions, local knowledge is advised. The north side of Kachemak Bay is bordered with mudflats and the 10-fathom curve is about 2 miles offshore. From this curve the water shoals abruptly toward shore.

(1432) From Homer Spit to **Anchor Point** the coast is a line of bluffs, with the greatest height of 750 feet at **Bluff Point**. In front of the bluff is a narrow rock and shingle beach. Numerous hazardous rocks are offshore between Homer and Anchor Point. The depths inside the 10-fathom curve are irregular, and there is a possibility of detached boulders not found by the survey. Vessels transiting to and from Homer to the north are advised to stay 3 miles offshore from Bluff Point and 5 miles offshore from Anchor Point to clear the shoals and kelp, and most fishing vessel traffic and their fixed gear.

(1433) **Anchor Point Light** (59°46'09"N., 151°52'01"W.), 41 feet above the water, is shown from a skeleton tower with a diamond-shaped red and white daymark on the point. Anchor Point is an important transit turn point and is a "Securite" Broadcast reporting point used by large vessels. (See Securite Broadcasts, indexed as such, earlier this chapter for more.) Note: The vicinity of Anchor Point has some of the heavier winds and higher seas on the Homer to Anchorage transit.

(1434)

Cape Starichkof to Clam Gulch

(1435) The main bluff line recedes about 0.4 mile from the shore at Anchor Point (59°46.3'N., 151°52.1'W.) and approaches the coast again about 1 mile to the north, then continues close to the shore up to Cape Starichkof. The bluff attains an elevation of 270 feet 2.8 miles north of Anchor Point, then gradually descends to the north.

(1436) At **Cape Starichkof** about 7 miles north-northeast of Anchor Point, the bluff recedes again, is less steep and is covered with vegetation. North of the cape the bluff follows the shore, varies from 100 to 240 feet in elevation and continues nearly to **Cape Ninilchik** about 15.5 miles north-northeast of Anchor Point. Cape Ninilchik is a "Securite" Broadcast reporting point used

by large vessels. (See Securite Broadcasts, indexed as such, earlier this chapter for more.)

(1437) From north of Anchor Point to Cape Ninilchik, the coast is mostly clear, with intermittent boulders and some submerged wellheads. A lighted parabolic antenna is on Cape Starichkof. This antenna and three more extending north to Kenai are the only prominent and distinctive features between Anchor Point and Kenai.

(1438) **Deep Creek**, 1.8 miles southwest of Ninilchik, is recognized from seaward by a break in the bluff 0.4 mile wide. A gravel road leads from Sterling Highway to the beach, a state camping ground and launching ramp. There is much small boat traffic from this area in the summer.

(1439) **Ninilchik**, a fishing settlement at the mouth of Ninilchik River, has a small-boat basin only reachable at high tide.

(1440) **Ninilchik Channel Entrance Light** (60°03'17"N., 151°39'53"W.), 25 feet above the water, is shown from a tower with a red and white diamond-shaped daymark on the seaward end of the north jetty; the light marks the entrance to a small-boat basin inside the mouth of the Ninilchik River. The approach to Ninilchik is through scattered off-lying rocks to the entrance channel, which should be used only with local knowledge. A submerged rock sill about 9 feet above MLLW extends across the entrance channel about 50 yards above the entrance light. A daybeacon on a pole, just inside the seaward end of the south jetty, warns of the approach to the sill, and another daybeacon on a pole marks the northeast end of the sill. The project depths in the entrance channel and basin are 8 feet and 2 feet above MLLW, respectively. The channel is narrow and difficult and, with local knowledge, can be used in daylight and during relatively calm weather at high tide.

(1441) **Ninilchik Small-Boat Harbor**, 400 feet above the mouth of the Ninilchik River, is 400 feet long by 120 feet wide and used for mooring commercial vessels and recreational craft. The boat basin has one floating pier, which is in place from early June to late September and has a capacity for approximately 32 vessels. No public supplies or repair services are available. Landline telephone service is available. Ninilchik is connected to the Alaska Highway System via the Sterling Highway.

(1442) North of Cape Ninilchik the coast is very foul, being characterized by immense boulders not marked by kelp. The boulders apparently rest on comparatively flat bottom, so that soundings give no indications of them. It is probable that many more exist than were found by the survey.

(1443) **Clam Gulch**, 14 miles northeast of Ninilchik, has a gravel road leading from Sterling Highway to the beach. A lighted parabolic antenna is prominent 1.5 miles south of Clam Gulch.

(1444)

Sukoi Bay to Dry Bay

(1445) On the west shore of Cook Inlet, from Cape Douglas (58°51.0'N., 153°15.0'W.) to Chisik Island about 80 miles to the north-northeast, the mountains generally rise abruptly from the water, and Iliamna and Redoubt Volcanoes tower well above the surrounding peaks, affording excellent marks from all parts of the lower inlet. The west shore of the Cook Inlet is reported to have more floating debris and logs in summer and larger ice pans in winter than the east and more trafficked shore of the Inlet.

(1446) **Sukoi Bay**, on the north side of Cape Douglas, is shoal and can be used only by small craft with local knowledge. Rocks bare at low water in the middle of the entrance, and a ledge bares at low water between the rocks and the south shore.

(1447) The two bluff points 5 and 8 miles northwest of Cape Douglas are the ends of two sharp, rocky ridges that extend from the highland of Mount Douglas. Vessels navigating between Cape Douglas and Shaw Island are cautioned to avoid a rocky area with a least depth of 2¾ fathoms about 3.5 miles southeast of Shaw Island and a rocky area with a least depth of 3¼ fathoms 2.7 miles south-southeast of Shaw Island. At the head of the bight is a short valley with a glacier. Just clear of the bluff point on the southeast side of the bight is a pinnacle rock as high as the bluff. The bight between this point and the north point of Sukoi Bay appears shoal.

(1448) **Shaw Island**, flat and grass covered, is 10 miles northwest from Cape Douglas and 1.8 miles from shore. A depth of 12 fathoms was found midway between it and the shore. Ledges extend north from the island for 0.8 mile.

(1449) **Kamishak Bay**, about 20 miles northwest of Cape Douglas, has numerous reefs rising to within a few feet of the surface scattered throughout the area. During strong northwest to west winds, (common after mid-August), the bay south of Tignagvik Point to Cape Douglas experiences stronger winds due to the funnel effect of the mountains. These winds are accompanied by a short, high, choppy sea on flood currents. With flood currents and east winds a significant swell develops. Because of these hazards, vessels should proceed with caution in the bay.

(1450)

Currents

(1451) In the south part of the bay, tide rips occur off **Douglas River** with a flood current and strong west winds. In the north part of the bay, the currents follow the coast, flooding northeast and ebbing southwest at a rate of about 1 knot at strength. The current is more noticeable near the shore. With a strong west wind, tide rips occur about 2 to 4 miles north of Chinitna Point.

(1452) The shores of Kamishak Bay are mountainous with bare-faced headlands and palisades of stratified rock. The lower hills are covered with grass and alder brush. There

is no timber except for sparsely wooded areas near the mouth of the Kamishak River and north of Iniskin Bay. The shoreline along the south and west sides of the bay is characterized by a low flat bluff, 50 feet above mean high water. The islands in the bay appear to be detached parts of this bluff.

(1453) The shore throughout the bay is bordered by dangerous reefs, most of which uncover at low water. The south shore of Kamishak Bay is foul with extensive reefs and ledges and adjoining mudflats. **Amakdedulia Cove, Akjemguiga Cove, Pinkidulia Cove, Horseshoe Cove** and **Akumwarvik Bay** are strewn with boulders and reefs surrounded by mudflats that uncover at low tide. A safe passage to the south shore has not been found. Local small fishing boats do enter Akumwarvik Bay thence Kamishak on high tides but this is not recommended without local knowledge. Tide rips occur in this area and off Douglas River.

(1454) It is possible to approach the west shore through a break in the reefs. In the waters north of Chenik Head, this should only be attempted during a rising tide and with local knowledge of the ledges and reefs along the shore. The approach is from the south side of Augustine Island, which is passed from 1.5 to 2.5 miles offshore, on a course of **257°**. Head for Chenik Head, a low flat cape. **Chenik Mountain** (Three Peaks), a high mountain group 3 miles northwest of Chenik Head, show slightly on the starboard hand. Avoid **Juma Reef**, it bares at low water and extends north-northeast from Nordyke Island for at least 1.2 miles. north of this reef is a channel about 3 miles wide and with a least depth of 6 fathoms. As soon as the line of the reefs is passed, change course to **215°**. The west part of **McNeil Head** should be dead ahead and the outer tangent of Step Mountain should be dead astern. Anchor 1,100 yards west of Nordyke Island in 5 fathoms, sticky mud bottom. The currents at this anchorage set south-southwest on the flood and north-northeast on the ebb.

(1455) **Nordyke Island** is 35 feet high, flat, and grass topped. Two smaller flat grass-topped islands are southwest of Nordyke Island. Rock ledges that bare at low water make off from these islets for about 0.5 mile to the south. A series of reefs that bare at low water are like huge stepping stones between Nordyke Island and McNeil Head.

(1456) **McNeil Cove** is shoal and filled with sandflats. The south side of the cove is marked by a prominent headland called **McNeil Head**. Bands of conglomerate rock cross the faces of McNeil Head. **McNeil Islet**, mushroom shaped and about 45 feet high, is about 1,100 yards off this headland. A lagoon in the southwest part of McNeil Cove is used as a refuge in stormy weather by small fishing craft, which lie in the mud during low water.

(1457) South of Amakdedulia Cove are hills and cliffs having a green and yellow tinge. Three flat-topped islets about 30 feet high are off these cliffs. Fingers of reefs spread out from the islets for about 0.75 mile.

(1458) **Chenik Head** is a low flat cape about 50 feet high on the north side of Amakdedulia Cove. A rock ledge bare at low water makes off this point for a distance of about 0.7 mile. An isolated rock, 7 feet high, is on this ledge about 0.1 mile offshore. North of Chenik Head are two small islets that serve as markers for vessels crossing the line of reefs.

(1459) **Amakdedori**, consisting of a few hunting cabins, is 4.3 miles north of Chenik Head and has a long stretch of sand beach covered with drift of all kinds. Rocky outcroppings border this beach just offshore, and several large reefs are farther offshore. A safe landing can be made on the beach north of **Amakdedori Creek**.

(1460) North of Amakdedori is an extensive stretch of conspicuous palisades. Above these and near the west end is a dome-shaped peak about 1,996 feet high.

(1461) **Contact Point** is a round-topped headland about 400 feet high surrounded by precipitous bluffs. It is conspicuous from the vicinity of Augustine Island. A tall pinnacle rock close to the headland identifies it when viewed from the southeast. A submerged ledge extends 0.5 mile offshore from Contact Point.

(1462) The entrance to **Bruin Bay** is north of Contact Point. The bay is separated into an inner and an outer portion by a finger of land running north from a point 1.5 miles west of Contact Point. Two cabins in ruins are on the north end of this finger. The outer part of Bruin Bay has inadequate water for most small vessels; it is bordered by submerged ledges, and its use as an anchorage is not recommended. Numerous reefs exist in the outer bay. A pinnacle rock 1.1 miles **343°** from Contact Point uncovers 3 feet. A passage for small craft wishing to enter the outer bay is parallel to and 1 mile north of the south shore of the outside bay; this passage should only be attempted on a high tide and local knowledge of the reefs in the area is essential. The unnamed cove on the north side of the outer bay uncovers at low water and is strewn with boulders and reefs. The inner bay is reached by passing between the numerous rocks and reefs lying north of the finger of land dividing the bay. The passage is hazardous because of the constricting reefs and very strong currents. The inside bay is virtually a tidal flat strewn with large boulders. Local fishing vessels transit the passage into the inner bay at slack water. Bruin Bay is known for its strong winds out of the west and northeast which often cause boats' anchors to drag.

(1463) The shoreline northeast of Bruin Bay is rugged. A waterfall 3.4 miles north-northeast of Contact Point is conspicuous. **Fortification Bluff** is a line of bold, angular-edged palisades with faces of stratified rock. **Step Mountain** is the headland on the south side of Rocky Cove. Two flat areas below the peak form steps on the side of the mountain. **Rocky Cove** is obstructed by reefs, bare at lowest tides, that extend 2 miles offshore. **Ursus Cove** is exposed to a heavy swell in east weather. The bottom is very broken.

(1464) **Augustine Island** is a 4,304-foot-high volcanic, conical peak from which steam frequently discharges. The upper slopes are barren, but the lower parts of the island are covered with grass, brush and alder. There

are also a few groups of spruce trees. The shore is low, with bluffs in places, and is generally strewn with boulders. A boulder reef extends about 0.8 mile off the northwest shore of the island. The north end of the island, terminating in **Burr Point**, consists of numerous small mounds of boulders with sloughs between. The University of Alaska maintains a summer field camp in this area at a small protected cove on the east side of Burr Point. This facility consists of one wood shed and modern structures for housing seismic research crews during the summer months. The cove can be reached via a small, unmarked channel at any water above half tide and could afford protection from any weather for small boats, but its use is not recommended without local knowledge. The west end of the island is detached from the main part by a lagoon, the entrances to which are partly blocked by boulders.

(1465) The southwest bight is much used by fishing craft as an anchorage, with protection from southeast through northeast weather. It has an even bottom of coarse sand, green mud, shell and gravel. The depth is from 3 to 5 fathoms. Anchor off the sandspit on the east side of the cove; the west side should be avoided because of reported boulders on the bottom. Huge boulders can be seen near the entrances to the two lagoons. A bank having depths of 2 to 3 fathoms extends over 3 miles west of Augustine Island. A second bank having depths of 2 to 4 fathoms extends for about 1.9 miles off the southwest point of the island.

(1466) **Augustine Rocks** are 8.3 miles south from the peak of Augustine Island. They are two flat rocks, with a smaller one between, all covered at high water. Their position is reported to be generally marked by kelp or breakers.

(1467) **Iliamna Bay** is on the north side of Kamishak Bay 13 miles north from Augustine Island. The bay has several suitable temporary anchorages, weather permitting. A lodge is at Dutton, and portage for small boats is available at Williamsport. The west arm of Iliamna Bay is called **Cottonwood Bay**. A gravel airstrip is at the head of bay at Dutton. The greater part of the bay is filled by a flat but there is good anchorage just inside the entrance. The shores are mountainous and there are no trees except the cottonwoods on the flats at the heads of the bay.

(1468) **White Gull Island** (59°37.1'N., 153°34.4'W.), grass covered and about 70 feet high, is conspicuous near the middle of Iliamna Bay just inside the entrance. The bay shoals gradually from 6 fathoms in the entrance north of White Gull Island to 1 fathom in the entrance to Cottonwood Bay.

(1469) **Turtle Reef** extends over 0.4 mile east from South Head at the entrance of Iliamna Bay. The reef is largely bare at low water and is about 15 feet high at its highest point. **Black Reef** is 0.5 mile from shore and 1.1 miles east from **North Head**. The highest points of the reef are two rocks, 5 to 10 feet high. Lying 0.5 mile northeast of Black Reef is another reef that covers at half tide; its south end is 0.5 mile from shore. **A.C. Point**, on the east shore of the bay about 2 miles northwest from North Head, has been used as a landing place.

(1470)

Route

(1471) In the approach to Iliamna Bay the depths are 6 to 8 fathoms several miles from shore, and these depths extend close to Turtle and Black Reefs. Enter the bay between North Head and White Gull Island. When in the bay care must be taken to avoid a reef, partly bare at low water and with 2½ to 3 fathoms close-to, that extends 0.4 mile east from the south point at the entrance to Cottonwood Bay.

(1472)

Anchorage

(1473) Anchorage in 3 to 4 fathoms, soft bottom, can be had on a temporary basis 0.8 mile inside the entrance to Iliamna Bay, with the north side of White Gull Island in range with the south point at the entrance and the north point at the entrance bearing **106°**. The anchorage is exposed to east and southeast winds and there are heavy williwaws with west winds, but it is regarded as secure during the summer, except during the occasional heavy winds.

(1474)

Local magnetic disturbance

(1475) Differences of as much as 3° from normal variation have been reported in Iliamna Bay.

(1476)

Currents

(1477) The currents just inside the entrance to Iliamna Bay have an estimated strength of 1 to 2 knots.

(1478)

Weather, Iliamna Bay

(1479) It is reported that Iliamna Bay does not freeze but that drift ice in large quantities sets in at times from the upper inlet. North gales prevail in winter and heavy williwaws are reported to come from the mountains on the northeast shore. The prevailing summer winds are down the bay and are frequently fresh, especially on bright days.

(1480) **Williamsport**, in a cove on the west shore of Iliamna Bay 1 mile from the north end of the bay, is the east terminus of a 14.5-mile, state-maintained, gravel road between Williamsport and Pile Bay. The road is open from June to October and is constrained by 2 vehicle fords and a 12-foot wide bridge. Vessels less than 12 feet wide, 32 feet long and 9½ feet high are hauled, by truck, between Williamsport and Pile Bay. From Pile Bay the vessels transit Lake Iliamna to the Kvichak River and down the river to Bristol Bay. The controlling depth in the river was reported to be 2 feet in 1996. This depth may be more or less, depending on the runoff.

(1481) This portage road continues on after Pile Bay to Pedro Bay, on Lake Iliamna.

(1482) Williamsport consists of a boat ramp. The wharf ruins and boat ramp dry at +14 feet. The operator of the hauling service monitors VHF-FM channel 10 when

prior arrangements have been made. Because of working limitations and tides, boats have to wait for a 17-foot tide to be hauled out. Due to the tidal requirements and the privately marked meandering channel, local knowledge is needed.

(1483) **Iniskin Bay**, on the north side of Kamishak Bay 3 miles east of Iliamna Bay, is a secure harbor in any weather, although subject to some williwaws from the high sharp bare peaks on the west shore. It is considered the only secure anchorage for medium-sized vessels on the west side of the Cook Inlet and is used by fishing industry vessels up to 4,000 tons.

(1484) The east shore is generally low and alder covered. The west and upper parts of the bay are filled with boulder-strewn flats, bare at low water, and the east part is shoal and fringed by a reef. The channel is nearly 0.7 mile wide at the entrance and tapers to a narrow slough at the head.

(1485) Three small islands with outlying reefs are on the east side of the entrance of Iniskin Bay. The north and largest is **Scott Island**, about 40 feet high and partly wooded, and from it a reef with rocks about 15 feet high extends 0.5 mile northwest. The middle island is about 35 feet high, and from it a reef extends 0.6 mile southwest, terminating in **Iniskin Rock.**

(1486) **Iniskin Island**, outermost of the three mentioned above, is 50 feet high on the north side, and from it a reef partly bare at low water extends 0.5 mile southwest; lying 1 to 1.3 miles southwest from the islet is **Iniskin Shoal**, a submerged reef covered 4 feet, which does not break in heavy weather. These reefs rise abruptly from depths of 5 to 8 fathoms.

(1487) **Iniskin River**, at the head of Iniskin Bay, is navigable for boats of not more than 3-foot draft for a distance of about 2 miles above the entrance.

(1488)

Route

(1489) To enter Iniskin Bay, avoid the reefs that rise abruptly from deep water and extend about 1 mile from the shore east of the bay. Pass more than 1 mile south of the outer islands off the entrance. When two prominent headlands (59°40.4'N., 153°28.5'W., and 59°41.6'N., 153°27.8'W.) on the west side of Iniskin Bay are in line, steer this range until near the west shore, avoiding a reef that extends about 0.7 mile south from **Knoll Head**. Follow this shore a distance of 0.3 mile until **Range Peak**, on the north side of **Right Arm**, is in line with Iliamna Volcano, and then steer this range; the chart is the guide.

(1490)

Anchorages

(1491) Anchorage is on the range, from 1.0 to 2.5 miles above Scott Island, in 5 to 10 fathoms, clay bottom, where the width of the channel between the 5-fathom curves is about 700 yards. Smaller fishing vessels will anchor either on the southeast side about 1 mile north-northwest of Scott Island or on the northwest side 2.5 to 3.5 miles north of Scott Island, in 3 to 6 fathoms. The west side is exposed to swell from strong southeast weather, which renders it fair to poor for smaller vessels unless they anchor in the shallower waters on the southeast side of the bay.

(1492)

Currents

(1493) The tidal current averages 1 knot in Iniskin Bay. See the Tidal Current prediction service at *tidesandcurrents.noaa.gov* for specific information about times, directions, and velocities of the current at numerous locations throughout the area. Links to a user guide for this service can be found in chapter 1 of this book.

(1494)

Local magnetic disturbance

(1495) Differences of as much as 3° from normal variations have been observed in Iniskin Bay.

(1496) From Iniskin Bay to Oil Bay, the coast is fringed by a reef that extends about 1 mile from shore and rises abruptly. Many of the rocks show at low water. **Pomeroy Island**, 2.2 miles southeast of Scott Island, is small and rocky and has a few trees on its west end. **Big Rock**, 9 feet high, is 1 mile east of Pomeroy Island. From Iniskin Bay to Oil Bay there is a comparatively smooth passage for launches with local knowledge inside the reefs. However, this passage is exposed to more ground swell than the outside route.

(1497) From Oil Bay to Chinitna Point reefs extend about 1 mile from shore in places and rise abruptly from deep water. Rocks show at low water close to shore only.

(1498) **Oil Bay** is shallow and open with a sand beach at its head that bares for 0.8 mile from shore. The bottom is rocky and foul for about 1 mile offshore on the west side of the entrance.

(1499) **Dry Bay** is a rocky shoal bight between Oil Bay and Chinitna Point. The bay has a sand beach at its head.

(1500) An 8-fathom shoal, about 2 miles northeast of Chinitna Point and about 1.5 miles offshore, is usually marked by turbulence that can be hazardous to small craft. Because of the irregular bottom and swift tidal currents, seas two or three times as high as the seas in adjacent areas–often 8 to 10 feet high–may be in the vicinity of the shoal.

(1501)

Chinitna Bay to Tuxedni Bay

(1502) **Chinitna Bay** is shoal, and an anchorage in 4 to 5 fathoms in the entrance is exposed to all east winds. The bottom is muddy and good holding ground, and anchorage can be selected anywhere in the bay where there is sufficient depth to remain afloat at low water. There are strong williwaws with west winds. The bay is filled with ice during the winter. Tidal currents average 1 knot in Chinitna Bay.

(1503) **Gull Island**, 100 feet high, rocky and grass covered, is on the south side of the entrance to Chinitna Bay. Reefs extend 0.6 mile northeast and southeast from the island.

A deep channel, 0.3 mile wide, leads into Chinitna Bay between Gull Island and the mainland to the southwest.

(1504) From Chinitna Bay to the prominent waterfall 5 miles south of Chisik Island, the coast is low and wooded, with lagoons and marshes in places and some quicksand. Along Tuxedni Channel the coast comprises rocky bluffs and rises abruptly to high land.

(1505)

Caution

(1506) An extensive shoal, with rocky, very irregular bottom, at least 3 fathoms and 3.9 miles offshore, extends 6 miles from the west shore between Chinitna Bay and Tuxedni Channel. Tide rips mark the shoal except at slack water and are dangerous to small craft in heavy weather; the heaviest rips are near the extremity of the shoal, about 6 miles offshore. Numerous boulders, some awash, are just north of the entrance to Chinitna Bay and extend as far as 1.2 miles offshore. Small craft without local knowledge should avoid this area. Deep-draft vessels should avoid areas with depths of less than 10 fathoms.

(1507) Floating debris, including large logs, often forms long windrows parallel to shore about 4 miles off the coast in the vicinity of Chinitna Bay. Although logs are common throughout Cook Inlet, they seem to gather here more frequently than at other places.

(1508) **Red Glacier**, 7 miles north of Chinitna Bay, is a prominent landmark that derives its name from the red soil covering the seaward edge.

(1509) **Iliamna Volcano** is a prominent landmark. Steam occasionally issues from fissures just below the summit and from one of the lower peaks on the southeast slope.

(1510) **Chisik Island** has a narrow ridge, comparatively smooth on top, that slopes gradually upward from the southeast end of the island to its northwest end where it terminates in a conspicuous cliff. **Chisik Island Light** (60°05'45"N., 152°33'42"W.), 215 feet above the water, is shown from a skeleton tower with a diamond-shaped red and white daymark on the south end of the island; a reef extends 0.3 mile south.

(1511) **Tuxedni Channel**, on the southwest side of Chisik Island, is considered a protected anchorage.

(1512) **Snug Harbor** is generally accepted as including all the waters of Tuxedni Channel from Chisik Island Light to about 1 mile inside the entrance. These waters are quite well protected from all winds except williwaws blowing from the north end of Tuxedni Channel. The holding ground is good throughout the entire area, and safe anchorage can be found on either side of the channel except when floe ice is present to varying degrees between January and May, depending on the severity and the stage of the tides when the ice leaves the lagoons and streams at breakup time.

(1513) A former cannery on the east side of Snug Harbor, on Chisik Island, has a caretaker on site. A T-head pier has about 10 feet reported alongside.

(1514)

Route

(1515) To enter Tuxedni Channel give the south end of Chisik Island a berth of over 0.5 mile, keep in midchannel until about 2 miles inside the entrance, and then follow the Chisik Island shore at a distance of 0.5 mile. The anchorage is about 3.5 miles above the light, in 13 to 14 fathoms, mud and sand bottom, and has a clear width of 0.7 mile. On the island side, the shore is bold but a shoal makes out 0.6 to 1 mile from the main shore abreast the anchorage; the shoaling is abrupt on the sides of the channel and there are boulders in places on the shoals. Heavy williwaws occur with gales from any direction and raise a choppy sea dangerous to open boats. The channel is occasionally blocked with ice from January to March.

(1516)

Currents

(1517) The current in Tuxedni Channel floods northwest at a velocity of 1.1 knots and ebbs south-southeast at a velocity of 1.9 knots.

(1518) **Tuxedni Bay** consists largely of shoals and reefs. A narrow channel extends from Tuxedni Channel nearly to the head of the bay. This channel shoals rapidly after leaving Chisik Island. The passage north of Chisik Island should be avoided, even by small craft.

(1519) In 1978, the NOAA Ship FAIRWEATHER reported the shifting of rocks and the possibility of uncharted rocks in Tuxedni Bay west of longitude 152°40'W. Caution is advised in this area.

(1520)

Redoubt Point to Turnagain Arm

(1521) From Tuxedni Bay to Harriet Point, the west shore of Cook Inlet is a gravel bluff with trees on top and a few boulders in the water. **Redoubt Point** (60°17.3'N., 152°25.0'W.), 7 miles northeast of Tuxedni Bay, is an alder-covered bluff from 200 to 300 feet high, with a number of bare slides. There are boulders in places on the shoals that fringe this shore, and vessels should proceed with caution when inside the 10-fathom curve.

(1522) A shoal **(South Kalgin Bar)**, in the center of the Inlet, extends 16 miles south from Kalgin Island and is marked at its south end by a seasonal lighted bell buoy. There are spots bare at low water for nearly 8 miles from the island, and thence south the least depth found is 2 fathoms. The bottom is very broken. No boulders show at low water, however, except near the island. Care should be taken for the entire 16-mile distance to avoid drifting into shoal waters.

(1523) **Harriet Point**, on the west shore, is a clay bluff about 100 feet high, with boulders at the water. A boulder reef, bare at low water, extends 0.8 mile east from Harriet Point. The point should not be approached closer than 1.5 miles on the line of the reef. The currents are very swift at Harriet Point, exceeding 5 knots on large tides, and with south breezes bad tide rips occur between Harriet Point and Kalgin Island and extend some

distance south. In 1975, the NOAA Ship DAVIDSON observed a dangerously steep, short, and choppy sea condition between Harriet Point and the south part of Kalgin Island. This sea condition resulted from strong currents and opposing winds, and the steep waves were of short duration. About 0.6 mile north-northwest of Harriet Point, 0.5 mile from shore, the ebb current has a velocity of 2 to 3 knots, while the flood current is weak and of short duration. **Harriet Point Light** (60°23'45"N., 152°14'15"W.) 95 feet above the water, is shown from a skeleton tower with a diamond-shaped red and white daymark on the end of the point.

(1524) **Redoubt Volcano** is a visually prominent landmark 16 miles inland from Harriet Point. There is a notch on its southeast slope just below the summit. Steam occasionally issues from fissures at the summit.

(1525) **Kalgin Island**, in the center of the Inlet, is wooded and fringed with boulders and higher at its north and south ends. **Kalgin Island Light** (60°29'06"N., 151°50'17"W.), 140 feet above the water, is shown from a skeleton tower with a diamond-shaped red and white daymark on the northeast point of the island. **Kalgin Island South Light** (60°20'40"N., 152°05'06"W.), 65 feet above the water, is shown from a skeleton tower with a diamond-shaped red and white daymark on the south point of the island. The south end of Kalgin Island is a "Securite" Broadcast reporting point used by large vessels. (See "Securite" Broadcasts, indexed as such, earlier this chapter for more.) Both the northeast and south points form good radar targets. However, it is reported that the northeast point is receding at a rapid rate, so the radar range should be used with caution.

(1526) A passage with general depths of 12 to 15 feet, which is used by fish packers, leads across the north end of the shoal (South Kalgin Bar) from 1.5 to 2.3 miles south of Kalgin Island. (See South Kalgin Bar, indexed as such, earlier this chapter.) A range should be picked up in the opening north of Chisik Island to ensure making the course good, as the currents on either side of the island have a velocity of 3 to 4 knots at times and are nearly slack in the lee of the island. There are boulders near Kalgin Island and possibly in the passage.

(1527) A sand ridge, which uncovers, is about 2.5 to 3.5 miles west of Kalgin Island. During the early summer months and after significant rainfall, floating debris and logs may be encountered in the channel west of the sand ridge. As mentioned earlier, this condition occurs generally in the Inlet but seems to gather here more frequently than at other places.

(1528) From Harriet Point to West Foreland, two shallow bights form **Redoubt Bay**. The shore in the bay is generally low and backed by patches of woods that appear continuous and is subject to overflow at extreme high tides. It is fronted by a flat that extends off a greatest distance of 2.5 miles. The edge of the flat is generally steep-to and no boulders were seen on those parts lying in front of the marshy shore, but abandoned wellheads are on the tide flat. **Drift River** is shallow, rapid, and obstructed by rocks and snags. A good anchorage from all but northeast weather for medium-sized vessels can be found 2 to 5 miles southwest of Drift River Terminal in 3 to 5 fathoms, mud bottom.

(1529) About 10 miles north of Harriet Point and 18 miles south of the mouth of Drift River, is the **Drift River Marine Terminal**, a privately owned offshore loading platform (**Christie Lee**) with an 80-foot face accommodating 780 feet of moorage with dolphins; 60 feet alongside; deck height, 55 feet; a helicopter deck and living quarters are on the platform. Breasting and mooring dolphins, connected by walkways, are adjacent and on the sides of the loading platform. Privately maintained lights on mooring dolphins mark the extremities of the terminal facilities; a sound signal is at the south light. Two 30-inch oil pipelines lead from a 7-tank crude oil tank farm on shore to the platform. The platform headings are 035°-215°. Tankers can be loaded at a rate of 50,000 barrels per hour. A small airfield is maintained ashore, owned and operated by Cook Inlet Pipeline Co.

(1530) The platform is a good radar target.

(1531) **Caution:** Flood currents are reported to set vessels off the terminal while ebb currents set them on. From mid-November to early April, large pieces of ice have been reported to approach the platform during flood currents. The combination of currents and ice floes can cause a strain on mooring lines. Propulsion and machinery have special equipment and operating requirements, as do cargo operations, moorage and vessel draft. See Winter Operating Guidelines, Cook Inlet, indexed as such, earlier this chapter and contact the COTP West Alaska in Anchorage for more information.

(1532) A prominent wooded butte, **Coach Butte**, is 4 miles inland and 14 miles west of West Foreland.

(1533) A boulder-strewn shoal with depths of 7 fathoms or less extends north from the northeast point of Kalgin Island to West Foreland. The outer boulders, which are covered 8 to 11 feet, are 2.5 miles from the island. It is advisable to proceed with caution where the depths are no more than 30 feet greater than the draft. In 1996, shoaling to 1.5 fathoms was reported on this sand and gravel bottom at about 2 miles 030° to 060° from Kalgin Island Light Point.

(1534) Small vessels anchor off the middle of the north end of Kalgin Island, with good shelter from south gales drawing up the inlet. Fair holding ground is from the middle of the north shore west. The currents are as weak as will be found at any of the exposed anchorages. Caution must be observed, however, at low water when crossing the broken boulder-strewn area where depths of less than 5 fathoms make off from the north end of the island.

(1535) The highest parts of the offlying shoal between Kalgin Island and West Foreland uncover between 3 and 4 feet. The shoal has been shifting south and extends 5.5 to 10 miles from the north end of Kalgin Island. Although the shoal is rocky in places, no boulders show at lowest

tides. There are boulders in places on the bottom between the shoal and West Foreland.

(1536) **Kustatan River** has its entrance 3.5 miles west of West Foreland. It connects inland with McArthur River, which enters the inlet 12 miles north of West Foreland. Tidal flats with some boulders extend 2.5 miles south of the river.

(1537) **West Foreland** is a flat headland with a bluff at the water. The shore at West Foreland and for a distance of about 5 miles north is fringed with boulders and abandoned wellheads that extend below low water. Tide rips with a high, short, choppy sea are significant on flood currents and south to southwest winds. (Note: Opposite on the east shore is East Foreland. See East Foreland, indexed as such, later this chapter.) These points mark an important transit turn point and are a "Securite" Broadcast reporting point used by large vessels. (See "Securite" Broadcasts, indexed as such, earlier this chapter for more.) For a distance of 8 miles north from West Foreland the bluff is at the water, and numerous boulders are on the beach. The bluff then trends inland to a conspicuous wooded ridge, 5 miles long and 300 feet high, which is 2.5 miles inland at its north end.

(1538) For a distance of 15 miles northeast from the end of the bluff, the shore of **Trading Bay** is flat, grass covered, and subject to overflow and has several sloughs. This part of the bay is fronted by a flat that extends off a greatest distance of 2.1 miles at the mouth of McArthur River and contains abandoned wellheads. This river is about 1 mile wide at its entrance at high water but has a bar which uncovers across its mouth. A marked pipeline that crosses the river upstream is sometimes exposed by river runoff; passage is not advised. A good **anchorage** from southwest weather for medium-sized vessels can be found 9.5 miles north of West Foreland and 2.5 miles south-southeast of the McArthur River in 5 fathoms, soft mud bottom, good holding. Care should be taken to stay north of the charted pipeline areas. Trading Bay has 10 charted oil well platforms that are used as navigation points by vessels transiting the Inlet. Helicopter traffic to and from the platforms is often seen.

(1539) **Nikolai Creek** is a narrow slough 19 miles north-northeast of West Foreland. A marked pipeline that crosses the river upstream is sometimes exposed by river runoff; passage is not advised. About 3 miles east of Nikolai Creek is a prominent gulch with a small stream in it. The bluffs come to the shore at the gulch and continue around North Foreland. Unprotected anchorage 1.2 mile south of the gulch (and 3 miles off both Bruce and Granite Point platforms) is in 5 fathoms, mud bottom, good holding. Care should be taken to stay between the charted pipeline areas.

(1540) **Granite Point** is a prominent gray bluff 1 mile east of the gulch. Between the point and North Foreland, 5.5 miles to the east-northeast, is **Beshta Bay**, a shallow bight with a mud and gravel bottom. One oil production platform and 4 abandoned wellheads are in the bay. A rocky shoal bares at low water and extends 1 mile from shore 1.5 miles east of Granite Point. The flood current has a velocity of 4 to 5 knots and the ebb 2 to 3 knots and the bay experiences strong winds emanating from Turnagain Arm (see Turnagain Arm, indexed as such, this chapter).

(1541) **North Foreland**, on the northwest side of Cook Inlet 25 miles above West Foreland, is a bluff about 150 feet high at the shore end of a hilly wooded ridge (forming a good radar target); thence north the bluff is lower. A large T-head pier (see chart inset), marked by private lights at the outer ends, extends about 0.25 mile southeast from North Foreland. This wharf has a 150-foot face, 700 feet of moorage with dolphins; 26 feet alongside; deck height 35 feet; owned by the Tyonek Native Corp.

(1542) **Caution:** Flood currents are reported to set on the pier and ebb currents off, and the flood current is reported to start earlier at the pier than offshore.

(1543) **Tyonek** is a native village near the mouth of **Indian Creek**, 1.5 miles northeast of North Foreland. The village has a Bureau of Indian Affairs school. Vessels call at Tyonek, and a landing strip just north of the village is suitable for light planes. Mail is received once a week from Anchorage.

(1544) **Chuitna River**, 3 miles north of North Foreland, is marked by a low break in the bluff. A depth of about 8 feet can be taken into the mouth of the river at high water, and the tides are felt about 1 mile upriver.

(1545) A prominent bluff 150 feet high is on the south side of **Threemile Creek**. Bluffs continue north for 2.5 miles from this creek, and then the tree line is from 2 to 3 miles inland from the ordinary high-water mark, the strip between being subject to overflow at extreme high tides. This feature continues to within 2 miles of Point MacKenzie.

(1546) Beginning at Threemile Creek, the shore is fronted by a broad mudflat. Its low-water edge is about 2 miles off the mouth of Beluga River, 5.5 miles off the mouth of Susitna River and 3.5 miles off the shore east nearly to Little Susitna River and then meets the shore at Point MacKenzie.

(1547) **Beluga River** is 11.5 miles north of North Foreland. Locals reported that 2 feet is available at low water across the flats at the mouth of the river, and these flats are said to shift in the winter and spring from ice movement. A fixed bridge about 4 miles above the mouth of the river has a reported vertical clearance of 25 feet.

(1548) The effect of the tide is felt in Beluga River 6 to 8 miles above the mouth, and it is said that boats can navigate as far as Beluga Lake, about 20 miles from the mouth.

(1549) **Theodore River** is 3.5 miles northeast of Beluga River. Three or four miles up, the two rivers are within 1 mile of each other and there is an easy portage between them.

(1550) **Susitna River** is on the north side of Cook Inlet 22 miles northeast of North Foreland. **Mount Susitna**, a prominent landmark along the upper part of the inlet, is

about 6 miles west of the river at a point 13 miles above the mouth.

(1551) The channels across the flats at the mouth of Susitna River have depths of 2 feet or less at low water and change during the winter and spring because of ice and freshet action. The channels above the mouth are said to change frequently in the spring and early summer.

(1552) Launches navigate Susitna River to **Yentna River**, about 20 miles above Cook Inlet, thence run occasionally up the Yentna to the forks about 65 miles from the Susitna. The tides are not felt more than 7 miles from the inlet, and above this the current is swift. Overhead power cables with a least clearance of 37 feet cross the Susitna River about 5 miles above its mouth.

(1553) **Alexander** is a small settlement on the west side of Susitna River 10 miles above the mouth. Susitna is on the east side 18 miles above the mouth and just below the mouth of the Yentna; launches run to and from Anchorage. Mail is delivered to both settlements twice monthly by airplane from Anchorage.

(1554) **Susitna Flats** lies between Susitna River and Little Susitna River and to the east of the latter. **Susitna Flats Light** (61°15'10"N., 150°29'17"W.), 19 feet above the water, is shown from a skeleton tower and is equipped with a racon.

(1555) **Little Susitna River**, 9 miles west of Point MacKenzie, is said to be navigable for landing craft and skiffs at high water for about 8 miles.

(1556) **Caution:** the depths offshore and in the approach to Little Susitna are subject to drastic and continual change.

(1557) **Cape Kasilof** (60°22.0'N., 151°22.0'W.) is on the east side of Cook Inlet opposite Kalgin Island. The high bluffs characteristic of much of the east shore are absent between 3 to 4 miles south of the cape up to Kenai to the north. Cape Kasilof is a "Securite" Broadcast reporting point used by large vessels. (See "Securite" Broadcasts, indexed as such, earlier this chapter for more.)

(1558) Five miles southwest from Cape Kasilof and 2.2 miles from shore are **The Sisters**, three prominent rocks, the highest of which is 50 feet. They form good radar targets in calm weather on less than a half tide. The foul ground back of The Sisters extends about 10 miles south from the cape and is strewn with boulders 15 to 50 feet high and a submerged wellhead.

(1559) **Kasilof River** empties into the east side of Cook Inlet 2.5 miles northeast of Cape Kasilof. **Kasilof** is a small rural fishing community on the north side of Kasilof River, about 5 miles above the mouth. **Cohoe** is another small rural fishing community on the south side of the river mouth. Both communities are connected by the Sterling Highway with Anchorage, Homer and other points along the west side of Kenai Peninsula.

(1560) The entrance channel is marked by a light and buoys. A lighted buoy, about 2.4 miles west of the light, marks the approach to the entrance channel; the light, entrance buoys, and approach buoy are maintained seasonally. The shifting, narrow, winding channel that leads through the inner shallows to the river mouth crosses a bar reportedly covered 3 feet at low water. Submerged rocks, and, in summer, setnets, extend south from the channel. Entrance should not be attempted without local knowledge.

(1561) Kasilof River is narrow and has a strong ebb current that pushes boats over the bars in the river bends, especially in mid- to late summer when glacial melt is at its peak. Local boats drawing up to 6 feet find good shelter in the river and remain afloat at low water. Vessels drawing as much as 10 feet enter the river and go as far as 2 miles upstream.

(1562) A seafood dock with a 78-foot face and a launching ramp are on the north side of the entrance. Five more fish-buying docks plus over 100 permit mooring buoys extend up the river for about 2 miles. The river is congested with local fishing vessels during the summer. Other than the launching ramp, no public facilities or services are available.

(1563) **Karluk Reef**, 4 miles north of Cape Kasilof and 3.5 miles from the east shore, is covered 1 foot at low water. There are other shoals and submerged rocks between the reef and the shore.

(1564) **Salmo Rock**, 9.5 miles north of Cape Kasilof, 2.5 miles southwest of the entrance to the Kenai River, and 1.8 miles from shore, is one of the outer boulders off Kenai River and shows well at low water.

(1565) **Kenai**, 11 miles north of Cape Kasilof and on the north side of the Kenai River mouth, is a fishing town and a support base for offshore drilling operations in Cook Inlet; it has heavy fishing vessel traffic in summer.

(1566)

Prominent features

(1567) Three towers with red flashing lights are prominent at night south and east of town.

(1568) The entrance channel to the **Kenai River** is marked by a light and a lighted seasonal buoy.

(1569)

Caution

(1570) The area surrounding the mouth of Kenai River, for a radius of over 4 miles, is strewn with rocks, boulders, shoals, wrecks and other obstructions. The bars at the entrance to the river are nearly dry at low water, but there are depths of 8 to 10 feet in places in the river. Because of the shifting bars at the river entrance, the range may not mark the best water. Mariners are advised not to enter Kenai River without local knowledge. The river is reported to be congested with anchored fishing vessels in summer. (See **33 CFR 162.245**, chapter 2, for navigation regulations for the Kenai River.)

(1571) From June to October, about 120 private mooring buoys are placed on the sides of the river channel from about 300 yards west of Pacific Star Seafoods Wharf to 200 yards south of the Wards Cove Packing Co. Dock.

(1572)

Currents

(1573) The currents in the river mouth attain velocities of 5 knots or more. With a strong southwest wind and flood current, a significant southwest swell occurs at the river

entrance. Sets are also felt at the entrance and over the bar, and steep choppy seas are seen with currents opposing winds.

(1574)

Weather, Kenai

(1575) Prevailing winds from late spring to early fall are from the southeast and southwest, (the strongest being from late summer to early fall); northeast winds prevail in the winter. Fog occurs from December to February, with some fog in the early spring. The yearly average temperature is 35°F (1.7°C), and summers can warm to 90°F (32.2°C), while winters can fall below 0°F (-17.8°C).

(1576)

Ice

(1577) Ice is not a problem in the river entrance but does form inside in the river and can close the river to vessel traffic for short periods from December to the beginning of April.

(1578)

Pilotage, Kenai

(1579) Pilotage, except for certain exempted vessels, is compulsory for all vessels navigating the waters of the State of Alaska. (See **Pilotage, general** (indexed), chapter 3, and **Pilotage, Homer**, earlier this chapter (indexed), for the pilot pickup station and other details.)

(1580)

Customs

(1581) Kenai is handled by Anchorage officials with prior arrangements.

(1582)

Quarantine

(1583) A U.S. Public Health Service Contract Physician is located at the medical center in Kenai. (See Appendix A for additional information.) There are hospitals in Kenai and Soldotna.

(1584) A **Coast Guard** Marine Safety Detachment is in Homer.

(1585)

Wharves

(1586) Six wharves for barges and fishing vessels are along the Kenai River.

(1587) **Pacific Star Seafoods Wharf:** North side of Kenai River, about 0.9 mile above the mouth; 720-foot face; dries at low water; deck height, 25 feet; five forklifts; water and electricity; highway connections; receipt of seafood, fueling vessels; owned and operated by Pacific Star Seafoods, Inc.

(1588) **Salamatof Seafoods, Kenai Dock:** Northeast side of Kenai River, about 1.1 miles above the mouth; 310-foot face; dries at low water; deck height, 28 feet; five forklifts; water and electricity; highway connections; receipt of seafood, fueling vessels; owned and operated by Salamatof Seafoods, Inc.

(1589) **Snug Harbor Seafoods, Kenai Dock:** Northeast side of Kenai River, about 1.2 miles above the mouth; 60-foot face; 12 to 15 feet reported alongside; deck height, 30 feet; two 2-ton forklifts; water and electricity; highway connections; receipt of seafood, fueling vessels; owned and operated by Snug Harbor Seafoods, Inc.

(1590) **Ocean Beauty Seafoods, Kenai Dock:** Northeast side of Kenai River, about 1.25 miles above the mouth; 78-foot steel float; 1 foot reported alongside; three 2-ton forklifts; water and electricity; highway connections; receipt of seafood; owned and operated by Ocean Beauty Seafoods, Inc.

(1591) **Kenai City Dock:** East side of Kenai River, about 1.6 miles above the mouth; 170-foot face; 4 feet reported alongside; deck height, 30 feet; three 8-ton fixed cranes; water and electricity; highway connections; receipt of seafood, fueling vessels, handling supplies for fishing vessels; owned and operated by the city. A small-boat launching ramp is adjacent on the north side.

(1592) **Inlet Fish Piers, Kenai Piers:** West side of Kenai River, about 2.8 miles above the mouth; lower and upper piers with 50- and 45-foot faces, respectively; 3 feet reported alongside; deck height, 27 feet; a 35-ton mobile boat lift; two fixed cranes, 1- and 5-ton; six forklifts; water and electricity; highway connections; receipt of seafood, fueling vessels; owned and operated by Inlet Fish Producers, Inc.

(1593)

Supplies and repairs

(1594) Gasoline, diesel fuel, berths, water, ice, several lifts and a launching ramp are available. Most supplies are available in Kenai. Repair service is available and machine shops are in town.

(1595)

Communications

(1596) Kenai is connected, via the Kenai Spur Road, to Sterling Highway and the Alaska Highway System, and scheduled air service to Anchorage is available daily. Landline telephone, radiotelephone and cellular telephone communications are available.

(1597) A fixed highway bridge with a clearance of 14 feet crosses the river about 4.5 miles above the mouth of the Kenai River. It is reported that small craft with local knowledge navigate the river to **Soldotna**, about 14.5 miles above the mouth. The state imposes a 35-horsepower limitation above the highway bridge.

(1598) Oil rig support boats often anchor 3.5 miles south-southeast of the Nikiski piers, 0.5 mile offshore on the charted 3-fathom shoal. However, it only affords protection from northeast winds and boulders are common to the area.

(1599) **Nikiski**, 8.5 miles north-northwest of Kenai, is a mostly rural area with three deep-draft piers and 2 shallow-draft wharves. Except for the facility just northeast of the West Forelands, all facilities are used in connection with the petroleum industry.

(1600)

Prominent features

(1601) Oil tanks on shore are conspicuous, as are the facilities' lights. When they are operating, the steam from the plants at the Unocal Agricultural Products facility and the Tesoro refinery inshore are the most prominent. The T-head piers are reported to be good radar targets.

(1602)

Caution

(1603) The area surrounding the approach to Nikiski is strewn with rocks, boulders, shoals and other obstructions. A shoal area, about 7 miles long with depths of 2½ to 6 fathoms, marked by a seasonal buoy, is about 1.8 miles off the piers at Nikiski. Deeper water is between it and the piers. Setnets are numerous close to the beach from Kenai to past the East Forelands in June and July. **Note:** Vessels should keep well clear of the areas in close proximity and downwind of ammonia and Kenai LNG loading operations while material is being transferred.

(1604)

Currents

(1605) Nikiski has a PORTS site that provides water level, wind speed and direction and barometric pressure information that is updated every ten minutes. The PORTS site is accessible through a voice response system at 907-776-5436. Tidal currents at Nikiski attain a velocity of about 5 knots on the flood and about 2.6 knots on the ebb. (See the Tidal Current prediction service at *tidesandcurrents.noaa.gov* for specific information about times, directions, and velocities of the current at numerous locations throughout the area. Links to a user guide for this service can be found in chapter 1 of this book.) With a strong southwest wind and flood current, a significant southwest swell affects vessels laying at the Nikiski piers. This wind will also extend the time of flood currents on neap tides to 1 to 2 hours later than predicted.

(1606)

Ice

(1607) Ice floes are a severe problem at Nikiski during January and February; more so on the flood than the ebb, and especially at 2 hours before high water slack. The combination of currents and ice floes can cause a strain on mooring lines. Propulsion and machinery have special equipment and operating requirements, as do cargo operations, moorage and vessel draft. See Winter Operating Guidelines, Cook Inlet, indexed as such, earlier this chapter, and contact the COTP West Alaska in Anchorage for more information.

(1608)

Pilotage, Nikiski

(1609) Pilotage, except for certain exempted vessels, is compulsory for all vessels navigating the waters of the State of Alaska. (See **Pilotage, General** (indexed), chapter 3, **Pilotage, Cook Inlet**, and **Pilotage, Homer**, (indexed), the pilot pickup station and other details.)

(1610)

Customs

(1611) Nikiski is handled by Anchorage officials with prior arrangements.

(1612)

Quarantine

(1613) A U.S. Public Health Service Contract Physician is located at a medical center in Nikiski. (See Appendix A for additional information.)

(1614)

Wharves

(1615) Nikiski has three deep-draft piers and one shallow-draft wharf. For a complete description of the port facilities refer to Port Series No. 39, published and sold by the U.S. Army Corps of Engineers. (See Appendix A for address.). Ships at the piers below East Foreland moor portside-to in the winter ice. Companies operating the deep-draft piers at Nikiski have special mooring line requirements and cargo operation procedures. For further information, contact the dock operators.

(1616) **Agrium U.S., Nikiski Wharf:** a T-head pier 3 miles south of East Foreland Light; 210-foot face, 1,135 feet of berthing space with dolphins; 45 feet reported alongside; deck height, 38 feet; bulk urea loading tower with a telescopic loading spout with loading rate of 1,000 tons per hour; 2 anhydrous ammonia pipelines; hose handling derricks and a 2-ton utility hoist; water and electricity; highway connections; storage buildings in rear, total capacity 125,000; storage tanks, total capacity 85,000 tons; shipment of anhydrous ammonia and dry bulk urea; private lights mark each end of the pier; owned and operated by Agrium U.S., Inc.; monitors VHF-FM channel 7A with prior arrangements.

(1617) **Phillips Petroleum Co., Kenai LNG Dock:** a T-head pier 800 yards north of the Agruim U.S. Wharf; 100-foot face; 1,050 feet of berthing space with dolphins; 40 feet reported alongside; deck height, 40 feet; a pipeline extends to three LNG storage tanks in the rear; electricity; highway connections; shipment of liquefied natural gas; private lights mark each end of the pier; owned by Kenai LNG Corp., and operated by Phillips Petroleum Co.; monitors VHF-FM channels 10 and 16.

(1618) **Kenai Pipe Line Co., Nikiski Wharf:** a T-head pier 1,500 yards north of the Agrium U.S. Wharf; 300-foot face, 1,310 feet of berthing space with dolphins; 42 feet reported alongside; deck height, 35 feet; pipelines extend to a tank farm in the rear, capacity over 916,000 barrels; electricity; highway connections; receipt of crude oil, and shipment of petroleum products; private lights mark each end of the pier; owned and operated by Kenai Pipe Line Co., and Tesoro Alaska Co.; monitors VHF-FM channels 7A and 10.

(1619) **APC Natchiq, Nikiski Rig Tenders Dock**, a wharf 2,000 yards north of the Agrium U.S. Wharf; 600-foot face; dries at low water; deck height, 32 feet; a 40-ton mobile crane and two 15-ton forklifts; water and electricity; highway connections; 20,000-square-foot

warehouse and 7-acre terminal; handling material and equipment for offshore oil wells; owned and operated by APC Natchiq, a subsidiary of Natchiq, Inc.; monitors VHF-FM channel 10 with prior arrangements.

(1620)

Oil Spill Response Resources

(1621) Response resources are available in Nikiski, with additional resources being available from Homer and Anchorage. For further information, contact Coast Guard Captain of the Port Western Alaska, in Anchorage.

(1622)

Communications

(1623) Nikiski is connected via the North Kenai Spur Road with Sterling Highway and the Alaska Highway System, and scheduled air service to Anchorage is available daily from Kenai. Landline telephone, radiotelephone and cellular telephone communications are available.

(1624) **East Foreland**, 60 miles north of Anchor Point and about 56 miles from Anchorage, is a nearly level wooded headland with a 276-foot bluff at the water's edge.

(1625) **East Foreland Light** (60°43'10"N., 151°24'27"W.), 294 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on the highest part of the bluff. The point marks an important transit turn point and is a "Securite" Broadcast reporting point used by large vessels.

(1626) **Nikiski Bay** is the bight between Arness Terminal and Boulder Point, 2.4 miles to the northeast. Boulders, bare in places at low water, fill the bight. The bight provides anchorage in depths of 3 to 5 fathoms. The smooth sloping bottom provides good holding ground. The anchorage is sheltered from east and south winds but is open to north blows. Currents reach 3 to 6 knots on both the ebb and flood and increase greatly with the distance from shore. Mariners should avoid the charted submerged pipelines areas close northwest of the anchorage.

(1627) **Middle Ground Shoal**, which uncovers 6 feet for 3.5 miles of its length, is a long ridge of hard sand with rocky bottom in places, in the middle of the inlet 9 miles north of East Foreland. A lighted buoy is northeast of the shoal.

(1628) **Caution:** A 2- to 3-knot set into Trading Bay is reported to exist on an ebb current by south bound vessels when abreast of the north end of Middle Ground Shoal.

(1629) **Route Note:** The main deep-draft channel presently proceeds up the west side of the Inlet to the east of Phillips-A Platform and west and north of Beluga Shoal, north of Fire Island Shoal and south of Susitna Flats. See Routes on the Port of Anchorage for more.

(1630)

Oil Production Platforms, Middle Ground Shoal

(1631) Oil drilling and production operations continue in Cook Inlet extending as far north as Susitna Flats. The heaviest concentration of these operations is in the vicinity of Middle Ground Shoal. In general, the oil well platforms, depending on their size, water depth, proximity of vessel routes, nature and amount of vessel traffic and the effect of background lightning, may be marked with a combination of flashing lights, sound signals and retro-reflective material.

(1632) Obstructions in these waters consist of submerged wells and oil production platforms, including appurtenances thereto, such as mooring piles, anchor and mooring buoys, pipes and stakes. Submerged wells may or may not be marked depending on their location and water depth over them. All obstruction lights and sound signals used to mark the various structures are operated as private aids to navigation. (see **33 CFR, 67.01** through **67.10**, chapter 2, for regulations.)

(1633) Mariners are cautioned that uncharted submerged pipelines and cables may exist in the vicinity of these structures or between such structures and the shore. These structures and aids are subject to heavy damage and/or destruction from ice in winter; unlocated debris and remains may exist. Mariners are advised to navigate with caution in the vicinity of these structures and in those waters where oil exploration is in progress and to use the latest and largest scale chart of the area. Mariners should avoid anchoring their vessels anywhere in the vicinity of oil well platforms or their related structures.

(1634) Information concerning the establishment, change or discontinuance of offshore oil well structures and their appurtenances are published in Notice to Mariners. During the continuing program of establishing, changing and discontinuing oil well structures, special caution should be exercised when navigating the inshore and offshore waters of the affected areas in order to avoid collision with any of the structures.

(1635) There are about 15 Oil Production Platforms that extend from East and West Forelands to above North Forelands. They form good radar targets, are well-lit and are used along with significant land features and aids to navigation to fix vessels' positions.

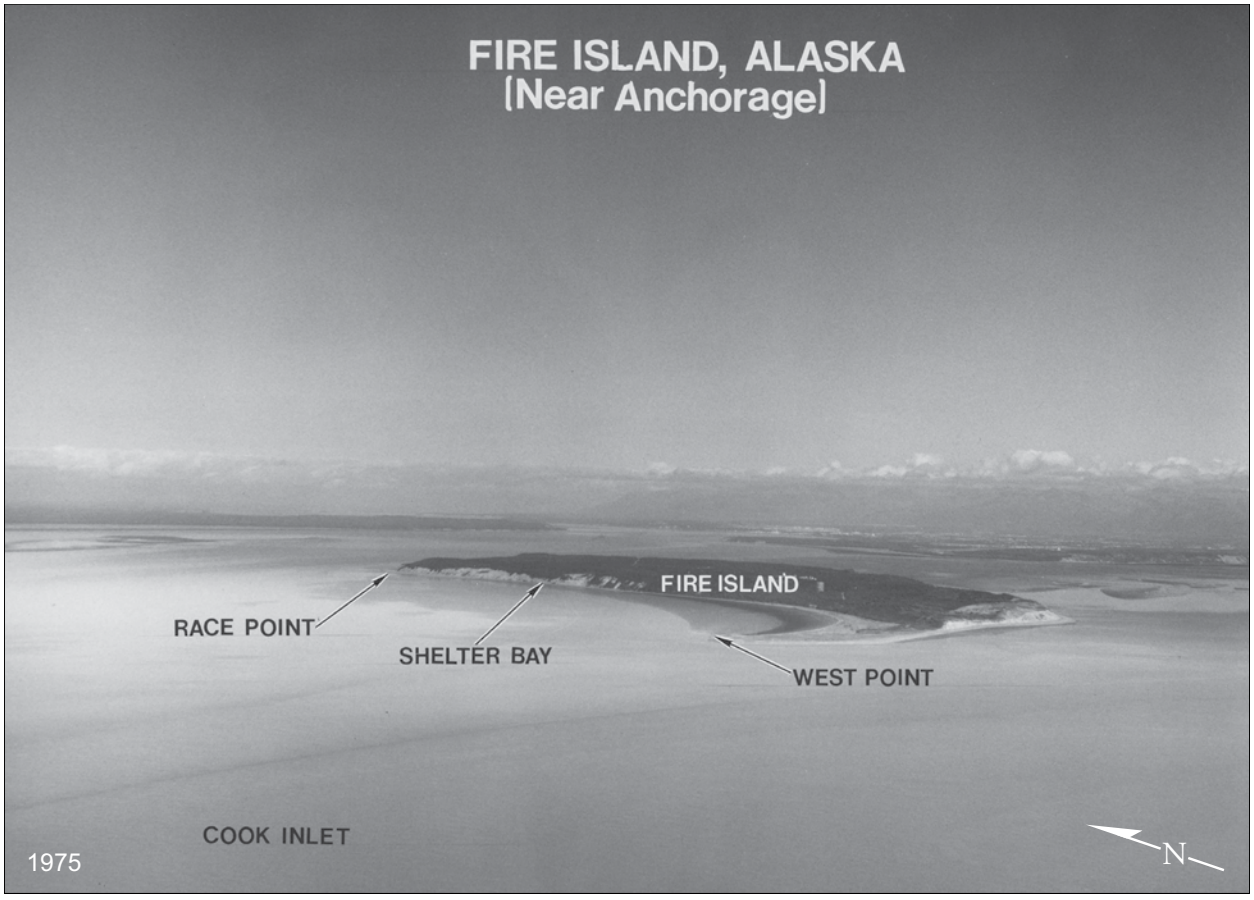
(1636) From **Boulder Point**, a prominent boulder reef with few breaks in it extends for 20 miles along the shore to Moose Point. For the greater part of this distance, the boulders, some very large, show at low water to a distance of 2 miles from shore, and there are occasional ones that show above high water.

(1637) A yellowish bluff is 4 miles east of Boulder Point. **Gray Cliff** is 10 miles northeast of Boulder Point.

(1638) Rocks awash are about 4.2 miles west and 4 miles north-northwest, respectively, from Gray Cliff. Because of the size of the boulders along this shore, it is not safe to skirt it with less than about 5 fathoms beneath the keel.

(1639) **Moose Point**, low and wooded with a grassy flat at its end, is not prominent. Between it and Point Possession, a distance of 10 miles, there are many rocks and a rocky reef. **Moose Point Shoal**, 4.5 miles long and partly bare at low water, begins opposite Moose Point and is 1.8 to 2.2 miles from shore. Moose Point and North Foreland on the opposite shore are "Securite" Broadcast reporting points used by large vessels. (See "Securite" Broadcasts, indexed as such, earlier this chapter.)

(1654)



(1640) **Beluga Shoal**, with depths of 7 to 9 fathoms, is in the middle of Cook Inlet about midway between North Foreland and Fire Island and about 8 miles north of Moose Point. The present main channel passes west and north of Beluga Shoal and south of Susitna Flats.

(1641)

Caution

(1642) Vessels navigating the deep channels of Cook Inlet should keep well away from Susitna Flats because their outer limits have been known to change drastically. This area is subject to strong winds and waves emanating from Turnagain Arm.

(1643) About 6 miles northeast of Moose Point is a reddish bluff, on the north side of which is a deep canyon, showing from southwest.

(1644) **Point Possession**, 36 miles northeast of East Foreland, is on the south side of Cook Inlet and on the southwest side of the entrance to Turnagain Arm. The point is a low, rounding, heavily wooded headland with a bluff at the water's edge. This point is a "Securite" Broadcast reporting point used by large vessels. (See "Securite" Broadcasts, indexed as such, earlier this chapter.)

(1645) A reef extends about 1 mile off the northwest side of Point Possession. There are depths of 1¾ fathoms on its northeast edge; the north edge drops off abruptly to depths of 12 to 20 fathoms about 1 mile north. Care should be taken when rounding the point at low water not to pass too close until well clear of the reef. A current line generally indicates the edge of the reef when the tidal current is strong in either direction.

(1646) The entrance to Turnagain Arm, between Point Possession and Fire Island, is subject to drastic and continual change. Fire Island Shoal, marked by a seasonal lighted bell buoy, is about 6.3 miles north-northeast of Point Possession. A submarine pipeline extends from the mainland shore close east of Burnt Island in a 024°30' direction across the arm to the opposite shore.

(1647) **Point Campbell**, on the northeast side of the entrance to Turnagain Arm, is 2.5 miles east of Fire Island. The area between is a mudflat that bares at low water.

(1648) **Turnagain Arm** is only partially surveyed. Most of it is a large mudflat, bare at low water and intersected by winding sloughs. The channels wind from side to side and are subject to change, and strong currents and tide rips increase the difficulties. It is reported that sediment from the rivers is causing further general shoaling in the arm. The Arm is not trafficked beyond 4 miles in except for infrequent local construction barges. Passage is not recommended. The shoreside facilities at **Girdwood**, **Portage** and **Hope** are accessed by highway.

(1649)

Currents

(1650) The currents are very strong and the flood frequently comes in as a bore, with large tides, under certain weather conditions. This bore is said to be 4 to 6 feet high at

times and is very dangerous for small craft. Boats should be beached well above the level of the flats to avoid the bore when it comes in. The bore can be heard about one-half hour before it arrives, sounding like breakers on the beach; it travels slowly. Its rate of advance is about 6 knots but the velocity of the current may exceed 6 knots in places.

(1651) Turnagain Arm is noted for the violent winds that blow out of it whenever the wind is easterly. With light to moderate easterly winds in other parts of the inlet, a moderate gale will frequently blow out of the arm and a heavy sea and tide rips will be raised from its mouth across to North Foreland on the west shore of Cook Inlet. Vessels north- and south-bound in the Inlet should be alert to the potential for heavy sets caused by the combination of strong winds, waves and currents emanating from Turnagain Arm. It is reported that vessels often steer **10** to **25°** offset from their desired course past Turnagain Arm to account for this set.

(1652)

Fire Island to Anchorage

(1653) **Fire Island**, about 6 miles north-northeast of Point Possession, is wooded and has elevations of more than 250 feet in its central part. Near the southwest end of the island are high sandhills with bare summits. The shores are mostly high bluffs except at West Point and **North Point**, the northeast extremity. A gravel airstrip is on the east side of North Point. Numerous 400-foot wind turbines are scattered towards the southwest half of the island.

(1655) **West Point**, the southwest extremity of Fire Island, is marked by **West Point Light** (61°07'34"N., 150°16'56"W.), 30 feet above the water, shown from a skeleton tower with a red and white diamond-shaped daymark. Race Point, the northwest extremity of Fire Island, is marked by **Race Point Light** (61°10'03"N., 150°13'30"W.), 170 feet above the water and shown from a skeleton tower with a red and white diamond-shaped daymark.

(1656) **Shelter Bay**, on the west side of Fire Island between West Point and Race Point, is mostly mudflats, bare at low water. Except for about a 3-knot current closer to shore, the current is strong throughout the flood, but the ebb is weak and after the first 2 hours is nearly slack. With fresh southwesterly, northwesterly or northerly winds, the anchorage has rough seas and tide rips.

(1657) The area west of Fire Island and Shelter Bay is continually changing. **West Point Shoal**, about 2 miles west of Fire Island, has a depth of 1 foot. A seasonal lighted bell buoy marks the northwest side of the shoal.

(1658) **Point Woronzof**, 3.5 miles northeast of Point Campbell, is on the south side of the entrance to **Knik Arm**. A **242°** lighted range (Fire Island Range) northeast of Race Point Light and a **079°** lighted range on Point Woronzof mark the channel in Cook Inlet from Phillips-A Platform to Point Woronzof. It is reported that the 242° Fire Island Range is sometimes difficult to see when the sun is directly behind the range markers. (See Routes, following, on the Port of Anchorage for more.)

(1659) **Point MacKenzie** is on the north side of the entrance to Knik Arm about 2.2 miles north-northeast of Point Woronzof.

(1660) **Anchorage**, on the southeast side of Knik Arm, 175 miles from the entrance to Cook Inlet and 1,428 miles from Seattle, is Alaska's major seaport and largest city, with slightly over half the state's population. The main industries are government, tourism, oil production and transportation.

(1661)

Prominent features

(1662) When approaching Anchorage, conspicuous landmarks are the lights on Fire Island and Point Woronzof, the container cranes at the port, the control tower and aerobeacon at the International Airport, a number of radio and television towers and the ConocoPhillips and Bank of America buildings and Hilton Hotel downtown. The ConocoPhillips building also forms a natural range with Point Woronzof for a long-distance extension of the Point Woronzof range.

(1663)

Routes

(1664) From the entrance point to Cook Inlet, 4½ miles south of East Chugach Island Light, set courses to pass 6 miles south of the west end of Cape Elizabeth Island, 2 to 5 miles west of Point Adam and Flat Island, thence 6 to 7 miles west of Anchor Point Light, 5 to 5½ miles east of Kalgin Island Light, 4 miles east of West Foreland; thence transit through the oil production platforms as traffic, currents and ice conditions allow. After exiting this area, set a course to pass 1½ to 2 miles southeast of the Phillips-A Platform and after another 6½ miles intersect the Point Woronzof Range, thence **079°** to the intersection with Fire Island Range (back range), thence **062°** along Fire Island Range to a point 1.05 miles **304°** from Point Woronzof Rear Range Light, thence **070°** to the city of Anchorage facilities. During especially severe winter ice pack conditions, larger vessels transit inside the shoal off Nikiski, round the East Foreland, continue in the upper Inlet 5 to 7 miles off the east shore from East Foreland to Moose Point, thence transit up between Beluga and Fire Island Shoals to the intersection of the Point Woronzof Range.

(1665) **Mariners are cautioned to favor the south side Point Woronzof Range to keep off Susitna Flats, and the Fire Island Range should be limited to higher tide stages and should be used slightly favoring the southeast side to keep southeast of Knik Arm Shoal.**

(1666)

Channels

(1667) The main channel presently proceeds up the west side of the upper Inlet to the east of Phillips-A Platform and west and north of Beluga Shoal, south of Susitna Flats, north of Fire Island Shoal and Fire Island and between

Knik Arm Shoal and Woronzof Shoal. The channel is marked by lighted ranges and seasonal buoys at critical locations. For detailed channel information and minimum depths as reported by the U.S. Army Corps of Engineers (USACE), use NOAA Electronic Navigational Charts. Surveys and channel condition reports are available through a USACE hydrographic survey website listed in Appendix A.

(1668)

Anchorages

(1669) A temporary anchorage for deep-draft vessels is about 1 mile west to southwest of the port, in depths of 10 to 12 fathoms, silt bottom. The usual anchorage for small vessels is closer to the shore about 1.5 miles southwest of the port, in depths of 5 to 7 fathoms. Holding bottom at both sites is fair and requires constant vigilance because of the potential for dragging and fouling. It is dangerous to remain at anchor in this area, especially when there is ice.

(1670)

Dangers

(1671) In addition to the dangers in Cook Inlet previously described, **North Point Shoal**, about 2 miles north of North Point on Fire Island, changes radically from year to year and bares several feet at low water. **Knik Arm Shoal**, marked by a seasonal lighted buoy, is about 2 miles west of Point Woronzof. **Woronzof Shoal**, a long shoal that bares, is about 0.4 to 2.6 miles southwest of Point Woronzof and is subject to drastic and continual change. The flats off Anchorage and rocky flats south of Cairn Point should be avoided. The area eastward of Point MacKenzie is also subject to drastic and continual change.

(1672)

Currents

(1673) Anchorage has a PORTS site that provides water level, wind speed and direction and barometric pressure information that is updated every ten minutes. The PORTS site is accessible through a voice response system at 866-257-6787. It is reported that vessels often steer 10° from their desired course when passing Knik Arm Shoal because of prevailing cross currents. Close off the town, the current floods northeast at a velocity of 1.5 knots and ebbs southwest at a velocity of 2.5 knots. One mile off the town, the current averages 2.9 knots. Strong currents that attain velocities of 4 knots or more, at times, in midchannel, and swirls in the area make navigation difficult. It is reported that the flood following the higher of the low waters is unpredictable, especially during the last 3 hours, in the vicinity of the Port of Anchorage wharves. An eddy gyre flows up the east side of Knik Arm during the latter half of an ebb current inside the bight, bordered on the south by the barge wharves and small-boat launching ramp. The ramp also deflects the start of the flood current until half tide and reduces its flow thereafter. Alongside maneuvering at the Port is affected by a set onto the flats with the latter half of the flood current and a set off the wharves on the first of the ebb. The currents further up Knik Arm have a moderate velocity near the west shore, strong in midchannel, and, like all of the upper inlet, are congested with ice packs in the winter.

(1674)

Weather, Anchorage Vicinity

(1675) The **Alaska Range** lies in a 650-mile-long arc from southwest, through northwest, to northeast of Anchorage, approximately 180 miles distant. Anchored at its southwest end by Ilama Lake, it includes **Mount McKinley** and terminates at its southeast end at the White River in Canada. During the winter, this range is an effective barrier to the influx of very cold air from the north side of the range. Extreme cold winter weather, associated with a high pressure system over interior Alaska, may lead to a succession of clear days in Anchorage, with temperatures dropping to -15 °F to -25 °F (-26.1° to -31.7 °C), as contrasted to the -50 °F (-45.5 °C) and even -60 °F (-51.1 °C) readings in the interior. There are some factors, however, that tend to offset the sheltering effect of this mountain barrier. Chief among these is cold air entrapment in various suburban areas during periods of light winds. This results occasionally in temperatures on the outskirts of Anchorage as much as 15 °F to 20 °F (range of 18 to 21 °C) colder than observed at the official observation sites.

(1676) The four seasons are well marked in the Anchorage area, but in length and in some major characteristics they differ considerably from the usually accepted standards in middle latitudes.

(1677) Winter is considered to be the period during which ponds, streams and lakes are frozen; this normally extends from mid-October to mid-April. The shortest day of the year has five hours and 28 minutes of possible sunshine. Periods of clear, cold weather normally alternate with cloudy, mild weather during the Anchorage winter. The clear, cold weather is frequently accompanied by significant fog because of the important low-level moisture source provided by the arms of Cook Inlet that surround the area on three sides; while considerable floating ice is prevalent, the high tides maintain some open water throughout the winter.

(1678) Visibilities of one-half mile or less occur about three percent of the time during December and January, and most of these low visibilities are associated with fog. Snow visibilities generally range from one to three miles, though heavier snowfalls will, of course, restrict visibilities to less than one mile on a few occasions.

(1679) The first measurable snow occurs, on the average, on October 15 but has been as early as September 20; latest measurable snow in the spring averages April 14 but has been as late as May 6. Snow occurs on about 15 to 20 percent of the mid-winter days, and most of the snow falls in relatively small daily amounts, with only two percent of the mid-winter days having more than four inches (101.6 mm). The heavier snows occur in conjunction with

(1701)

Facilities at Anchorage

Name	Location	Berthing Space (feet)	Depths* (feet)	Deck Height (feet)	Mechanical Handling Facilities and Storage	Purpose	Owned/ Operated by:
Northland Services, Anchorage Dock	61°13'40"N., 149°54'06"W.	400	N/A	50	Open storage (4 acres)	Receipt and shipment of containerized general cargo by barge	Swan Bay Holdings/ Northland Services, Inc.
North Star Terminal and Stevedore Co., Anderson Terminal Dock	61°13'44"N., 149°53'47"W.	526	N/A	35	• Open storage (22 acres) • Covered storage (15,000 sq feet) • Four crawler cranes	Receipt and shipment of conventional and containerized general cargo	Alaska Railroad Co./ North Star Terminal and Stevedore Co. 907–263–0169
Port of Alaska, P.O.L. Terminals 1 and 2	61°14'16"N., 149°53'26"W.	2,800	35	40	Pipelines extend to tank storage (66 tanks total)	Receipt and shipment of petroleum products	Municipality of Anchorage, Alaska
Port of Alaska, Terminal No. 1 Wharf	61°14'25"N., 149°53'19"W.	2,800	35	37	Silo storage (20,000 tons)	Receipt of bulk cement	Municipality of Anchorage, Alaska/ Alaska Basic Industries
Port of Alaska, Terminal No. 2 Wharf	61°14'29"N., 149°53'16"W.	2,800	35	37	Open storage (37 acres)	Receipt and shipment of containerized and conventional general cargo	Municipality of Anchorage, Alaska/ CSX Lines of Alaska
Port of Alaska, Terminal No. 3 Wharf	61°14'35"N., 149°53'11"W.	2,800	35	40	Open storage (17 acres)	Receipt and shipment of roll-on/roll-off general cargo	Municipality of Anchorage, Alaska/ Totem Ocean Trailer Express, Inc.
Matanuska-Susitna Borough Port Mackenzie Wharf	61°16'03"N., 149°55'01"W.	500	20	36	Open storage (5,000 acres)	Shipment of manufactured homes to Alaskan Native communities	Matanuska-Susitna/ Alask Manufacturing Contractors

* The depths given above are reported. For information on the latest depths contact the port authorities or the private operators.

vigorous storm centers moving north across south-central Alaska. Normally, the depth of snowfall on the ground does not exceed 15 inches (381 mm).

(1680) Strong, gusty, north winds that occur, on average, once or twice during the winter will, under favorable snow conditions, cause drifting and packing of snow cover. Although normally an area of light winds, strong "northeast" at Anchorage occasionally result from the rapid deepening of storms in the nearby Gulf of Alaska at a time when the interior is covered by an extensive mass of quite cold air.

(1681) Spring is the period immediately following the famed Alaska "Break-up." This season is characterized by warm, pleasant days and chilly nights; the mean temperature rises rapidly; precipitation amounts are exceedingly small.

(1682) Summer comprises the period from June through early September, and is, in reality, two seasons of about equal length, the first of which is dry and second wet. At the time of the summer solstice, possible sunshine in Anchorage amounts to almost 19½ hours. About the middle of July average cloudiness increases markedly, and the remainder of the summer usually accounts for about 40 percent of the annual precipitation.

(1683) Autumn is brief in Anchorage, beginning shortly before mid-September and lasting until mid-October. The frequency of cloudy days and precipitation drops sharply in early October. Measurable amounts of snow are rare in September, but substantial snowfalls sometimes reaching 10 to 12 inches (254 to 305 mm) occasionally occur in mid-October. Some of the stronger southerly winds, a few with damaging effects, occur in the late summer or fall; these are post-frontal winds following the movement of a storm from the southern Bering Sea or Bristol Bay, northeastward across the Alaskan interior. Somewhat less frequent, but more damaging, are the southeasterly "Chugach" winds that are funneled down the creek canyons on the northwest slopes of the Chugach mountains east of the city; gusts estimated at 69 to 87 knots have caused considerable damage to roofs, power lines and trailers on a few occasions.

(1684) The growing season in Anchorage averages 124 days, with the mean daily temperature above freezing from April 8 to October 23. May 15 is the average latest date for the occurrence of a temperature as low as 32°F (0°C), while September 16 is the average first date with 32°F (0°C) in the fall. The latest date with 32°F (0°C) in the spring has been May 22 (1964), and the earliest in the fall has been August 28 (1984).

(1685)

Ice

(1686) Upper Cook Inlet rarely, if ever, freezes solid because of the enormous tidal range. Vessels can navigate Cook Inlet in the winter, but the combination of currents and ice floes can cause a strain on mooring lines. Propulsion and machinery have special equipment and operating requirements, also cargo operations, moorage and vessel draft. See Winter Operating Guidelines, Cook Inlet, indexed as such, earlier this chapter, and contact the Coast Guard COTP, Western Alaska in Anchorage for more information. The inlet is ice free from about May to mid-November. The ice floes move with the tide, and patches of open water are occasionally visible. Extra caution should be exercised in the restricted approach to Anchorage. Ice leads can break the wrong way and

potentially cause up to 30 course diversion, especially for lower-powered vessels.

(1687)

Pilotage, Anchorage

(1688) Pilotage, except for certain exempted vessels, is compulsory for all vessels navigating the waters of the State of Alaska. (See **Pilotage, general** (indexed), chapter 3, and **Pilotage, Cook Inlet** and **Pilotage Homer** (indexed) for details.)

(1689)

Towage

(1690) Tugs including a 3,500-hp tractor tug, are available at Anchorage 24 hours a day. Prior arrangements for their use should be made.

(1691)

Quarantine, customs, immigration and agricultural quarantine

(1692) (See chapter 3, Vessel Arrival Inspections, and Appendix A for addresses.)

(1693)

Quarantine

(1694) A U.S. Public Health Service Contract Physician is at a hospital in Anchorage. (See Appendix A for additional information.)

(1695)

Customs

(1696) Anchorage is a **customs port of entry**.

(1697)

Coast Guard

(1698) A **Sector Office** is in Anchorage. (See Appendix A for address.)

(1699)

Harbor regulations

(1700) The Port Director enforces harbor regulations and assigns berthing at all municipal piers, wharves and bulkheads. In winter, the combination of currents and ice floes can cause a strain on mooring lines. Propulsion and machinery have special equipment and operating requirements, as does cargo operations, moorage and vessel draft. See Winter Operating Guidelines, Cook Inlet, indexed as such, earlier this chapter, and contact the COTP W Alaska in Anchorage for more information.

(1702)

Wharves

(1703) Anchorage has one deep-draft wharf facility with berthage for three vessels, two petroleum terminal docks, many commercial barge wharves, two floating docks for tugs and a small-boat launching ramp (See *Facilities at Anchorage* table.) Vessels normally moor starboardside-to in the winter ice.

(1704)

Supplies and repairs

(1705) Gasoline, diesel fuel and water are available at the Port of Alaska Petroleum Terminal. Marine supplies and emergency ship machinery repairs can be obtained in town. Engine and hull repairs are available for small boats.

(1706)

Oil Spill Response Resources

(1707) Limited resources are available in Anchorage, with additional resources available from Nikiski and Homer. For further information, contact Coast Guard COTP Western Alaska, in Anchorage.

(1708)

Communications

(1709) Anchorage is served by coastwise and ocean freight; truck lines serve the port via the Alaska Highway System. The city is the railroad, highway and aerial center for western and south-central Alaska. It is the headquarters of the Alaska Railroad, the state-owned line that connects with Seward, Whitter and Fairbanks. Highways connect with places on the Kenai Peninsula, Fairbanks, Valdez and other places in Alaska. The Alaska Highway also provides a land route through Canada to the conterminous United States.

(1710) The International Airport, 4 miles southwest of Anchorage, is the hub of trans-Pacific air service; flights are offered to all parts of the world.

(1711) Landline telephone, cellular telephone and cable communications are available. The Port of Alaska guards VHF-FM channel 16; call sign, WHJ-82.

(1712) A small-craft ramp and 300-foot float are about 200 yards southwest of the mouth of Ship Creek. The ramp and float dry at low water; however, at other than low water, boats up to 30 feet can be accommodated.

(1713) **Ship Creek**, on the northeast side of the Anchorage waterfront, bares at low water, and there is no range for entering. Small boats rest on the bottom at low water, and local knowledge is recommended.

(1714) From about 7 miles above the entrance to Knik Arm to the head are extensive mudflats that bare soon after high water. The flats are cut by numerous channels and sloughs. The main channel is close to the west shore of Knik Arm, then winds east and north; it is narrow and intricate, navigable only on the tide, and then only with knowledge of conditions.

(1715) **Knik** is a village on the northwest side of Knik Arm, about 15 miles above the entrance and accessible by highway from Anchorage. The channel to Knik is close along the west Shore. **Eklutna**, also accessible by highway from Anchorage, is on the south bank at the entrance to Knik River.

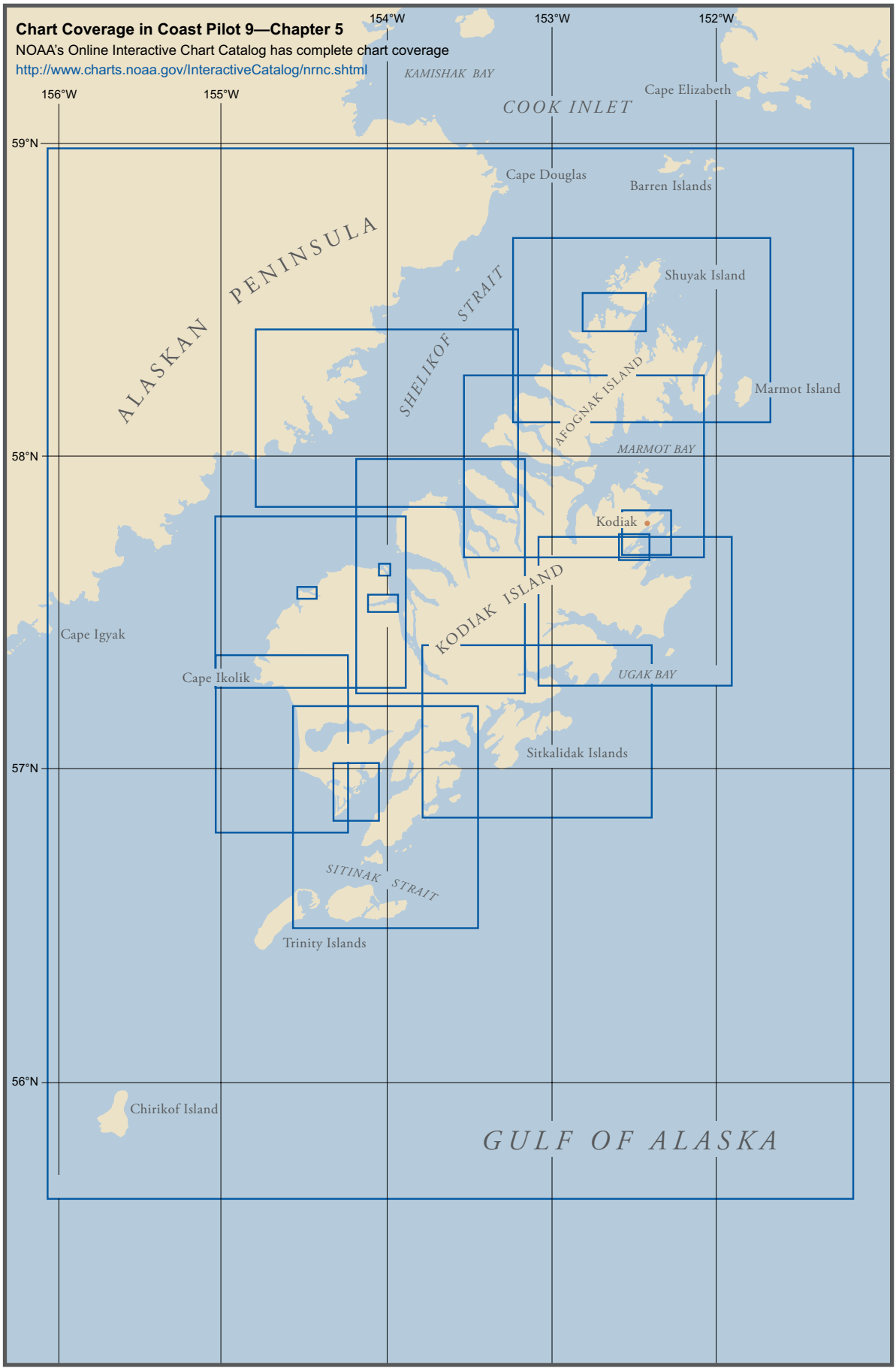


Chart Coverage in Coast Pilot 9—Chapter 5
NOAA's Online Interactive Chart Catalog has complete chart coverage
http://www.charts.noaa.gov/InteractiveCatalog/nrnc.shtml
154°W
153°W
152°W
156°W
155°W
59°N
58°N
57°N
56°N
KAMISHAK BAY
COOK INLET
Cape Elizabeth
Cape Douglas
Barren Islands
ALASKAN PENINSULA
SHELIKOF STRAIT
Shuyak Island
AFOGNAK ISLAND
Marmot Island
MARMOT BAY
Kodiak
KODIAK ISLAND
Cape Igyak
Cape Ikolik
UGAK BAY
Sitkalidak Islands
SITINAK STRAIT
Trinity Islands
Chirikof Island
GULF OF ALASKA

Kodiak Island

(1) This chapter describes Afognak and Kodiak Islands and the numerous smaller off-lying islands which surround their shores. Also described are the various passes and straits leading between these islands, the port of Kodiak and the numerous other fishing villages.

(2)

Caution

(3) Certain areas of the marine environment in the Aleutian Islands may contain munitions and explosives of concern (unexploded ordnance). Specifically, these are along the north and northeast end of Unalaska Island (including Unalga Island and part of Akutan Island), the southwest end of Unalaska Island, the northeast end of Umnak Island and the northwest and southeast sides of Kiska Island. These are marked as **Caution Areas** in regions of Unalaska Island and Kiska Island. Mariners are cautioned against anchoring, dredging, or trawling within these areas.

(4) If unexploded ordnance is encountered, retreat and immediately make all reports to the U.S. Coast Guard. For additional information about unexploded ordnance, visit the U.S. Army Technical Center for Explosives Safety at *https://www.denix.osd.mil/uxo/* .

(5) **Kodiak Island** and **Afognak Island**, close together and separated from the mainland southwest of Cook Inlet by Shelikof Strait, are large and have numerous small islands along their shores. The group is about 54 by 155 miles in extent, with its greatest length in a southwest direction. The land is rugged and mountainous, with elevations of 2,000 to 3,000 feet along the shores and more than 4,500 feet in the interior. The rocky shores are indented by deep, narrow inlets.

(6) Kodiak, on Kodiak Island, is the principal business center in the area. Afognak Island, mostly timbered, is a government forest reserve. Some cattle and sheep are raised, and a few mineral prospects have been located. Salmon canneries operate during the fishing season. The crab, halibut and herring fisheries also are important; the halibut fleet operates on Albatross and Portlock Banks. The periods of good weather are longer on these islands than on the adjacent mainland, and considerable success has been attained in growing vegetables.

(7) Afognak Island is separated from Kodiak Island by Marmot Bay, Kupreanof Strait and the passages on either side of Whale Island. These waters provide a direct route from Kodiak Harbor to Shelikof Strait. Kodiak, on the northeast coast of Kodiak Island, lies behind the islands in the northwest part of Chiniak Bay; one approach is from the north, and the other is from the southeast through Chiniak Bay.

(8) The earthquake of December 1999 may have caused bottom uplift in and around all Kodiak Island coastal waters; shoaling and new dangers may exist requiring extreme caution until a complete survey is made of the entire area.

(9)

Weather, Kodiak Island

(10) On Afognak Island the prevailing winds are northeast except in spring and again in late summer when they shift to southwest and west directions. At Kodiak, the winds, usually northwest in late fall, winter and spring, shift to the northeast in early summer and then to southeast until the end of September. The average wind speed is nine knots at Kodiak, and the area is subject to violent williwaws.

(11) Annual precipitation averages 65 inches (1651 mm) on Kodiak Island, and 53 inches (1346 mm) on Afognak Island. Annual snowfall averages 75 inches (1905 mm) at Kodiak, and measurable snow has been recorded in every month of the year except July and August.

(12) Mean annual temperature is 41 °F (5 °C) at Kodiak. Extreme temperatures noted were 86 °F (30 °C) in June (1953) and -16 °F (-26.7 °C) in January (1989). Water temperatures are about 1 °F (17.2 °C) lower than air temperatures in summer, and 1 ° and 2 °F (17.2 ° and 16.7 °C) higher in late fall, winter and early spring. Womens Bay, on the northeast coast of Kodiak Island, is frequently blocked by ice in midwinter.

(13) Fogs are common over the area and are most frequent at Kodiak in June and July. Cloudiness is considerable.

(14)

Shuyak Island to King Cove

(15) **Shuyak Island** appears as part of the north end of Afognak Island but is separated from it by Shuyak Strait. The south portion is densely wooded, with the higher hills showing bare rocky outcrops. Proceeding north the trees gradually disappear and the north part is entirely grass covered.

(16) **Stevenson Entrance**, the passage between the Barren Islands and Shuyak Island (see chapter 4), is navigable in clear weather. **Kennedy Entrance**, the passage north of the Barren Islands, is generally used if bound for Shelikof Strait from the east.

(17) **Latax Rocks**, the northernmost feature of the Kodiak-Afognak-Shuyak group, are three rocky islets lying in line of the trend of the west coast of Shuyak

Island. They are 32, 27 and 20 feet high, respectively, the outer one being the lowest and the most ragged. A rock, which uncovers 7 feet, is about 0.5 mile north of the outermost rock, and a reef, which uncovers 6 feet, is about 0.4 mile west of the outermost rock. Several detached shoals are in the vicinity of Latax Rocks. Ships using Stevenson Entrance should pass north of Latax Rocks. **Latax Rocks Light** (58°41'29"N., 152°29'01"W.), 40 feet above the water, is shown from a tower with a red and white diamond-shaped daymark on the north end of the northernmost rock.

(18) **Caution**

(19) Latax Rocks were used as a bombing target during World War II. There is the potential for the presence of spent and/or unexploded ordnance remnants in the area. Latax Rocks and the immediate vicinity surrounding it should be treated as a potential munitions and unexploded ordnance hazard area. The unexploded ordnance are potentially hazardous and mariners are advised against anchoring, dredging, or trawling within these areas due to their potential presence.

(20)

Currents

(21) In the vicinity of Latax Rocks it has been noted that the current flows in a west direction on a rising tide and east on a falling tide with velocities reaching about 3 to 4 knots. The current appears to be less in the deeper water in the passage north of Latax Rocks. (See chapter 4.)

(22) **Tide rips** in the vicinity of Latax Rocks are particularly heavy and should be avoided by small vessels. (See caution as to tide rips in the locality of the Barren Islands, chapter 4.)

(23) **Party Cape** is the northwest end of Shuyak Island. It is 178 feet high and grass covered for 1 mile or more back.

(24) **Dark Island**, between Party Cape and Latax Rocks, is about 0.8 mile in diameter, 115 feet high, and grass covered. Several large black rocks are off the southwest end of Dark Island. **Starr Rocks**, which uncover 6 feet, are between Dark Island and the east part of Party Cape.

(25) Currents observed during one-half day in June on the southwest side of Dark Island set west on the flood with a velocity of 1.3 knots. The ebb velocity was 1 knot.

(26) The passage between Latax Rocks and Dark Island has a 5¼-fathom shoal near the middle where the currents and tide rips may appear heavier than elsewhere in the passage. The passage can be used by well-powered vessels by keeping 0.45 mile north of Dark Island on a due east or west course, with careful attention to the set from the strong currents.

(27) **Dark Passage**, between Starr Rocks and Party Cape, may be navigated by keeping 0.4 mile off the cape and passing north of a rock 3 feet high lying 0.9 mile west-northwest of Party Cape. Because of the strong currents and heavy tide rips, the passage should be avoided.

(28) Shag Island and the west coast of Shuyak Island are described later in this chapter.

(29) The north coast of Shuyak Island from Party Cape to Point Banks is very irregular and fringed with numerous rocks and islets. Heavy currents and tide rips are found along this coast. **Carry Inlet** and **Shangin Bay**, the main indentations, are narrow and tortuous. They may be used only by small craft with local knowledge. Carry Inlet has its entrance channel about 2 miles southeast of Party Cape. The narrowest part of Shangin Bay, 1.2 miles from its entrance, has a midchannel rock that is awash at minus tides.

(30) **Perevalnie Islands**, 95 feet high and grass covered, are close to the north shore of Shuyak Island and 0.5 mile west of Point Banks. **Perevalnie Passage**, between the islands and the mainland, may be used as a boat passage with a depth of about 5 feet.

(31) Temporary anchorage during south weather appears feasible 1 mile west-southwest of the west end of Perevalnie Islands.

(32) **Point Banks**, an island about 0.4 mile long and 130 feet high, is entirely grass covered. The narrow passage between it and the northeast end of Shuyak Island has several rocks and is choked with kelp.

(33) **Sentinel Island**, a rock 33 feet high 0.9 mile northwest of Point Banks, is a good landmark from the east or west. Its sides are nearly vertical.

(34) Fronting the east coast of Shuyak Island, 1.5 to 3.5 miles offshore, are a series of reefs and rocks separated by broken bottom areas and extending 7 miles in an approximately true south direction from a 2½-fathom reef, 1.4 miles southeast of Point Banks, to the vicinity of a bare rock 52 feet high. A similar series crosses the former in the latitude of Sea Otter Island.

(35)

Routes

(36) Vessels using the passage along the east coast of Shuyak Island, inside the series of reefs and rocks, should proceed with caution. The bottom in this passage is extremely broken. The known dangers may be avoided by rounding the southeast end of Point Banks Island by 0.5 mile until the east end of the island bears true north. Then proceed 5.8 miles on course **175°** until the prominent group of rocks, highest 15 feet, are a little less than 0.8 mile to the west, then steer **205°** into Perenosa Bay. Tidal currents are very strong.

(37) The main approach from seaward to Andreon Bay, Shuyak Strait and Perenosa Bay is south of the rocks southeast of Sea Otter Island and between the 52-foot bare rock and Seal Islands, but its use by large vessels cannot be recommended. Indications of shoals along the approach are numerous and there are evidently pinnacle formations in this region. To avoid the known areas of extreme broken bottom, steer course **282°** from seaward, pass 3.2 miles north of Tolstoi Point, then 1.9 miles south of the large rock, 52 feet high, lying southwest of Sea Otter Island, and then pass 1.5 miles north of the sharp black rocks north of Posliedni Cape.

(38) **Sea Otter Island**, 7.5 miles southeast from Point Banks, is grass covered, 0.4 mile long and 105 feet high. Bare rocks and breakers extend to the east and southeast for 2.3 miles.

(39) **Little Fort Island**, 85 feet high, off the east coast of Shuyak Island and 8 miles south of Point Banks, is grass covered and marks the entrance to Andreon Bay. **Big Fort Island** forms the south side of the bay. **Big Fort Channel** separates the island from the mainland. This channel bares at half tide. Anchorage for small boats may be had in **Andreon Bay** near the entrance to Big Fort Channel in 12 fathoms, muddy bottom. The axis of the entrance channel is a little less than one-third the way from the northeast end of Big Fort Island to Little Fort Island, then it follows the rounded north end of Big Fort Island about 350 to 400 yards offshore.

(40) Shuyak Strait has a navigable entrance at its west end and is described later in this chapter.

(41) **Perenosa Bay**, on the north side of **Afognak Island**, is between the east entrance to Shuyak Strait and **Posliedni Point**. The northwest part of the bay is foul. Anchorages may be found in several arms of Perenosa Bay, but the approach to the bay from seaward is characterized by a very broken bottom, as described above.

(42) **Delphin Bay** is the west one of the south arms of Perenosa Bay. The channel west of tree-covered **Delphin Island** is foul. Rocks are in the center of the passage east of the island, and the best water is 270 yards off the east points of Delphin Island. Boats can anchor in 16 fathoms, hard bottom, in the center of the head of the arm, after passing the island. A heavy swell comes into Delphin Bay in north weather.

(43) **Discoverer Bay**, the southeast arm of Perenosa Bay, has excellent anchorage in 15 fathoms, muddy bottom, east of **Discoverer Island**, which is tree covered and northernmost in the bay. A 3¾-fathom shoal is about 0.5 mile northwest from the east entrance point, and a 1-fathom spot is between the shoal and the point. Small boats can enter the channel on the west side of the island and go to the head of the arm. Two mooring buoys are in the southeast part of Discoverer Bay.

(44)

Pilotage, Kodiak Island

(45) Pilotage, except for certain exempted vessels, is compulsory for all vessels navigating the waters of the State of Alaska.

(46) The Kodiak Island area is served by the Southwest Alaska Pilots Association. (See **Pilotage, General** (indexed), chapter 3, for the pilot pickup stations and other details.)

(47) Vessels en route to Discoverer Bay can contact the pilot boat by calling "DISCOVERER BAY PILOT BOAT" on VHF-FM channel 16 or on a prearranged frequency between pilot and agent/vessel.

(48) **Phoenix Bay**, the arm of Perenosa Bay just west of Posliedni Point, is a good anchorage for all weather except northwest; anchor in 10 to 17 fathoms, muddy bottom, 1.2 miles from the entrance. **Shields Point** forms the west entrance of the bay.

(49) **Seal Bay**, in general, extends from Posliedni Point to **Tolstoi Point**. From a point 1.1 miles north from Posliedni Point a series of rocky islands and reefs extend in an east-southeast direction across Seal Bay. Navigation in this area should not be attempted without local information.

(50) **Tonki Bay**, on the west side of Tonki Cape, has two arms separated by a headland. A 106-foot rocky islet is 0.5 mile north of the headland. Three rocks awash are about 0.3 mile from the east shore and 2 miles south of Tonki Cape. Anchorage is about 0.3 mile from the head of the east arm in 10 fathoms, soft bottom, but it is not secure with north winds. Small boats may anchor in the small cove on the east side of the head of the east arm in 8 fathoms, muddy bottom, in any weather.

(51) The west arm of Tonki Bay extends 6.5 miles south of the headland separating the two arms. Anchorage may be had in 18 fathoms, muddy bottom, about 0.3 mile from head of the arm.

(52) On the east part of Afognak Island is a series of mountain ridges with low depressions between them running through the island from north to south. From a distance Marmot Island appears as the easternmost of these ridges. The lower parts of Afognak Island are wooded, except its east coast and its southwest end south of Paramanof Bay.

(53)

Caution

(54) In making Tonki Cape or Marmot Strait from the north, a very irregular set to the west has been experienced. In foggy weather a vessel is liable to be too close to the breakers off Sea Otter Island unless precautions are taken. Likewise in running to this locality from Seward, abnormal set has been experienced. From the experience of a survey vessel making these runs and in lying-to offshore, there seem to be two factors for which allowance should be made. First, if the run is made during the time of a flood spring tide, extra allowance should be made for set to the west. Second, if the course of the vessel passes over a bank or even a locality where the water is shoaled, extra allowance for a stronger current should be made.

(55) **Tonki Cape**, the northeast end of Afognak Island, is a narrow grass-covered point 87 feet high near its north extremity. A low-lying gap connects it with the ridge separating Tonki Bay and Marmot Strait. A short reef extends north from the cape 0.3 mile, terminating in a rock awash at high water. It is recommended that vessels clear the north end of the cape by at least 1.5 miles. **Tonki Cape Light** (58°21'09"N., 151°59'12"W.), 75 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark.

(56) **Sealion Rocks** are two bare rocks close together, the larger about 35 feet high, about 5.5 miles east from Tonki Cape and 4 miles north from Marmot Island. A reef that uncovers 7 feet is 0.6 mile northeast from these rocks.

Sealion Rocks have been used as a bombing target during World War II.

(57) **Caution**

(58) There is the potential for the presence of spent and/or unexploded ordnance remnants in the area. Sealion Rocks and the immediate vicinity surrounding it should be treated as a potential munitions and unexploded ordnance hazard area. The ordnance are potentially hazardous and mariners are advised against anchoring, dredging, or trawling within this area due to their potential presence.

(59) **Marmot Island**, about 6.5 miles long, parallels the east side of Afognak Island. Marmot Island is wooded to a height of about 500 feet. The north end is low and rises gradually to the highland. The east side and south end of the island are bluffs over 1,000 feet high in places. The west shore is also steep but lower. Three high rocks are close to **Marmot Cape**, the south end of the island, and two more are close to its southeast side.

(60) The southeast shore of Marmot Island is a Steller sea lion rookery site. There is a 3-mile vessel exclusionary buffer zone around all but the northwest shore of the island. (See **50 CFR 224.103,** chapter 2, for limits and regulations.)

(61) Shoal areas adjacent to the northwest shore of Marmot Island extend north toward Sealion Rocks and border the north approach to Marmot Strait. A 4-fathom spot in this area is 2 miles off the north end of Marmot Island.

(62) The point on the northwest shore of Marmot Island, 1.5 miles from the north end, is marked by a rock, 12 feet high, 600 yards offshore.

(63) Two covered rocks, on which the sea generally breaks, are about 1 mile apart and 2.5 miles east of **Cape St. Hermogenes**, the east end of Marmot Island. The north rock lies in the bearing **288°** to the north end of the island. The south rock lies in the bearing **225°** to the southeast end of the island. Two pinnacle rocks close to the southeast side of Marmot Island bear **232°** when in range; the range passes southeast of both breakers. A vessel should pass over 2 miles outside the breakers to avoid broken bottom.

(64) **Marmot Strait**, between Afognak and Marmot Islands, is 2.5 miles wide at its narrowest part. The strait is apparently free from dangers except along the shores. A shoal of 1¼ fathoms is 650 yards off the west shore of Marmot Strait, 6 miles from Tonki Cape. A midchannel course through the strait is recommended. Tidal currents have an estimated velocity of 1 to 3 knots, the flood setting north through the strait.

(65) **King Cove**, 6 miles west of Marmot Cape, is an open bight 1.5 miles long, indenting the coast 1.8 miles. It may be used as a temporary anchorage in 7 to 12 fathoms, sand bottom. It is exposed to east and south weather.

(66) The west coast of Marmot Strait for about 5 miles south from Tonki Cape is broken and rocky, with reefs extending offshore. Along this stretch is a low bluff with a grass- and muskeg-covered plain, extending 0.3 mile inland to the main ridge, which rises abruptly. South to King Cove the bluffs increase in height with the shores steep-to. From King Cove to Pillar Cape the shoreline is a steep, bare bluff from 500 to 1,000 feet high.

(67)

Marmot Bay to Miller Point

(68) **Marmot Bay** extends west between Afognak and Kodiak Islands to Whale Island. In the center of the bay, near the entrance and north of The Triplets, in places the bottom rises abruptly from deep water to 14 to 17 fathoms. These areas should be avoided because there may be less water than indicated.

(69) The route from Marmot Strait to Kodiak is east of the broken bottom in the center of Marmot Bay entrance. However, shoal spots exist along this route east of Spruce Island and in the vicinity of Spruce Cape.

(70) The route in Marmot Bay from the vicinity of Marmot Strait to the passes at Whale Island lies between the general broken ground in the center of the bay and the north shore. Pillar Cape may be rounded at 1.5 miles in depths of 20 fathoms or more. Similar depths exist 0.8 mile off Cape Izhut. In the west end of Marmot Bay danger will be avoided by keeping well east of a line between the east end of Cape Kostromitinof and Stripe Rock and east of this line extended south until Hog Island is open from the northwest side of Whale Island.

(71) The route along the south side of Marmot Bay through Narrow Strait and Whale Passage is generally used by vessels from Kodiak bound for Shelikof Strait. Passage at the time of maximum current in Whale Passage should be avoided. See the Tidal Current prediction service at *tidesandcurrents.noaa.gov* for specific information about times, directions, and velocities of the current at numerous locations throughout the area, including Whale Passage. Links to a user guide for this service can be found in chapter 1 of this book.

(72) **Pillar Cape**, the outer end of the north shore of Marmot Bay, is a bluff over 500 feet high, similar to the southeast side of Marmot Island. A high pinnacle rock is at the foot of the bluff, 0.5 mile east of the south end of the cape. About 1.5 miles west of the cape is an open bight from which lowland extends through to the west arm of Tonki Bay.

(73) **Izhut Bay**, a north arm of Marmot Bay, is about 5 miles wide between Pillar Cape and Peril Cape and extends about 7.5 miles in a northwest direction. The only dangers are along the shores and in the arms of the bay. The bay proper is exposed to south weather, but some of the arms afford protected anchorages.

(74) The most important of these anchorages is **Kitoi Bay**, an arm on the west side. Its head is a landlocked basin about 0.5 mile in diameter. The swinging radius from the center of the basin is about 300 yards. To enter Kitoi Bay pass the north entrance point of this arm slightly less than 0.5 mile off on a course **305°**, picking up the range defined by the prominent point on the north side about 1.8 miles in and the stream at the head of the small bight

at the head of the arm. Continue on course or range until 0.3 mile from **Midarm Island**, a small prominent midbay island, 50 feet high. This position is between another islet 600 yards to starboard and a 3-fathom spot 125 yards to port. The islet on the starboard beam is 100 yards from the north shore. The 3-fathom spot is marked by only a few streamers of kelp that are difficult to see. Then change course to pass south of the islet and steer midchannel course to the center of the basin, which is clear to within a few yards from shore. A low-water spit extends a few yards off the north entrance point of the basin. Anchor in 20 to 22 fathoms, good holding ground. Small vessels may anchor in a small bight southwest of the basin in 11 to 12 fathoms.

(75) Two fingerlike arms in the northeast part of Izhut Bay extend north about 5 miles. **Saposa Bay**, the east arm, has an island about 0.5 mile from its entrance. A rock, covered ½ fathom, is about 125 yards south of the island. The passage is west of the island. The controlling depth is 2 fathoms. Small vessels may anchor above the island in 7 to 10 fathoms, sand bottom. The west arm is not recommended as an anchorage.

(76) **Peril Cape**, the outer end of the west shore of Izhut Bay, is a prominent precipitous headland about 600 feet high with a high pinnacle rock close to its south side.

(77) **Cape Izhut**, 2.5 miles southwest of Peril Cape, is a projecting, long, wooded, hilly point from 250 to 500 feet high. A rock, covered 7 fathoms, is south of Cape Izhut in 58°05'35"N., 152°20'06"W.

(78) **Duck Bay** is about 6 miles long from Cape Izhut to Cape Kostromitinof. At the east end of the bay temporary anchorage with a swinging radius of about 300 yards may be had in the middle of the cove 1.5 miles northwest of Cape Izhut, in 6 to 7 fathoms. The anchorage is east of an islet, 168 feet high, 0.3 mile from the north shore and should not be approached closely. **Selezen Point** forms the west side of the cove.

(79) A round, rocky island, 168 feet high and grass covered on top, is 2.5 miles west from Cape Izhut and 0.6 mile from shore. Kelp extends nearly 0.3 mile west and north of the island, and numerous bare rocks extend 0.5 mile east of the island and to the shore northeast of it. On **Selezen Bay**, the cove north of the island, is the small native settlement of **Little Afognak**. Temporary anchorage may be had in the middle of the cove in 10 to 12 fathoms. Enter the cove west of the island between the island and a large rock awash at high water, which lies 0.3 mile south from the west point of the cove.

(80) **Mary Anderson Cove**, the next cove west, with its entrance 1 mile northwest of the 168-foot island, is 1 mile long and 0.7 mile wide. The bottom is rocky and kelp extends some distance from shore in places. Small craft entering with care can anchor in 5 to 8 feet at the head.

(81) **Cape Kostromitinof**, on the north shore of Marmot Bay, is a projecting, long, level, wooded point, about 200 feet high, with bluffs in places at the water. North from the cape the land rises gradually in a distance of 5.5 miles to **Duck Mountain**, a prominent peak, 2,048 feet high.

(82) **Kazakof Bay**, referred to as **Danger Bay** by local fishermen, extends 6 miles in a north direction from the northwest part of Marmot Bay. Anchorage for small vessels is found at the head of the bay. (See Routes, Kazakof Bay.)

(83) The cove on the east side, 3.5 miles above the entrance to Kazakof Bay, affords shelter for a small vessel anchored in 12 to 14 fathoms. Small craft can anchor in the southeast end of the cove in about 5 fathoms. A reef extends about 100 yards off the south side of the entrance. The small bight in the east shore is shoal. In 1981, a logging camp was operating on the east side of the cove.

(84) **Parrot Island**, round, rocky, and 70 feet high, is in the entrance to Kazakof Bay. Channels for entering are on either side of the broken ground on which Parrot Island and other rocky islets and rocks awash are grouped. A submerged ledge with some kelp and a depth of 3½ fathoms is about 0.8 to 1.5 mile southeast of Parrot Island; its north end is 0.5 mile off Cape Kostromitinof.

(85) **Stripe Rock**, 2.8 miles south of Parrot Island, is marked by a prominent white streak that extends along the entire height of the rock. It is composed of two pinnacles close together, about 35 feet high; the white streak is on the higher of the two pinnacles. A large bare ledge, 30 feet high, is between Stripe Rock and Parrot Island.

(86) West of Stripe Rock and the large bare ledge, the area extending to the shore is mostly foul and should be avoided by vessels.

(87)

Routes

(88) **Routes, Kazakof Bay**: From east, shape the course for a position about 0.5 mile south of Cape Kostromitinof. Head for Parrot Island on a **305°** course until the southwest end of the cape is a little forward of the beam. Change to **330°** and pass 0.25 mile off the southwest end of the cape and the same distance northeast of Parrot Island.

(89) Then steer **359°**, with Parrot Island astern, to the head of the bay. Above Parrot Island, give the shores a wide berth and avoid the low bare rock about 0.4 mile from the east shore and about 0.6 mile from the head of the bay. The anchorage is about 0.4 mile west of this rock in about 18 fathoms, mud and gravel bottom. The head of Kazakof Bay separates into two arms. Small vessels can anchor in 8 to 10 fathoms, either in the broadest part of the west arm 0.3 mile from its head or in the entrance to the east arm.

(90) From southwest, keep Hog Island open from the northwest side of Whale Island until Stripe Rock is in range with the east side of Cape Kostromitinof. Then steer **041°** for 1.3 miles to a position 0.25 mile east of Stripe Rock. Then steer **006°** for 1.1 miles to a position 0.25 mile east of a bare ledge about 15 feet high. Then steer **333°** for 0.9 mile. Then steer **358°** for 0.8 mile, keeping Stripe Rock open west of the bare ledge astern until Parrot Island is 0.5 mile on the starboard beam. From this position a **005°** course will lead to the head of the bay.

(91) **Afognak Bay**, the west tributary to Marmot Bay, makes into Afognak Island about 3.5 miles. There is secure anchorage off an abandoned cannery at **Rivermouth Point**, near the head. (See Routes, Afognak Bay.) **Litnik** is an abandoned village on **Afognak River** at the head of the bay. The approach from Marmot Bay is through **Eastern Passage**, between Hog Island and Big Rock. This approach is endangered by a rock awash, marked by a buoy, 0.6 mile southeast of Big Rock. Foul ground marked by kelp extends about 350 yards from Hog Island into Eastern Passage, and shoal water extends about 0.3 mile south-southwest of Big Rock.

(92) A straight channel, bordered by dangers, leads from Eastern Passage to the central part of Afognak Bay. On the northeast side of the channel are the Skipwith Reefs, with shoal water projecting channelward. On the southwest side is **Danger Reef**, which uncovers about 5 feet. An unmarked 3¼-fathom shoal is 1 mile southeast of the reef. A rock, covered 1¾ fathoms, was reported 0.6 mile northwest of Danger Reef.

(93) **Hog Island** is the prominent mark for approaching Afognak Bay and also Afognak Strait. It is 0.4 mile long and has two wooded knolls with a saddle in between.

(94) **Hog Island Light** (58°00'07"N., 152°41'11"W.), 40 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on the south side of Hog Island.

(95) **Big Rock**, 1 mile from Hog Island with Eastern Passage between, is comparatively narrow, irregular and over 100 yards long in a north and south direction.

(96) **Skipwith Reefs**, a chain of bare rocks and reefs, extend about 1.9 miles northwest from Big Rock to Lamb Island. The southwest side of the rocks should be given a berth of over 0.4 mile.

(97) **Lamb Island**, 0.5 mile long and wooded, is near the point that marks the outer end of the east shore of Afognak Bay. The area between the point that marks the outer end of the east shore of the bay and Lamb Island is foul and should be avoided.

(98) **Alexander Island**, 0.8 mile east of Lamb Island, is grass covered and has a knob about 80 feet high at its north end. Foul ground surrounds the island and extends 1.2 miles toward Stripe Rock.

(99) **Dot Island**, small and wooded, is the westernmost of three small islands close to **Posliedni Point**, where Afognak Bay narrows to 0.5 mile. On the west shore opposite Dot Island is a cascade where water can be obtained by boat.

(100) **Graveyard Point** marks the outer end of the west shore of Afognak Bay; **Lipsett Point** is the next point inside the bay. **Aleut Village** is on the shore of the bight between these points.

(101) **Village Reefs**, partly bare at low water and covered with kelp, extend over 1 mile east from the shore around Graveyard Point toward Hog Island. The point of the reefs is midway between Graveyard Point and Hog Island. Southeast from the point of the reefs is a detached shoal with a least reported depth of 2 fathoms. Between this shoal and the reef extending 650 yards southwest from Hog Island is a channel 0.5 mile wide. This channel is sometimes used by vessels, with local knowledge, to enter Afognak Bay from Afognak Strait.

(102) **Head Point** is 1.4 miles south of Graveyard Point, and between these points is the former village of **Afognak**, whose inhabitants moved to Settler Cove in 1965. The white church with green roof, 0.3 mile south of Graveyard Point, is the best mark in the village.

(103) Small vessels can anchor in 5 fathoms near the kelp on Village Reefs, with the church in Afognak bearing **344°** and Head Point in line with Deranof Rock. Little current will be felt here, but there is exposure to east winds.

(104)

Routes

(105) **Routes, Afognak Bay**: from northeast, keep Hog Island open from the northwest side of Whale Island, bearing anything west of **250°**; this range will lead about 0.3 mile southeast of the rock awash 0.6 mile southeast of Big Rock. After Big Rock appears in range with the east end of Lamb Island, turn to pass midway between Big Rock and Hog Island and steer **315°** for the old cannery building at Rivermouth Point, showing midway between Dot Island and Posliedni Point. Keep this range for about 2 miles until the west end of Lamb Island is abeam. Then steer **308°** for 1.8 miles and pass 400 to 500 yards south of Dot Island. Keep this course for about 0.3 mile past Dot Island until 0.25 mile off the cascade on the west shore. Then steer **353°** for 0.8 mile, favoring slightly the west shore. Anchor near midchannel off the old cannery at Rivermouth Point in 8 to 10 fathoms. The anchorage is clear if **Winter Island**, in the west arm, is given a clearance of 300 yards and **Last Point**, on the north shore, 400 yards.

(106) From south steer **359°**, with Big Rock and the southwest end of Alexander Island on range ahead, to pass east of Hog Island. When the north end of Hog Island is abeam, turn from the range to pass midway between Big Rock and Hog Island.

(107) **Whale Island**, at the west end of Marmot Bay, is about 4 miles in diameter. Its south half is a grass-covered mountain, 2,028 feet high, with a narrow light streak down its east slope. The north side of the island is low, and the lower parts of the island are generally wooded. **Treeless Islet**, rocky and grass covered, is 0.4 mile off the east side of the north end of the island. Whale Passage and Afognak Strait are south and north of Whale Island, respectively.

(108) **Afognak Strait**, between Whale and Afognak Islands, is used mostly by small vessels.

(109) The currents in the strait are only half as strong as in Whale Passage. The dangers are marked by kelp, which grows in depths up to about 6 fathoms and shows at slack water.

(110) If precaution is taken, navigation is not difficult on a clear day when the marks for the strait can be seen and

when the summit of Kupreanof Mountain is not hidden. The range formed by this mountain peak and Deranof Rock, off Deranof Island, effectively marks the channel through Afognak Strait, except in the central part of the strait and just inside the west entrance. In the central part of the strait the range passes close to the edge of foul ground making out from the north shore; here a vessel should guard against going anything north of the range. Just outside the west entrance, a 2½-fathom depth on a rock lying 630 yards from the Whale Island shore is just north of the range. The channel is just south of the rock, and here it is necessary to deviate a little south of the range to avoid the rock; the channel is only 380 yards wide between the 2½-fathom rock and the reef making out from Chiachi Point; the general depth is 24 feet.

(111) A reef awash is 0.45 mile north-northwest from Chiachi Point or 310 yards north of Kupreanof Mountain-Deranof Rock range.

(112) Most of the north half of Afognak Strait is foul. Southwest of Head Point the foul ground extends 0.3 mile offshore and its south edge is near the Kupreanof Mountain-Deranof Rock range.

(113) **Dolphin Point** is the northeast end of Whale Island. A reef, partly bare at low water, extends 600 yards from Whale Island at a point 0.3 mile west of Dolphin Point.

(114) **Fox Bay**, the bight in Whale Island 1 mile west of Dolphin Point, has in its entrance a reef that uncovers at low water. A small vessel can anchor in the bay inside the reef in 4 to 5 fathoms, but the south shore must be given a berth of 300 yards.

(115) West of Fox Bay the shore of Whale Island is clear to **Chiachi Point**, the northwest end of the island, from which a shelving reef makes out about 350 yards in a northwest direction.

(116) Temporary anchorage may be had in the channel of Afognak Strait between Fox Bay and former Afognak village, in 7 to 8 fathoms but exposed to the full strength of the currents and to east and north winds.

(117) A good anchorage in Afognak Strait but exposed to east weather can be had in 5 to 7 fathoms about 400 yards off a gravel beach on the southeast end of Little Raspberry Island. The bottom is sand and gravel and the anchorage is suitable for large or small vessels. To make this anchorage from the east, hold a **270°** course with the south end of Little Raspberry Island ahead. The end of this island can be recognized as the north side of the passage north of Deranof Island. Remain on the bearing **270°** on the south end of Little Raspberry Island in order to avoid foul ground off Shoal Point and to avoid a rock south of this course that uncovers 1 foot. This rock is marked by kelp that tows under at most stages of the tide. If this course is used coming into this anchorage or for small vessels in The Narrows it is possible to select a good range for this course, with the south tip of Little Raspberry Island against the slope of a mountain on Raspberry Island near Last Timber Point.

(118) With east winds, small vessels can anchor in about 4 fathoms about 0.3 mile west of **Afognak Point**, on the north side of Afognak Strait; caution is required. When rounding into the anchorage, pass northeast of a reef, bare at low water, 0.4 mile southwest of the point; give the point a berth of over 300 yards.

(119) **Deranof Island**, 0.5 mile long, low and wooded, is the southernmost and largest of the islands at the west end of Afognak Strait.

(120) **Deranof Rock**, about 15 feet high, is nearly 200 yards south of the island. Broken ground with a least depth of 2½ fathoms is 0.4 mile east of the island and 074° from Deranof Rock.

(121)

Tidal currents

(122) The **tidal currents** in Afognak Strait set west on the flood and east on the ebb. The estimated velocity is 2 to 5 knots at strength, depending on the range of the tide. During the flood there is a strong set into Raspberry Strait; this should be kept in mind when in the west end of Afognak Strait.

(123)

Routes

(124) **Routes, Afognak Strait**:From east in Marmot Bay, the initial approach to Afognak Strait can be made by keeping Hog Island west of **250°** and passing 0.25 mile or more south of Hog Island and 0.5 mile north of Dolphin Point.

(125) Passing 0.5 mile northwest of Dolphin Point, steer for Deranof Rock in range with the summit of Kupreanof Mountain or, if the mountain is obscured, steer for Deranof Rock with the south end of Hog Island astern, course **253°**. Off Head Point and for 0.8 mile to the west, go nothing north of the range. When approaching the west end of the strait, keep a little south of the range to avoid the rock with 2½ fathoms over it, but give the shore of Whale Island a berth of over 300 yards; on the flood, guard against a north set toward Raspberry Strait.

(126) When Occident Point bears **180°**, steer **234°** and pass 0.28 mile southeast of Deranof Rock. Continue the course 0.8 mile past the rock and then steer **286°** with the summit of Whale Island astern. This course made good will lead through Kupreanof Strait, passing 0.4 to 0.6 mile south of Gori Point, 0.9 mile north of Outlet Cape and 0.5 mile south of Malina Point.

(127) Raspberry Strait is described later in this chapter.

(128) **Raspberry Island**, extending from Shelikof Strait to Afognak Strait, is about 15 miles long in a northwest and southeast direction and averages about 4 miles wide. On the northeast side it is separated from Afognak Island by Raspberry Strait, and Kupreanof Strait borders its southwest side. This island is rugged and mountainous with elevations up to 2,350 feet. Most of the shores are bold and precipitous except where numerous valleys meet the shore. The island is grass covered except for the West side along Shelikof Strait, where it is predominantly bare sheer cliffs, and along the southeast half of Raspberry Strait, where the island is heavily covered with spruce.

(129) The description of features along the various shores of this island is given in connection with the information pertaining to Kupreanof, Raspberry and Shelikof Straits.

(130) **Whale Passage**, south of Whale Island, joins **Kupreanof Strait** to form a part of the main route between Kodiak and Shelikof Strait. Strong tidal currents occur in Whale Passage. Eddies may cause vessels to veer toward danger. When transiting east it is best to pass south of Ilkognak Rock.The south shore of Whale Passage is foul with rocks and kelp; the north shore is generally clear of obstructions. The islands bordering both sides of Kupreanof Strait are grass covered and mountainous, especially the north shore, which rises abruptly. The timber extends west along the shore to Last Timber Point and Dry Spruce Island, where it terminates except for scattered clumps. Navigation in the daytime is not difficult when the current is not too strong; however, careful attention to steering is required under any condition.

(131) **Ilkognak Rock Light** (57°54'49"N., 152°47'02"W.), 18 feet above the water, is shown from a pile, with a red and white diamond-shaped daymark in the middle of the east entrance to Whale Passage. Broken ground, covered 3½ fathoms, is 0.3 mile east of the light, and a rock, covered 2¾ fathoms, is 0.1 mile west of the light. Broken ground, covered 3½ fathoms, is 0.2 mile northeast of the light. A strong ebb current, heavy swirls, and upwelling occur in the wake of this broken ground, and dangerous tide rips prevail at such times with northeast gales. A rock, marked by a buoy, is about 0.4 mile north of the light. A rock pile, marked by a daybeacon, 0.1 mile off Whale Island and 0.8 mile northwest of the light, uncovers about 3 feet. A rock, covered 17 feet, is 0.3 mile off Whale Island and 0.9 mile northwest of the light; heavy swirls and eddies occur in this area.

(132) **Shag Rocks**, 0.4 mile southwest of Ilkognak Rock Light, uncovers about 2 to 3 feet.

(133) **Koniuji Island**, marked by a light, 0.25 mile from the south side of Whale Passage and 2 miles northwest of Ilkognak Rock Light, is 40 feet high and grass covered. Kelp extends 0.2 mile west from the island. Koniuji Island should be given a good berth on the north side as the current sets toward it at times.

(134) **Kupreanof Strait**, 1.5 to 3 miles wide, is clear in midchannel except for a shoal area 2.5 miles south-southeast of Bukti Point.

(135) **Chernof Point**, on the south shore of Kupreanof Strait, 5.3 miles west of Ilkognak Rock Light, is low and wooded but prominent. A ledge of rock about 150 feet long and 50 feet wide, 0.6 mile west of the point and 0.2 mile offshore, uncovers about 5 feet; it is marked by heavy kelp. **Ostrovka Point**, 2 miles west of Chernof Point, is low and wooded; a high grassy islet is close-to.

(136) Broken ground, covered 4½ to 10 fathoms, extends 4.5 miles northwest from Chernof Point up to 0.6 mile off Ostrovka Point and Dry Spruce Island.

(137) **Last Timber Point Light 6** (57°58'40"N., 152°59'01"W.), 35 feet above the water, is shown from a small house with a triangular red daymark on the point on the north side of Kupreanof Strait, 7.5 miles northwest of Ilkognak Rock Light. **Thomas Rock**, 1.5 miles east-southeast of Last Timber Point Light 6, is awash at low water; a patch, covered 6 fathoms, is 0.2 mile southwest of the rock.

(138) **Gori Point**, 2.5 miles west of Last Timber Point Light 6, is the base of an abrupt sloping ridge with its summits close to the shore.

(139) **Kupreanof Mountain**, on Kupreanof Peninsula 10 miles west of Ilkognak Rock Light, is 2,440 feet high and consists of prominent broken gray rock.

(140) **Dry Spruce Island**, on the south side of Kupreanof Strait 8.5 miles west of Ilkognak Rock Light, is 225 feet high and wooded. **Dry Spruce Island Rock Light 7** (57°57'53"N., 153°04'11"W.), 30 feet above the water, is shown from a tower with a square green daymark off the northwest end of the island on a ledge that uncovers about 6 feet. Two grassy islets and a pinnacle rock are off the north side of the west end of the island.

(141) A small wooded island and shoals, dry at low water, are between Dry Spruce Island and **Drying Point**, the end of the mainland on the north side of Dry Spruce Bay.

(142) **Bare Island**, just west of Dry Spruce Island, is partly wooded on its east half. **Dry Spruce Bay Entrance Light** (57°57'20"N., 153°06'12"W.), 76 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on a small grassy island 0.4 mile west of Bare Island.

(143) A rock, covered 2½ fathoms is marked by a buoy about 3.3 miles northwest of the entrance to Dry Spruce Bay.

(144)

Anchorages

(145) Temporary anchorage can be had in the bight on the north side of Whale Passage if stopped by too strong a flood current in the passage east. There is an eddy current in the bight, and care should be taken to get in far enough to ride to the eddy alone. A good place is in 8 fathoms, 300 yards from Whale Island, with Koniuji Island bearing about **238°**.

(146) A better anchorage can be had 0.3 to 0.4 mile off the west side of Whale Island, in 8 to 10 fathoms. This is convenient to either Whale Passage or Afognak Strait and is well out of the current; the anchorage is exposed to west winds.

(147) Anchorage may be had in places near the shore of Kupreanof Peninsula, but the only secure harbor is Dry Spruce Bay.

(148)

Currents

(149) Passage through Whale Passage at times of maximum current should be avoided. Floating aids to navigation may be dragged under or off station during these periods; mariners are urged to exercise particular caution. The tidal currents in Whale Passage set northwest on the flood and southeast on the ebb. During large tides,

the currents are very strong with boils and swirls. The current velocity can reach 5 to 7 knots. (See the Tidal Current prediction service at *tidesandcurrents.noaa.gov* for specific information about times, directions, and velocities of the current at numerous locations throughout the area. Links to a user guide for this service can be found in chapter 1 of this book.) Slack water was observed to occur from 1 to 2 hours later than predicted.

(150) The tidal currents at Kupreanof Strait have an estimated velocity of 2 to 3 knots during large tides. At the west end of Kupreanof Strait near Onion Bay, high and low water occur about the same time as at Seldovia. The tides meet in the strait a little west of Dry Spruce Island.

(151)

Routes

(152) Enter Whale Passage on a **262°** course from Kizhuyak Bay, passing south of the buoy off **Yuzhni Point** and 0.25 mile north of Ilkognak Rock Light. When Ilkognak Rock Light bears **118°**, 0.5 mile, and **Inner Point** bears **180°**, change course to **298°**. Gori Point, open a little south of the south end of Koniuji Island, heads south of the 2½-fathom rock. When **Uzkosti Point** bears **023°**, 0.3 mile, change course to **317°** until 0.3 mile north of Koniuji Island, then change to course **292°** until 0.4 mile off Gori Point where a **286°** course will lead into Shelikof Strait, passing 0.5 mile south of Malina Point Light. This route passes 0.5 mile north of a buoyed 2½-fathom shoal, 3.9 miles west of Gori Point.

(153) Larger vessels can also enter Whale Passage on a **309°** course from Kizhuyak Bay, passing 0.2 mile south of Ilkognak Rock Light to Konijuji Island. When Koniuji Island is abeam to the port side, change course to **289°** until Deranof Rock bears **029°** where a course of **285°** will lead to the Western side of Kupreanof Strait. This route passes 0.55 mile north of a buoyed 2½-fathom shoal, 3.9 miles west of Gori Point.

(154) Some of the courses are at an angle with the axis of the current; natural ranges should be used to aid in maintaining the courses.

(155) **Dry Spruce Bay**, on the north side of Kodiak Island and on the south side of Kupreanof Strait, may be entered on either the north or south side of Bare Island.

(156) Approaching Dry Spruce Bay from east, give Dry Spruce Island a berth of 0.8 mile and steer for the west end of Bare Island on any bearing south of **226°** until past Dry Spruce Island Rock Light 7; then haul east and pass midway between Dry Spruce and Bare Islands, course about **139°**. This route is contracted to about 400 yards by a low water rock about 200 yards from shore inside the west end of Dry Spruce Island. Shoal water extends from the east end of Bare Island.

(157) In approaching Dry Spruce Bay west of Bare Island, care is necessary to avoid the foul ground extending over 0.2 mile from the south shore of Kupreanof Strait, 1.7 miles west of Bare Island.

(158) **Port Bailey** cannery and wharf are on the south shore of Dry Spruce Bay. The cannery is used as a lodge. The 150-foot-long wharf has depths of 27 feet alongside. Unlighted mooring dolphins are along the shore southeast of the cannery.

(159) Air service is available to and from Kodiak once a week during the off season and daily except Sunday during the open season.

(160) The best anchorage for large vessels is about 0.5 mile east of Bare Island and 0.4 mile off the cove in Dry Spruce Island, in 16 to 19 fathoms. A small vessel can anchor in the middle of the entrance to this cove in about 6 fathoms taking care to keep clear of the flat that extends 250 yards from its northeast side. With strong southwest winds, some williwaws are felt from Kupreanof Mountain. A midbay rock awash is 0.7 mile from the head of Dry Spruce Bay.

(161)

Pilotage, Port Bailey

(162) Pilotage, except for certain exempted vessels, is compulsory for all vessels navigating the waters of the State of Alaska.

(163) The Kodiak Island area is served by the Southwest Alaska Pilots Association. (See **Pilotage, General** (indexed), chapter 3, for the pilot pickup stations and other details.)

(164) Vessels en route to Port Bailey can contact the pilot boat by calling "PORT BAILEY PILOT BOAT" on VHF-FM channel 16 or on a prearranged frequency between pilot and agent/vessel.

(165) **Outlet Cape** is the west end of **Kupreanof Peninsula**, included between Kupreanof Strait and Viekoda Bay. The cape has a steep slope to a peak 1,607 feet high, east of which is a low divide. **Laida Rocks** are a cluster of bare rocks 350 yards off the northwest end of the cape.

(166) Viekoda Bay is described later in this chapter.

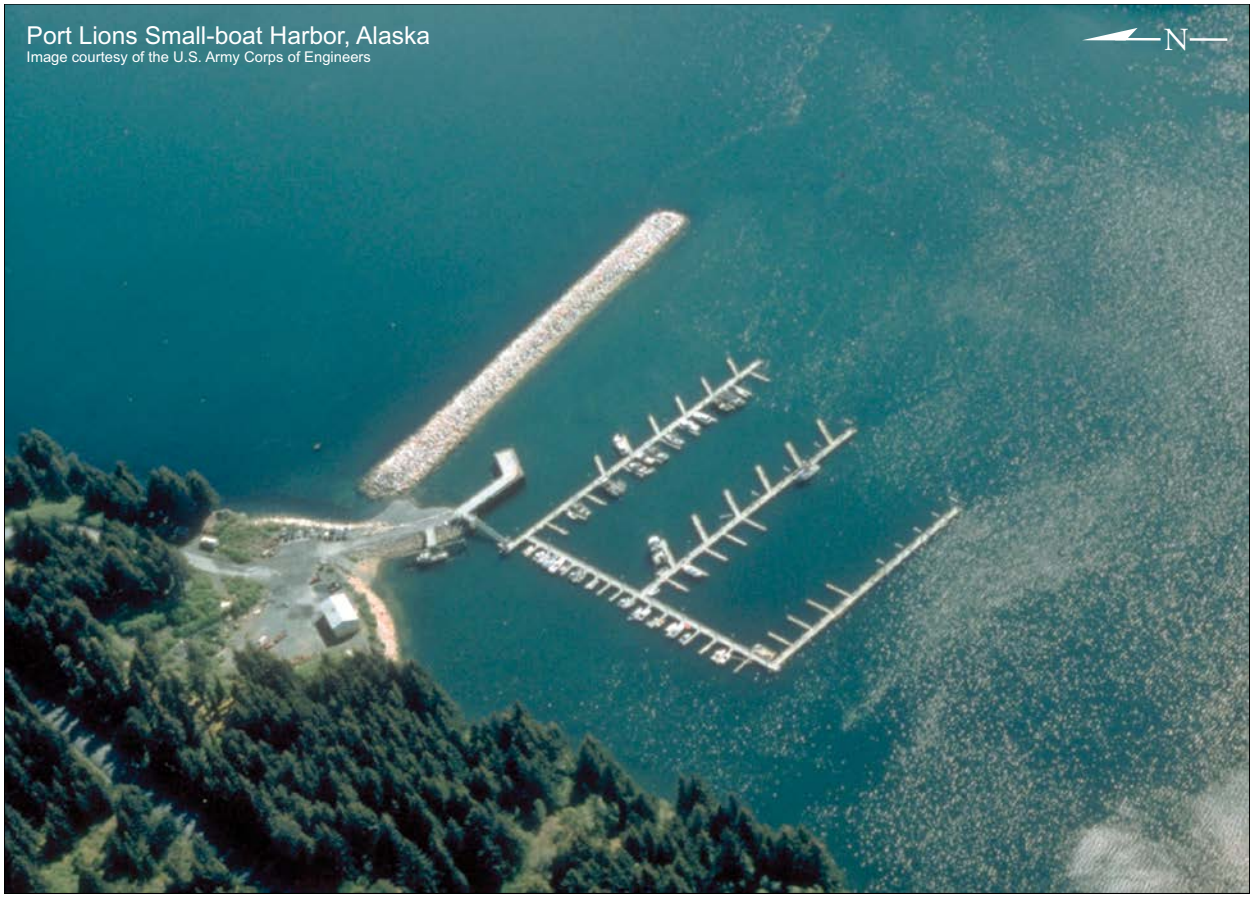
(167) **Onion Bay** makes into Raspberry Island about 2 miles, and from its head a low divide extends through to Shelikof Strait. The entrance is narrow and, just inside, the bay is blocked by shoals partly bare at low water, between which are narrow channels suitable only for small craft. The tidal currents have an estimated velocity of 3 to 5 knots in the entrance. Temporary anchorage can be had 0.4 to 0.5 mile off the entrance in 10 to 15 fathoms.

(168) **Malina Point Light** (58°02'19"N., 153°21'58"W.), 80 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark at the south end of the mountainous headland on the southwest part of Raspberry Island. The point itself is projecting and prominent. It has a grass-covered knoll at its end, with a low neck behind it, and then a steep slope to 1,570 feet.

(169) During northeast weather, small craft can find excellent protection behind Malina Point.

(170) **Raspberry Cape**, at the west end of the mountainous headland on the southwest part of Raspberry Island, is

(177)



steep and high and has areas of bare rock. There are some bare rocks in the water close to the foot of the cape.

(171)

Local magnetic disturbance

(172) Differences of as much as 3° from normal variation have been observed in Kupreanof Strait about 0.4 mile south of Raspberry Cape.

(173) **Kizhuyak Bay** is the continuation of Marmot Bay, and from Whale Island and Kizhuyak Point it extends south for about 14 miles into Kodiak Island. The outer bay is exposed to northeast weather, and only at or near the head is protection afforded from seas sweeping in from Marmot Bay. A landlocked anchorage for small vessels is available in Anton Larsen Bay, but local knowledge is required to navigate its narrow entrance channel. Larger vessels can anchor in 9 fathoms outside of the bay. Sharatin Bay, another arm, is exposed to seas from the northeast and southerly winds coming through the mountains.

(174) A midchannel course in Kizhuyak Bay is clear of known dangers. However, a bank of 6 to 9 fathoms irregular in outline and comprised of large sand waves, extends southeast across the Bay from Port Wakefield to the eastern shore between Leto Point and Kekur Point. A similar rocky bottom exists between opposite shores in the locality of the islet, 2.5 miles from the head.

(175) **Peregrebni Point**, on the west side of Kizhuyak Bay, is on a wooded peninsula that is backed by **Settler Cove**. The bottom of the cove favoring the west shore is sandy with some rocks along the peninsula containing Port Wakefield. Depths gradually decrease, from about 4 fathoms just inside the entrance, to the mudflats at the head of the cove.

(176) **Port Lions** is the name given in 1965 to a settlement near the head of Settler Cove, created when all the inhabitants of Afognak moved in and declared it their new home. A good small-craft anchorage is 0.5 mile northeast of the village. A breakwater forms a small-boat harbor about 0.5 mile northeast of Port Lions. A light is on the east end of the breakwater and a daybeacon marks the east side of the harbor entrance. In 2012, reported depths of 14 to 24 feet were available on the approach from the northeast with 14 feet in the center of the harbor entrance between the breakwater and daymark. Depths of 9 to 12 feet were reported along the southwest pier with 12 to 16 feet reported along the center and north piers. The small-boat harbor has moorage for about 80 vessels. A ferry runs to Port Lions twice a week.

(178) **Port Wakefield** is at the head of Port Wakefield, a cove on the west side of Kizhuyak Bay about 0.7 mile southwest of Peregrebni Point. A shoal is off the entrance to Port Wakefield. A causeway across the shallow head of Settler Cove connects Port Wakefield with Port Lions. A City Dock extends 200 feet from shore on the east side of the cove. The outer face is 250 feet; 24 feet reported alongside; deck height, 10 feet; used for receipt of

conventional general cargo and petroleum products; and landing for passenger and vehicular ferry.

(179)

Pilotage, Port Wakefield

(180) Pilotage, except for certain exempted vessels, is compulsory for all vessels navigating the waters of the State of Alaska.

(181) The Kodiak Island area is served by the Southwest Alaska Pilots Association. (See **Pilotage, General** (indexed), chapter 3, for the pilot pickup stations and other details.)

(182) Vessels en route to Port Wakefield can contact the pilot boat by calling "PORT WAKEFIELD PILOT BOAT" on VHF-FM channel 16 or on a prearranged frequency between pilot and agent/vessel.

(183) At Peregrebni Point the bay narrows to a width of 1.6 miles. The west shore from 1.2 to 4.5 miles south of Peregrebni Point is foul; a rock awash is 2.6 miles south of the point and 0.4 mile from the west shore.

(184) A flat extends 0.5 mile from the head of Kizhuyak Bay, where there is a large valley. Vessels may anchor off this flat in 19 fathoms, mud bottom; the depths are regular and there is ample room.

(185) **Kekur Point** marks the north end of the east shore of the narrow part of Kizhuyak Bay. A rocky patch of 6 fathoms is 0.9 mile 032° from Kekur Point.

(186) Between Kekur Point and Kizhuyak Point, the west shore of the outer bay is indented by Sharatin Bay and Anton Larsen Bay. The waters along the intervening shore between the two bays, from Three Pillar Point to Crag Point, have several submerged rocks about 0.3 to 0.4 mile from that shore. A patch of broken ground, with a depth of 9 fathoms, is 1.4 miles west-northwest of Crag Point. Off Anton Larsen Bay are covered rocks and seasonal kelp with a reported depth of only 6 feet, 0.9 mile 006° from Crag Point.

(187) **Sharatin Bay**, east of Kekur Point, has a small grass-covered islet near the center of the bay. A rock, covered 1 fathom, is 400 yards north of the islet. A rock that uncovers 4 feet is 300 yards off the projecting point of the bay shore west of the islet. A rock covered 6 feet is about 0.5 mile north-northwest of Three Pillar Point. Sharatin Bay, with a muddy bottom, can be used for safe anchorage in 8 to 10 fathoms; a tide flat extends 0.6 mile from the head of the bay.

(188) **Anton Larsen Bay**, between the point 0.9 mile south of Kizhuyak Point and Crag Point, has its entrance nearly blocked by islands; only small craft can enter. A rock, covered 6 feet and marked by seasonal kelp, is about 0.5 mile north of the outer entrance island north of Crag Point. A reef, bare at minus tides, lies 260 yards 045° from Crag Point. The passage into the bay east of Crag Point and the two passages at the north entrance are very narrow.

(189) The northernmost passage into Anton Larsen Bay was used by a survey tender, 77 feet long and drawing 6½ feet. The entrance to this passage is between the northernmost island in the bay entrance and the north point of the bay. About 0.3 mile inside this entrance and about 130 yards from the mainland is a large rocky patch, part of which uncovers. The channel is south of this rocky patch. At the narrowest part of this passage is a small, narrow islet which hugs and parallels the mainland. The survey indicates that the channel borders close along the outer side of the narrow islet and makes a slight turn around the west end of the islet. Opposite the west end of the islet, the southwest side of the channel is bordered by rocks. Extreme caution and local knowledge are necessary.

(190) Anton Larsen Bay has a 3-mile stretch of water about 0.5 mile wide, extending in a south direction from the north entrance passage. A rock, awash at high tide, is in the middle of this stretch, about 1 mile from the entrance passage. The channel is between the rock and the shore west of it. A vessel may anchor about 0.3 mile south of the rock in about 15 fathoms. A small pier is on the southwest end of the bay; ice from snow runoff can be found in the bay beginning in October.

(191) A road runs from the west side of Anton Larsen Bay to Kodiak. It is closed during the winter.

(192) **Kizhuyak Point** marks the outer end of the east side of Kizhuyak Bay. A 2¼-fathom depth in a kelp patch is about 0.8 mile 210° from Kizhuyak Point.

(193) The broad point 0.8 mile northeast of Kizhuyak Point is partly wooded and terminates in white cliffs in places. A rock, which uncovers about 4 feet, is 400 yards north from this point. Shoal water extends 300 yards north of the rock.

(194) Between the broad point and Shakmanof Point is **Shakmanof Cove**. A rock, covered 3 feet, is near the center of this cove.

(195) **Shakmanof Point**, on the south side of Marmot Bay about 2 miles west of the entrance to Narrow Strait, is prominent and heavily wooded. Some rocks awash are close to the point, and it should be given a berth of over 300 yards.

(196) **Shakmanof Point Light** (57°55'31"N., 152°35'16"W.), 60 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark.

(197) **Low Island Anchorage**, the cove between Shakmanof Point and Low Island, affords anchorage in suitable depths but it is exposed to north weather. North winds in this locality are infrequent.

(198) **Three Brothers**, 1.2 miles east of Shakmanof Point, is a kelp-marked reef 600 yards long and steep-to on its west side. Parts of the reef uncover about 2 feet. Near its southwest end are two rocks that uncover about 4 feet, and at its northeast end is a rock that uncovers about 3 feet. A light is on the southwesternmost rock. Kelp extends about 250 yards south of the light toward Low Island.

(199) **Low Island**, in the middle of the bight on the south shore of Marmot Bay between Shakmanof Point and the west entrance to Narrow Strait, is grass covered and about 40 feet high at its south end. Most of the island is wooded.

(200) Vessels cross the 7-fathom bank or bar about 0.3 mile north-northeast of Low Island, bound to or from Narrow Strait. A range consisting of Prokoda Island Light 2 just open on the nearly vertical bluffs of Ouzinkie Point leads between a red buoy marking a submerged rock on the north side of the crossing and a green buoy marking a 3½-fathom shoal on the south side of the crossing. A survey along the range reveals a clear depth of 30 feet. It is required, however, that no deviation from the range be made. The submerged rock is 800 yards from Low Island and has less than 14 feet over it. The 3½-fathom shoal is at the end of a reef extending north from Low Island. These dangers are marked by kelp.

(201) The passage south of Low Island is blocked by shoals that bare at low tide.

(202) Narrow Strait and Ouzinkie Narrows are described later in this chapter.

(203) **Spruce Island**, on the south side of Marmot Bay, is about 6 miles long in an east and west direction. The island is rugged, with **Mount Herman**, 1,595 feet high 2 miles west of East Cape. The lower elevations are in general heavily wooded, with a low wooded area 0.8 to 1 mile wide extending between the east shore of the island and the base of Mount Herman. Grass is quite pronounced on the higher slopes of Spruce Island. The higher summits are barren. The waters adjacent to the north and east shores of the island have not been completely surveyed.

(204) About 1 mile off the west shore of Spruce Island and approximately on a line between Three Brothers and Wooded Island are two dangers: a kelp-marked shoal with a depth of 2 fathoms is about 1 mile from Three Brothers and a rocky islet, 24 feet high, 0.9 mile from Wooded Island.

(205) Reefs extend 600 yards off the west shore of Spruce Island, 0.8 mile north of Ouzinkie Point, described later in this chapter.

(206) **Wooded Island**, 174 feet high, is 300 yards off **Zapadni Point**, the promontory on the west side of Spruce Island. It is heavily wooded. A fair anchorage protected from east winds can be had just to the south of the island. A 3-fathom shoal is 700 yards 098° from the southwest end of Wooded Island.

(207) **The Triplets**, 2 miles west of North Cape, are a chain of three high, grassy islets extending 1 mile in a general north and south direction. The northernmost islet, 275-foot **Taliudek Island**, is the highest of the group.

(208) **North Cape**, the north headland of Spruce Island, is a wooded knob 551 feet high. Rocky islets and rocks awash at various stages of the tide fringe the north side of the cape within 400 yards of the shore. A shoal of 2¼ fathoms is 0.4 mile off the east point of the cape.

(209) **Island Bay**, just south of North Cape and opening to the east, has not been surveyed. It affords fair anchorage for medium-size craft from west wind. If small craft use the head of the bay, care should be taken to pass north of a rock awash at low water about 0.3 mile from the head.

(210) **Knee Bay** is the outer portion of the indentation in the north shore of Spruce Island about 2 miles south of North Cape. **Balika Cove**, narrow and about 1 mile long, is the continuation of Knee Bay. The bay and cove have not been surveyed. The first enclosure of Balika Cove affords excellent shelter for small craft but can be entered only at high tide because of a ledge at the entrance to the cove.

(211) The north shore of Spruce Island between Knee Bay and East Cape is bordered by rocky islets and rocks awash at various stages of the tide. Some of these are over 0.3 mile offshore.

(212) **East Cape**, the northeast end of Spruce Island, is a wooded flat extending about 0.8 mile inland to the base of Mount Herman. A group of bare rocks is within 300 yards east of the cape. Banks with depths partly under 10 fathoms extend nearly 2 miles northeast of the cape.

(213) A rock awash at low water is about 0.5 mile south of the point of East Cape and 400 yards from the east shore of Spruce Island.

(214) Two wooded islands, forming **Ostrof Point**, about 1 mile south of East Cape, are surrounded and connected to the east shore of Spruce Island by a reef. The outer part of this reef terminates in a rock, which uncovers about 2 feet, 300 yards east of the outer island. Rocks awash at low tide are 0.3 mile northeast of the outer island. A rock, which uncovers about 4 feet, is 250 yards south of the outer island.

(215) **Icon Bay** is the small indentation in the east shore of Spruce Island halfway between East Cape and South Point. This bay, as well as the adjoining small bays to the south, has not been surveyed. Shoaling to 1½ fathoms is in the middle of the bay. It is reported that a medium-sized craft may find temporary anchorage in west weather. A rock awash baring near low water is 300 yards from the head and 150 yards from the north shore of Icon Bay.

(216) **Narrow Strait**, between Spruce and Kodiak Islands, is used by vessels bound from Kodiak to Shelikof Strait. It has a clear width of 1 mile at its east end, while at its west end the channel is 100 to 300 yards wide with a least depth of about 7 fathoms. With east gales a heavy swell sets into the strait, but this generally loses much of its force toward the west end.

(217) Ouzinkie Narrows, the narrow passage of Narrow Strait in the vicinity of Otmeloi Point and Prokoda Island, is described later in this chapter.

(218) The west approach to Narrow Strait is south of Three Brothers and across the buoyed 7-fathom bank 0.3 mile north-northeast of Low Island.

(219) The best anchorage in Narrow Strait is in the middle of Ouzinkie Harbor between Prokoda Island and Ouzinkie, in 18 to 20 fathoms, somewhat exposed to an east swell. A small vessel and small craft can anchor at the head of Ouzinkie Harbor near Ouzinkie, slightly favoring the west side, in 5 to 10 fathoms.

(220) **South Point**, the east end of Spruce Island, is marked by a high black rocky islet about 600 yards off the point. This rocky islet is 65 feet high; several lower ones are just to the south and west thereof.

(221) Two islands are on the north side of Narrow Strait. **Eider Island**, the east one, is very uneven and grassy on top. A small low rocky islet is 400 yards east of the east island, and a rock awash at low water is 200 yards south of the east island. **Nelson Island**, the west one of the two islands, is higher and wooded. A group of rocks, which uncover 5 feet, is 350 yards south of Nelson Island and similar rocks are 0.3 to 0.4 mile west of the island.

(222) The passages leading to the cove back of Nelson Island are mainly foul or composed of broken bottom. They should be avoided by vessels of any size, except perhaps by small craft with local knowledge.

(223) **Sunny Cove**, the bight on the north shore of Narrow Strait, 2.3 miles northwest of South Point, affords anchorage for small craft in 3 to 4 fathoms, sand bottom. A ledge covered 1½ fathoms is 0.3 mile south from the west point of the entrance to Sunny Cove. Two bare rocks are off the middle of the entrance. A rock awash is 90 yards northwest from the east point of the entrance. In entering, the west shore of Sunny Cove should be favored.

(224) A rocky patch, covered 2¾ fathoms and marked by kelp, is 0.3 mile from the north shore of Narrow Strait just southeast of **Black Point**.

(225) **Prokoda Island**, in the middle near the west end of the strait, is 114 feet high and partly wooded. An islet is 100 yards off its northeast end, and kelp extends 100 yards off the islet and the southeast side of the island.

(226) **Prokoda Island Light 2** (57°54'38"N., 152°30'23"W.), 40 feet above the water, is shown from a small house with a red triangular daymark on the southwest point of the island. The light is a guide for navigating the passage south of the island.

(227) The channel north and west of Prokoda Island is 300 yards wide and clear, but the turns are sharp and difficult to make when the current is running.

(228) **Ouzinkie** is a small native village at the head of the cove in Spruce Island north of Prokoda Island. The most conspicuous features in the town are the warehouse close to the near shore of the cove, the Russian Orthodox Church spire and the boardwalk that runs around the north side of the cove. Fishing is the principal industry in Ouzinkie.

(229) An L-shaped pier, connected to land at both ends, is on the west side of the cove and can handle vessels up to 120 feet long and drawing about 15 feet. A grid of sawed-off pilings is along the east side of this pier; the grid is considered hazardous because of the steel spikes protruding upward from the piles. A foul area is about 100 feet southwest of this pier. A cannery and pier were built over the water on the east side of the cove. The pier can accommodate vessels 80 feet long and drawing 12 feet. A rock, covered 6 feet, is 400 feet south-southeast of the south corner of the pier; the rock is usually marked with a fishing float. A breakwater, marked by a light, is south of the rock. Fuel is available on the west pier. There is scheduled air service between Ouzinkie and points on Kodiak Island. Radiotelephone and radiotelegraph communications are maintained.

(230) In entering Ouzinkie from the east, care should be taken to avoid the reef that extends some distance off the southeast shore of Prokoda Island. A small general store is in the warehouse at Ouzinkie.

(231) **Ouzinkie Point**, southwest end of Spruce Island, is the point on the north side of the west entrance to Narrow Strait. At the point are cliffs above which a wooded slope rises steeply to a knoll about 110 feet high. The knoll is connected with the land back of it by a low, narrow, grass-covered neck.

(232) Kelp is close to Ouzinkie Point and the point should be given a berth of about 125 yards.

(233) **Entrance Point**, on the south side at the west entrance of Narrow Strait, is grassy with some scattered trees, and a rock 12 feet high is 100 yards off its east side. A kelp-marked shoal, with 7 to 12 feet over it, extends 250 yards north from Entrance Point. A rocky ledge, covered 7 feet and marked at the outer end by a buoy, extends about 325 yards north-northeast of the point.

(234) **Neva Cove**, between Entrance Point and Otmeloi Point, provides good anchorage for medium-size craft from all winds except northwest, in 13 fathoms, soft bottom.

(235) Mariners using **Ouzinkie Narrows**, the narrow passage of Narrow Strait in the vicinity of **Otmeloi Point** and Prokoda Island, should be careful because the currents will set a vessel into danger rapidly. Depths of 5 fathoms or less extend 200 yards southeast of Prokoda Island, and depths of 4 fathoms or less extend 200 yards north from the small mainland point 0.5 mile east from Otmeloi Point. Between these areas are depths of over 10 fathoms for a width of 150 yards.

(236) The best route through Ouzinkie Narrows from the east is midway between the southeast point of Prokoda Island and the small mainland point to the southeast, thence proceed at midchannel until abreast of Prokoda Island Light 2. From abreast the light to abreast of Ouzinkie Point, the route is practically a straight course that passes between Otmeloi Point and a rock that uncovers about 6 feet. The rock, marked by a daybeacon, is about 275 yards north of Otmeloi Point.

(237) The channel between the rock and a shelving spit with kelp that extends 125 yards from Otmeloi Point has a depth of 7 fathoms and is about 100 yards wide. Vessels usually pass about 80 yards south of the daybeacon to avoid the shelving spit. Mariners should favor the north half of the passage between Entrance Point and Ouzinkie Point, so to pass clear of a 2-fathom ledge which extends 350 yards north of Entrance Point. The ledge is marked by a buoy.

(238) **Course Point**, on the south shore of Narrow Strait, about 2 miles east of Otmeloi Point, is prominent and is marked by a small rocky, grass-covered islet, 150 yards from shore.

(239) A pinnacle rock, 70 feet high, is near the south shore of Narrow Strait about 0.9 mile south-southeast of Course Point. The cove southeast of the pinnacle is foul except

for a small area in the center. A 4¼-fathom shoal is 400 yards from the south shore near **Azimuth Point.**

(240) **Termination Point** is the east limit of the south shore of Narrow Strait. Foul ground extends nearly 0.5 mile north of the point.

(241) **Monashka Bay**, just east of Termination Point, is clear inside except within 0.3 mile of the shore. Anchorage may be found near the southeast part of the head of the bay, but there is full exposure to northeast weather.

(242) **Miller Point**, on the east side of Monashka Bay entrance, is partly wooded and terminates in a rocky bluff. High, bare rocks extend more than 200 yards off the point, and rocks baring at various stages of the tide are outside of them. The outermost rock is 0.6 mile 040° from Miller Point. The range, consisting of the northeast end of Long Island open north of the outer Hanin Rocks, clears the rocks off Miller Point.

(243) Tidal currents in Narrow Strait are weak except in the west entrance where the velocity is about 1.5 knots.See the Tidal Current prediction service at *tidesandcurrents.noaa.gov* for specific information about times, directions, and velocities of the current at numerous locations throughout the area. Links to a user guide for this service can be found in chapter 1 of this book.

(244)

Chiniak Bay to Kodiak Harbor

(245) **Chiniak Bay**, a 13-mile-wide indentation in the northeast coast of Kodiak Island between Spruce Cape and Cape Chiniak, is the approach to the important commercial port of Kodiak on the north side and a Coast Guard base in Womens Bay on the west side.

(246) **Spruce Cape**, the northwest point of Chiniak Bay and marked by a light, is a low bluff, grass covered on top and backed by woods. Bare rocks and foul ground extend 0.6 mile north from the cape to **Hanin Rocks**, which are two rocks about 30 feet high with an extensive surrounding ledge. **Hanin Rock Light** (57°50'05"N., 152°18'52"W.), 43 feet above the water, is shown from a skeleton tower on the southwest rock. A reef, mostly bare at low water, extends 250 yards north of Hanin Rocks.

(247) **Williams Reef**, 5 miles east from Spruce Cape, is the outermost danger in the northeast approach to Chiniak Bay. The reef consists of two rocks, 100 yards apart, that uncover at lowest tides; deep water is close-to and breakers generally occur, except near high water with a smooth sea. A lighted whistle buoy is northeast of Williams Reef.

(248) A small patch, covered 3¼ fathoms, is 1.7 miles 285° from Williams Reef.

(249) **Hutchinson Reef**, 0.8 mile northeast of Spruce Cape, is 0.4 mile in extent with a least depth of 1¾ fathoms. A large kelp patch is between the reef and Hanin Rocks. A lighted whistle buoy, 0.4 mile northeast of Hutchinson Reef, marks the west side of the north approach to Kodiak.

(250) Broken ground, 0.9 mile east of Spruce Cape, is covered 4¼ fathoms and marked by a lighted whistle buoy.

(251) On the west side of the channel, 0.4 to 1 mile south of Spruce Cape, are two bare reefs; the outer edges are about 600 yards from shore. The east edge of the south reef is marked by a lighted buoy. **Channel Rock**, on the south reef, is black and 7 feet high amid extensive ledges. Kelp surrounds the reefs and extends south-southwest of Channel Rock, gradually trending toward the shore and joining the shore kelp. Deep water extends close to the edge of the kelp at 150 yards off Channel Rock.

(252) A rock, covered 1½ fathoms, is 0.9 mile southeast from Spruce Cape; it is marked by a lighted whistle buoy.

(253) **Woody Island**, 2 miles south of Spruce Cape, is about 200 feet high and heavily wooded except for a high grass-covered bench at the south end and a small area back of **Icehouse Point**. Some buildings are conspicuous from west of the point. Just north of Icehouse Point is a 200-foot finger pier with two floats; depths alongside range from 6 to 9 feet. Ruins of an old concrete pier are 75 yards northeast of the present pier; caution is necessary. An aero radiobeacon is on the southeast side of the island.

(254) Anchorage is prohibited in the area between Woody Island and the Kodiak shore as shown on the chart.

(255) Foul ground extends 1.3 miles north from the northeast side of Woody Island. A shoal, covered 3¾ fathoms, is 1.5 miles 092° from Woody Island Light.

(256) There are three large white buildings back of **Shahafka Cove** on the north shore across the channel from Woody Island.

(257) **Woody Island Light** (57°47'46"N., 152°20'18"W.), 50 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark at the top of the bluff on the west side of the north point of the island. The light marks the east side of the passage between Woody Island and the mainland. The outer limits of foul ground and kelp surrounding the north part of Woody Island are 0.4 mile west and 0.6 mile north-northeast from the light.

(258) A kelp patch of a 4-fathom shoal, marked by a buoy, is 0.35 mile 255° from Woody Island Light. Another kelp patch of a 4-fathom shoal, marked by a lighted bell buoy, is 0.7 mile 265° from the light. The recommended channel is between these shoals.

(259) The group of islands west of Woody Island is surrounded by foul ground. **Bird Islet**, the easternmost of the group, is 68 feet high, small and wooded; foul ground and kelp extends 550 yards north and 350 yards south of the islet. A 2¼-fathom spot is about 600 yards south-southwest from the southernmost extremity of Bird Islet. **Holiday Island**, west of Bird Islet, is 131 feet high and wooded. **Near Island**, the largest of the group, is 202 feet high and wooded with some development. The waterway between Holiday Island and Near Island is a busy seaplane landing and takeoff strip.

(260) The area between the north side of Near Island and the Kodiak shore is shoal and mostly foul, except for

(280)



the 200-foot-wide dredged channel at the east approach to Kodiak. **Cyane Rock**, 350 yards northeast of Near Island, is awash at lowest tides; a lighted bell buoy marks the rock. The northeast entrance to the dredged channel is between the buoy marking Cyane Rock and the foul ground that extends nearly 200 yards from the bight northwest of the rock.

(261) **Long Island**, the easternmost island in the north end of Chiniak Bay, is 3.5 miles long, 251 feet high, hilly with cliffs at the water and wooded except toward its north end. The northeast end of the island is formed by two grass-covered knolls; the east one is joined to the other by a narrow neck almost covered at high tide. The northwest corner of the island is a prominent vertical bluff more than 100 feet high, rising to a grass-covered knoll 178 feet high. Two prominent pinnacles, 50 feet high, with lower bare rocks nearby, are off the north extremity of the island.

(262) A well-enclosed bay, making in from the west side of Long Island, is accessible to small vessels and affords good shelter and holding ground of mud. An island, just inside the middle of the opening, is connected with the east bay shore by a bar. A black rock, about 6 feet high, is between the island and the south point of the opening. To enter the south part of the bay, steer **179°** and pass between the black rock and the south point, slightly favoring the rock and then the west bay shore at the point. Anchor in the center of the basin. Access to the north part of the bay requires local knowledge.

(263) **Kodiak Rock**, covered ¾ fathom, is about halfway between Long Island and Williams Reef. Extensive reefs, partly marked by kelp and having some high bare heads, extend 0.6 to 0.9 mile north from the north shore of Long Island. Shoal spots are between the end of these reefs and Kodiak Rock. Shoal rocky spots, covered 3¾ to 8 fathoms, extend 1.8 miles east of Kodiak Rock; a rock, covered 2½ fathoms, is 1.6 miles west of Kodiak Rock.

(264) The southeast side of Long Island is fringed with rocks and kelp; detached dangers are 0.3 to 0.5 mile from the shore. **Refuge Island**, a small, steep, grass-covered rocky islet, 80 feet high, connected with Long Island by a reef, is off the south extremity of Long Island.

(265) An extensive covered ridge with extremely broken bottom extends north-northeast for 10 miles from the south side of Chiniak Bay. A distinctive submarine valley borders the west side of the ridge; its seaward outlet leads around the north end of the ridge, while the south part leads into Kalsin Bay. The valley forms a deep basin south of Long Island.

(266) The outermost danger on the ridge is a rock, covered 4¼ fathoms, 4.2 miles east from Refuge Island, which breaks in a heavy swell.

(267) **Humpback Rock**, 2.8 miles southeast from Refuge Island, is low and of small extent. Vessels should pass not less than 1 mile north of the rock to avoid the broken

ground; a lighted whistle buoy is 0.6 mile northeast of the rock.

(268) Numerous reefs comprise the ridge from Humpback Rock to the south shore. **Kalsin Reef**, 1.8 miles southwest from Humpback Rock, is awash at high water.

(269) **Vasilief Rock**, covered ½ fathom and marked by kelp, is about halfway between the south point of Woody Island and Refuge Island.

(270) **Inner Humpback Rock**, 0.5 mile 170° from the south point of Woody Island, is an 11-foot-high pinnacle. The area between Woody Island and Inner Humpback Rock is foul and foul ground extends 600 yards southwest of Inner Humpback Rock.

(271) A detached rocky patch, covered 3 fathoms and marked off its southwest side by a lighted buoy, is 0.6 mile west from the south end of Woody Island.

(272) A rock that uncovers is 0.4 mile southwest of Icehouse Point. A shoal, covered 3½ fathoms, is 600 yards 348° from the point. A rock that uncovers is between the 3½-fathom shoal and Bird Islet. The channel west of Woody Island is marked by buoys.

(273) **St. Paul Harbor**, the west part of Chiniak Bay between **Crooked Island** on the north and Cliff Point on the south, is fronted with many reefs and islets but affords a south passage to Kodiak.

(274) **St. Paul Harbor Entrance Light** (57°44'20"N., 152°25'48"W.), 38 feet above the water, is shown from a spindle tower with a red and white diamond-shaped daymark, 0.9 mile north-northeast of Cliff Point; a racon is at the light. A buoyed channel through the reefs is 500 yards north of the light. A lighted whistle buoy marks the approach to the channel.

(275) A 3½-fathom spot and a 4½-fathom spot are about 600 yards west and 900 yards south-southwest, respectively, from the light.

(276) **Puffin Island**, near the center of St. Paul Harbor, is 80 feet high, small, and grass covered. The end of the foul ground, extending 600 yards southwest from the island, is marked by a lighted bell buoy.

(277) The west part of St. Paul Harbor is bordered by dangerous reefs and shoals up to 0.6 mile offshore.

(278) **Gull Island**, 0.5 mile west of Near Island, is 24 feet high and narrow. A shoal extending 350 yards southwest from the south point of the island is marked at the west extremity by a lighted buoy. The foul ground north of the island is marked by a lighted buoy about 260 yards off the north point. More foul ground, marked by a buoy at the outer extremity, extends about 300 yards southeast of the island.

(279) **Kodiak** is the fifth largest and one of the oldest towns in Alaska; the domes of the old Russian church are conspicuous. Most of the people are employed in the fishing industry.

(281)

Weather, Kodiak Vicinity

(282) Kodiak has primarily a marine climate that is exemplified by the limited daily and annual temperature ranges. For instance, the mean annual temperature is about 30°F (-1.1°C). The normal monthly temperature is less than 32°F (0°C) for December through February and 50°F (10°C) or higher, July through September. During the summer, the mean air temperature closely approximates the mean sea surface temperature, rising slightly above it during August but falling below again in September. In winter, the mean maximum air temperature more closely resembles the mean sea surface temperature curve. Because of the proximity of a large landmass to Kodiak, the absolute temperature range is 102°F (about 39°C) regardless of the marine influence. In summer, maximum temperatures will vary 10°F to 20°F (-12.2°C to -6.7°C), depending on whether the northwest gradient is strong enough to maintain a flow of air from over the island or whether it is weak enough that the sea breeze predominates. The highest daily maximum temperatures occur with northwest winds in the summer.

(283) Precipitation is normally abundant throughout the year. Maximums normally occur in September and October with April and July the driest months. All months, however, have a wide variation in the amount of precipitation. The normal annual precipitation is over 65 inches (1651 mm) but ranges from about 38 to 95 inches (965 to 2413 mm). A very high percentage of the precipitation falls during northeast to southeast winds. Small amounts of snow may fall as late as May or as early as September with good ground cover anticipated in November. The mean annual snowfall is about 75 inches (1905 mm) with extremes of 178.1 inches (4523.7 mm) in 1956 and 15.9 inches (403.9 mm) in 1945. Precipitation measurement is often difficult due to strong, gusty surface winds that frequently accompany precipitation. Drifting and blowing snow occasionally close the airfield for periods of up to twenty-four hours.

(284) Although the prevailing winds direction is northwest every month except June and the average speed is about nine knots, these data may be misleading because of the extreme variability in both direction and speed. The maximum gust recorded at the station was 99 knots in January 1950. However, Coast Guard cutters docked in Womens Bay reported williwaw winds off Old Womens Mountain in excess of 120 knots in January 1973. Gusts of over 50 knots have occurred during each month of the year but are most likely to occur in the winter months. An average of eight storms each year brings winds in excess of 55 knots with the average duration of gusts in excess of 55 knots about eight hours per storm.

(285)

Prominent features

(286) The north part of Kodiak Island west of Chiniak Bay is mountainous; there are several prominent peaks near the shore. Spruce Cape, Cape Chiniak and the islands overspreading the north part of the bay are comparatively low.

(287) **Devils Prongs**, 2 miles northwest of Kodiak, are three prominent peaks that appear nearly equal in height

approaching from southeast; the middle one is flat on top and the north prong is 2,075 feet high and sharp.

(288) **Pillar Mountain**, a short 1,274-foot ridge, rises steeply from the shore back of Kodiak.

(289) **Barometer Mountain**, 5 miles southwest of Kodiak and 2 miles inland from the west shore of Chiniak Bay, is 2,488 feet high and a useful guide in clear weather for the north approach. A notch shows the west side of its summit from north. An aerolight, 1.5 miles east of Barometer Mountain, is 178 feet above the water and useful in the approach to Chiniak Bay when it is not obscured by the islands to the northeast and the mainland to the south.

(290) The gantry crane at the Container Terminal, 1 mile west-southwest of Kodiak, and the landslide just northeast of the terminal are prominent when approaching Kodiak from the south.

(291)

Channels

(292) There are three marked approaches to the wharves in **Kodiak Harbor**. The northerly approach is north of Woody Island and Near Island. The 200-foot-wide dredged channel north of Near Island had a controlling depth of 21.5 feet in 2009. The southerly approach can be taken by transiting south of Long Island, west of Woody Island and north of Near Island. The other option is to transit south of Long Island, southwest of Puffin Island and thence through St. Paul Harbor west of Gull Island.

(293)

Anchorages

(294) **Inner Anchorage**, locally known as Winter Anchorage, is 0.4 mile west of Kodiak, 250 to 300 yards off the Kodiak Island shore. In 1985, the City of Kodiak declared that vessels do not anchor within this area due to possible fouling and damage to the waste water discharge lines of the canneries in the vicinity. (Kodiak City Ordinance No. 653, §18.28.190(g) applies.) The mooring buoy in the anchorage, still in use, has capacity for mooring large vessels. Other vessels may anchor just outside the Inner Anchorage, location depending on weather conditions and vessel size; however, never anchor in or near the cable area crossing the narrow passage between Near Island and Kodiak. Anchoring information is available from the **harbormaster** who monitors 4125 kHz and VHF-FM channels 12, 14 and 16.

(295) A fixed highway bridge with a clearance of 101 feet crosses Kodiak Harbor, connecting Kodiak and Near Island.

(296)

Dangers

(297) Chiniak Bay and approaches are full of dangers that must be avoided.

(298) The March 1964 earthquake caused a bottom subsidence of 5.8 feet at Kodiak. Until a complete survey is made of the area, caution is necessary because depths may vary from those charted and mentioned in the Coast Pilot.

(299)

Routes

(300) From Northward: In coming from Narrow Strait, pass 1 mile north of Hanin Rock Light, thence east of Hutchinson Reef Lighted Whistle Buoy 4, and then follow the buoyed channel north of Woody and Near Islands to Kodiak Harbor. From Marmot Strait, a **206°**course will enter Chiniak Bay east of Hutchinson Reef Lighted Whistle Buoy 4, then follow the buoyed channel to Kodiak Harbor. The routes from north pass over or near a 5½-fathom spot northeast of Spruce Cape that has not been examined with the wire drag.

(301) From Northeastward: Keep north of the line to Spruce Island summit bearing **294°** until the cliffs near the southwest end of Long Island are well open west of the sheer cliff at its northwest corner. Then steer **241°** for about 4 miles with Barometer Mountain ahead and Spruce Cape slightly to the right. This course passes east of Hutchinson Reef Lighted Whistle Buoy 4, thence through the buoyed channel to Kodiak Harbor.

(302) The north approach to Kodiak Harbor is not difficult in clear weather but is dangerous at night or in thick weather. Exercise care to avoid Williams Reef and the other dangers in the entrance. Depths are irregular in the approach so that surroundings cannot be relied upon as a guide to the entrance or to avoid danger.

(303) The narrow passage north of Near Island leading to Kodiak Harbor requires careful piloting: strangers should not attempt it without thorough knowledge of the dangers and tide and current conditions.

(304) From Eastward and Southward: Enter Chiniak Bay north of Humpback Rock Lighted Whistle Buoy 1, then follow the buoyed channel through the reefs north of St. Paul Harbor Entrance Light and St. Paul Harbor to Kodiak Harbor. If it is desired to approach Kodiak Harbor through the narrows north of Near Island, use the buoyed channel west of Woody Island after entering Chiniak Bay north of Humpback Rock. Exercise caution to avoid Inner Humpback Rock and the dangers southwest of it.

(305) In approaching Chiniak Bay, the bank with a least depth of 4¼ fathoms, 3.5 miles southeast of Long Island, and the reefs extending from Humpback Rock southwest to the mainland should be avoided.

(306)

Currents

(307) In Chiniak Bay, the flood current sets northeast and the ebb current southwest with considerable velocity in places around the islands. In the north entrance, the tidal currents have a velocity of 2 to 3 knots during the strength of the larger tides. They turn sharply around Spruce Cape and across the reefs north of it.

(308) In the narrows off Kodiak, the current velocity is about 0.9 knot. The flood sets northeast. See the Tidal Current prediction service at *tidesandcurrents.noaa.gov* for specific information about times, directions, and velocities of the current at numerous locations throughout

the area. Links to a user guide for this service can be found in chapter 1 of this book.

(309)

Pilotage, Kodiak Harbor

(310) Pilotage, except for certain exempted vessels, is compulsory for all vessels navigating the inside waters of the State of Alaska.

(311) The Kodiak Island area is served by the Southwest Alaska Pilots Association. (See **Pilotage, General**, chapter 3, for the pilot pickup stations and other details.)

(312) Vessels en route to Kodiak or Womens Bay can contact the pilot boat by calling "KODIAK PILOT BOAT" or "BRIAN T" on VHF-FM channel 16 or on a prearranged frequency between pilot and agent/vessel.

(313)

Quarantine, customs, immigration and agriculture quarantine

(314) (See chapter 3, Vessel Arrival Inspection, and Appendix A for addresses.)

(315) **Quarantine** is enforced in accordance with regulations of the U.S. Public Health Service. (See Public Health Service, chapter 1.)

(316) Kodiak is a **customs port of entry.**

(317) **Coast Guard Base Support Unit Kodiak** is in Womens Bay, 5 miles southwest of Kodiak. It is described later in this chapter. **Coast Guard Air Station Kodiak** is located at the Base Support Unit.

(318)

Wharves

(319) The waterfront facilities at Kodiak consist of three deep-draft municipal wharves, administered by a Port Director; a small-boat harbor, administered by a **harbormaster**; and many private wharves used mostly by the fishing industry.

(320) **Kodiak City Pier 3, Container Terminal:** (57°46'53"N., 152°26'09"W.): a wharf 1 mile southwest of Kodiak; 490-foot face; 880 feet of berthing space with dolphins; 38 feet alongside; deck height, 19 feet; one 27½-ton gantry crane; receipt and shipment of containerized cargo and automobiles; mooring cruise ships, fishing vessels and other vessels; storage space for 375 containers; owned by the City of Kodiak and operated by Horizon Lines.

(321) There is a heavy surge at the Container Terminal during and after southwest through southeast gales.

(322) **Kodiak City Pier 2, Container Terminal:** a wharf 0.4 mile northeast of City Pier 3, contiguous with Fisherman's Wharf; 760-foot face; 910 feet total berthing space; 38 feet alongside; deck height, 19 feet; handling supplies and equipment for fishing vessels; and mooring cruise ships, fishing vessels and other vessels; owned by the City of Kodiak and operated by Horizon Lines; the Port Director's office is on this wharf.

(323) A T-pier, just northeast of the Kodiak City Pier 2, has a 125-foot face and 180 feet total berthing space. Depth alongside is 35 feet and deck height is 18 feet. The pier is used for the receipt of petroleum products and bunkering vessels; gasoline, diesel fuel and water are available. Pipelines extend from the wharf to storage tanks in the rear with a total capacity 35,700 barrels.

(324) There are many cannery wharves from the Union Oil Pier northeast to the small-boat harbor.

(325) **St. Paul Harbor**, a small craft harbor just southwest of downtown Kodiak, is protected by two breakwaters. A light marks the outer end of the west breakwater. In 2009, depths of 5 to 12 feet were available in the basin. The basin has berthing space for 250 vessels; contact the harbor office (907–486–8080) for berthing assignments. Electricity and water are available at the floats. Two wharves, a boat grid and a launching ramp are available. The basin is owned and operated by the City.

(326) **Star of Kodiak Wharf:** East of the small-boat harbor; 275 feet of berthing space, 30 feet alongside; deck height, 20 feet, receipt of seafood; owned and operated by Trident Seafoods Corp.

(327) The STAR OF KODIAK, a grounded 430-foot ship, is used as a seafood processing plant and cannery.

(328) **Alaska State Ferry Terminal, City Pier No. 1:** a wharf just northeast of the STAR OF KODIAK; 204-foot face; 28 feet alongside; deck height, 19 feet; landing for passenger and vehicular ferry; receipt of petroleum products; fueling vessels; handling supplies and equipment for fishing vessels; pipelines extend from wharf to storage tanks in rear, total capacity 42,400 barrels; owned by the City of Kodiak and operated by the state and Petro Marine Services.

(329) Vessels moored at the Ferry Terminal must be attended by a crew member at all times and be capable of moving on notice. No vessel may moor at the wharf when the amber light on top of the terminal building is flashing.

(330) **City of Kodiak, Transient Float:** 200 yards east of the Ferry Terminal; 425 feet of berthing space; 28 to 30 feet alongside; mooring transient vessels; owned and operated by the City of Kodiak.

(331) Berthing assignments at the transient float are made by the harbormaster; his office is on the northeast side of the small-boat harbor.

(332) There are more private commercial wharves northeast of the transient float for a distance of about 700 yards.

(333) **St. Herman Harbor**, a small boat harbor near the head of **St. Herman Bay**, known locally as Dog Bay, is between **Uski Island** and **Near Island**. The harbor has a north and south entrance, both marked by lights. The south entrance is protected by two breakwaters. In 2009, the controlling depth was 1¾ fathoms in the north entrance channel and 3¼ fathoms in the south entrance channel. The basin has space for 325 vessels.

(334) The National Marine Fisheries has a pier and Ocean Beauty Seafoods has a wharf in Gibson Cove, 1.3 miles southwest of Kodiak. There is a heavy surge in the cove during northeast through southeast gales. The entrance to the cove is foul, with rocks on either side.

(335)

Supplies

(336) Marine supplies and provisions are available in limited quantities. Water, gasoline and diesel fuel are available at North Pacific Fuel and Petro Marine Services at the Ferry Terminal and just east of the Ferry Terminal.

(337)

Repairs

(338) General repairs can be made by local machine, electronic and welding shops.

(339)

Communications

(340) Freight vessels call weekly. Alaska Marine Highway System has ferry service to Seward, Seldovia, Homer, Dutch Harbor and connecting ports. Air transportation is frequent daily to Anchorage and once daily to Seattle from Kodiak State Airport, which is about 5 miles southwest of town. Charter air services are available at Kodiak Municipal Airport in town.

(341) Telephone, radiotelephone and radiotelegraph communications are maintained.

(342)

Womens Bay

(343) **Womens Bay**, southwest of St. Paul Harbor at the extreme west end of Chiniak Bay, is the site of the Coast Guard Base Support Unit.

(344) The navigable waters and seabed of Womens Bay are an active military site managed by the **U.S. Coast Guard Base Kodiak**. Temporary use of less than 24 hours does not require advanced permission. For use beyond 24 hours, contact the Commander of the U.S. Coast Guard Base Kodiak at PO Box 195000 Kodiak, AK 99619.

(345) Womens Bay is frequently blocked by ice in midwinter and vessels may experience high wind coming off of Old Womens Mountain. The area routinely experiences storms with winds in excess of 55 knots during the winter months.

(346)

Naval Defensive Sea Area and Airspace Reservation

(347) Under the authority of Executive Orders 8717 of March 22, 1941, 8597 of November 18, 1940 and 9720 of May 8, 1946, the area in and about Womens Bay is a designated Naval Defensive Sea Area and Airspace Reservation. Restrictions imposed under the authority of the above executive orders have been suspended subject to reinstatement without notice at any time that the interests of national defense may require such action.

(348)

Channels

(349) The entrance to Womens Bay is obstructed by numerous and extensive rocks and reefs; some are awash at extreme low water while others are up to 6 feet high. A 400-foot-wide channel passes through this foul area northwest of Zaimka Island to deeper water inside. The channel is marked by lighted and unlighted buoys and a **211.1°** lighted range. In 2008, a depth of 28 feet was available in the channel.

(350) In the winter, buoys are often moved off station due to ice floes.

(351) **Cliff Point**, on the south side of the entrance to Womens Bay, is the end of a prominent 192-foot-high headland that is covered with grass and scattered brush; two prominent pinnacle rocks are among the reefs east of the point. Broken ground and rocks extend about 0.5 mile northeast of the point. **Cliff Island**, 0.3 mile north of Cliff Point, is small and 62 feet high with steep cliffs on all but the southeast side; pinnacle rocks are on the northeast and south sides.

(352) **Zaimka Island**, the largest of the islands at the entrance to Womens Bay, is 151 feet high, bordered with cliffs and covered with bushes and grass. **Blodgett Island**, 0.7 mile southwest of Zaimka Island, is 70 feet high.

(353) **Nyman Peninsula**, on the west side of the entrance to Womens Bay, forms a protected inner bay. A radio tower is located on the southwest side of the peninsula and becomes visible when viewed from approximently 180 degrees true and greater, but is otherwise obscured by vegetation to the east and northeast. **Nyman Spit**, a submerged sandspit, extends about 800 yards southeast from the south end of the peninsula; a lighted buoy marks its outer end.

(354)

Currents

(355) In the outer part of Womens Bay, the currents follow the general direction of the channel, flowing SW on the flood and northeast on the ebb with a velocity of about 1 knot. An eddy has been reported north of Blodgett Island that will set a vessel to the south at the strength of an ebb current; this should be guarded against. Also, the ebb current flows northeast across Nyman Spit. Ships passing near the spit at such a time might experience a set onto it. There are marked eddies near **Frye Point** at the west end of Womens Bay. Although deep water is close to this point, ships should guard against passing too close to it.

(356)

Routes

(357) Vessels entering Womens Bay may approach from northeast through Woody Island Channel and north of St. Paul Harbor Entrance Light, thence follow the marked channel southwest into Womens Bay. From east and south, the approach is the same as that for the south approach to Kodiak until St. Paul Harbor Entrance Light is passed, then follow the dredged channel into the bay. Special note should be taken of Nyman Spit, which extends 700 yards southeast of Nyman Peninsula and is marked by a lighted buoy.

(358) Large vessels are strongly recommended not to navigate the channel to or from Womens Bay and between the shoal waters of St. Paul Harbor entrance after dark or during low visibility unless a qualified pilot

is on board or the master assumes full risk. It is also not recommended for vessels to enter or depart from Womens Bay and between the shoal waters of St. Paul Harbor during periods of wind velocities of 35 knots or more, except in emergencies or extreme necessities.

(359)

Caution

(360) Vessels with a masthead height of 138 feet or more are in danger when entering or exiting Kodiak/St. Paul Harbor when the Kodiak Airport/Kodiak Coast Guard Air Station is using Runways 1/19 and 8/26 during low visibility landings/arrivals (refer to the Alert Area). Mariners are strongly urged to contact the Federal Aviation Administration Anchorage Air Route Traffic Control Center at 907-269-1103 to alert air traffic of their presence approximately 30 minutes before transiting the channels.

(361)

Wharves

(362) The Coast Guard's waterfront facilities are in Womens Bay on the northwest side of Nyman Peninsula. They consist of two deep-draft piers. Marginal Pier, about 600 yards long along the southwest shoreline of Nyman Peninsula, is in disrepair and not used. The Coast Guard facilities are used only by U.S. Government vessels and commercial vessels handling military cargoes. Mooring spaces are assigned by the Port Services Office, Coast Integrated Support Command Kodiak.

(363) **Coast Guard Fuel Pier:** 900 yards north of the southernmost tip of Nyman Peninsula; 570 feet long; deck height, 18 feet; water, electricity and fuel for government vessels are available. Alongside depths are deeper on the north side of the pier.

(364) **Coast Guard Cargo Wharf:** 500 yards north-northeast of the Coast Guard Fuel Pier; 1,088-foot face; 28 feet alongside; deck height, 18 feet; 5 berths available for government vessels; water and electricity are available; receipt of military cargo. A small-craft floating dock is alongside the southeast face of the pier between the pier and shore.

(365) **Seaport Terminal Services Wharf:** about 500 yards northwest of the Coast Guard Cargo Pier; 1,200-foot face; 15 to 30 feet alongside; deck height, 14 feet; cranes to 150 tons; receipt and shipment of conventional general cargo; handling supplies and equipment for fishing vessels; and mooring vessels; owned by LASH Corp. and operated by Seaport Terminal Services, Inc.

(366)

Local magnetic disturbance

(367) Differences of as much as 20° to 40° from the normal variation have been observed just off the Coast Guard Cargo Pier.

(368)

Middle Bay to Isthmus Bay

(369) **Middle Bay**, between Cliff Point and Broad Point, is exposed to northeast weather. **Viesoki Island**, near midentrance, is 101 feet high, small, and flat topped with sheer rock bluffs. A rock that uncovers is 0.4 mile northeast from the island.

(370) **Broad Point** is the end of a long peninsula separating Middle Bay from Kalsin Bay. Broken ground with some dangers extends 1 mile north from the point.

(371) **Kalsin Bay**, the largest indentation in the southwest side of Chiniak Bay, provides anchorage for large and small vessels. The low valley between Kalsin Bay and Ugak Bay, 9 miles southwest, is used as a portage.

(372) **Queer Island**, **Kalsin Island** and other small islands in the west part of the entrance to Kalsin Bay are surrounded by foul ground. A large expanse of reefs and small islands overspreads the east part of the bay.

(373) The foul ground can be avoided by entering Kalsin Bay 0.8 mile southeast of Queer Island, then favoring the west shore. The recommended anchorage is 2 miles from the head about 0.5 mile off the east shore in 9 to 10 fathoms; this anchorage may be untenable during a northeast storm. Caution is necessary to avoid the rock that uncovers 9 feet on the west side of the bay and the rock that uncovers 4 feet on the east side of the bay.

(374) A well-defined channel along the east shore of Kalsin Bay leads to a V-shaped cove southeast of **Svitlak Island**, where excellent anchorage for small vessels is afforded in any weather.

(375)

Routes

(376) To reach the V-shaped cove southeast of Svitlak Island from a position 1.2 miles **000°** from Cape Chiniak Light, steer **267°**, heading for **Kekur Island** with **Middle Island** summit on range, until the sharp point on the west end of Isthmus Bay bears **191°**. Then turn left to course **240°** and head for **Utesistoi Island**, south of Svitlak Island, until abeam of the north end of Svitlak Island. Then turn left to **220°** and head for the point at the south entrance of the cove until Utesistoi Island bears four points on the starboard bow. Then steer **180°**and anchor in 6½ to 7 fathoms 400 yards off the south shore. To go farther into the cove requires local knowledge. The channel abreast Svitlak Island is narrow with shoal water on both sides; caution should be exercised to avoid depths of less than 10 fathoms. The shoal water on the east side of the channel is extensive and surrounds the point forming the north limit of the cove.

(377) **Isthmus Bay**, just east of Kalsin Bay, affords anchorage for vessels in south weather. The range of Kekur Island and the summit of Middle Island, course **267°**, clears the dangers off the east end of Isthmus Bay. In an emergency, a vessel may be beached on the sand at the head of the bay.

(378)

Kodiak Island, southeast coast

(379) **Kodiak Island**, **southeast coast:** A comprehensive survey was made of the waters along the southeast coast of Kodiak Island to and including part of Albatross Bank. A vessel equipped with echo sounding apparatus would be aided in determining its position by soundings taken while cruising over this area.

(380) The shoaler, outer parts of two extensive submarine plateaus form Albatross Bank. A trough of deep water lies between them and branches extend into both entrances of Sitkalidak Strait and toward Sitkinak Strait. A very regular trough, northeast of Albatross Bank, leads directly from seaward to Chiniak Bay.

(381) A depth of 8 fathoms, rocky bottom, is in 56°22.5'N., 152°56.0'W. on Albatross Bank.

(382)

Cape Chiniak to Gull Point

(383) **Cape Chiniak**, the southeast point of Chiniak Bay, is low and wooded for 0.8 mile back and then rises to higher land. **Chiniak Island**, 0.5 mile northeast of the cape, is flat and grass covered; numerous high bare rocks extend 1.1 miles northeast from it. **Cape Chiniak Light** (57°37'41"N., 152°09'12"W.), 120 feet above the water, is shown from a skeleton tower with a diamond-shaped red and white daymark on the northwest side of the island. An anchorage, 1.3 miles northwest of Cape Chiniak Light, provides protection from south weather in 18 to 20 fathoms. The cape should be cleared by 1.5 miles to avoid the offshore rocks.

(384) **Cape Greville**, 2 miles south of Cape Chiniak, is fronted by several rocky islets. Broken bottom extends 0.8 mile northeast from the cape. In approaching from the vicinity of Ugak Island, Cape Greville should not be mistaken for Cape Chiniak.

(385) The land is thickly wooded for about 5 miles south from Cape Chiniak, then to Narrow Cape it is bare except for scrubby brush in the gulches and valleys and some grass and scattered clumps of small spruce trees on the lower slopes. The valley, 8 miles south of Cape Chiniak, terminates in a sand beach.

(386) Submerged rocks and rocks awash extend up to 0.5 mile offshore for 8 miles south from Cape Chiniak, then they extend up to 1 mile offshore to Narrow Cape; there is thick kelp in the vicinity of Narrow Cape. Outside these areas the bottom is mostly sand and gravel with some rocky sections off the points. No anchorages are recommended along this coast.

(387) A 10-fathom bank is 8.3 miles **166°** from Cape Greville.

(388) **Narrow Cape**, 13 miles south from Cape Chiniak, is flat but gradually drops close to sea level about 0.3 mile back of the cliff, having the appearance of an island when seen off Cape Chiniak. From this low part, grassy slopes with a few scattered spruce trees roll gradually upward to the mountains north of Ugak Bay. The southeast face of the cape is an abrupt grass ½ topped cliff, 165 feet high and 1.1 miles long.

(389) A **rocket launch facility** is located at Narrow Cape. **Safety zones** are established by the USCG COTP for the safety of vessels operating near Narrow Cape during launch activity. These safety zones are closed to vessel traffic during the hours of anticipated launches and are announced in the Local Notice to Mariners and Broadcast Notice to Mariners. Inquiries should be directed to USCG MSD Kodiak, AK 907-486-5918 or Sector Anchorage, AK 907-428-4200 for specific details.

(390) The pass between Narrow Cape and Ugak Island sees large numbers of whales at certain times of year. Mariners are advised to slow down and operate with caution to avoid unintended whale strikes.

(391) **Ugak Island**, 2.5 miles off Narrow Cape, is discernible against the distant background of higher mountains from well out to sea. A ridge over 1,000 feet high runs the full length of the island close to the offshore side. The shore is steep and rocky and fringed with rocks and reefs, except at the northwest end where a grassy slope spotted with a few scattered spruces descends gradually to a sandspit. Thick kelp surrounds the entire island in the summer.

(392) A bar, composed of rock and sand, extends from Ugak Island to the south tip of Narrow Cape; the least found depth near the middle is 6½ fathoms. The passage is considered safe for moderate-sized vessels. It is regularly used by fishing boats of 8½- to 10½-foot drafts. Tide rips are experienced, particularly on and near the bar, except at slack water. These rips increase with strong northeast winds, producing breakers and causing the false impression that the passage is foul. At such times the passage is dangerous for small craft.

(393) The **current** floods northeast through the passage between Ugak Island and Narrow Cape. There are strong cross currents north and south of Ugak Island and tide rips near the shore.

(394) If the passage south of Narrow Cape is used to Ugak Bay, avoid the rock awash at minus tides 0.7 mile southwest of the south tip of Narrow Cape, a rocky 4½-fathom shoal 3.6 miles west of the cape and a ½-fathom rock 6.6 miles west of the cape.

(395) **Ugak Bay** has its entrance between Pasagshak and Gull Points and extends west about 19 miles; its inner end branches into a basin at the north and a narrow arm at the south. In entering, vessels should pass south of the ½-fathom rock a little north of midentrance. Depths of 40 to 55 fathoms will be found 1 mile off the points along the south shore from the entrance to Saltery Cove, then the bottom abruptly shoals to about 16 fathoms and deepens again to about 45 fathoms near the junction of the basin and arm at the head of the bay.

(396)

Local magnetic disturbances

(397) Magnetic boat compasses have been observed to swing 15° to 180° in Ugak Bay.

(398) **Pasagshak Point**, 4 miles west of Narrow Cape, is a prominent, narrow mountainous headland 894 feet high. The point presents the appearance of a pyramid when viewed from the southwest.

(399) **Pasagshak Bay** is rectangular shaped, 1 mile wide at its entrance and has its east side formed by Pasagshak Point. It is shallow a short distance inside and exposed to any existing swell.

(400) **Long Island**, the 127-foot-high island off the north shore of Ugak Bay west of Pasagshak Bay, is rocky and grass topped. It is surrounded by a reef and numerous rocky islets. Foul ground is between the island and the north shore and 1.2 miles southeast of the island.

(401) **Portage Bay** is the rounded bight 4.5 miles west of Pasagshak Bay. This bay is identified by a small flat-topped, sheer-bluff islet 42 feet high in the middle of the entrance and a pinnacle rock 34 feet high 270 yards southwest from it. Both are surrounded by deep water. The bottom has a gentle slope toward the head of the bay.

(402) **Eagle Harbor** is an open cove on the south side of Ugak Bay, 5.5 miles from the entrance. Its northwest point is marked by two pinnacle rocks. At the northwest shore of the cove are several shacks of the deserted village of **Eagle Harbor**. There is no secure anchorage here. The cove is exposed to east swells.

(403) Between Portage Bay and Kalsin Bay and between Eagle Harbor and Shearwater Bay are portages.

(404) **Saltery Cove**, on the north shore of Ugak Bay and 8.5 miles above the entrance, is a half-moon-shaped bight. It is marked on its east extremity by a reef point surmounted by a pinnacle rock 32 feet high. The cove has a gently sloping sand and mud bottom but shoals abruptly to flats along the shore. A rock is just outside of the flats near the head of the cove. The recommended anchorage is along the 10-fathom curve near the east end of the bight. This is regarded as the best general anchorage in Ugak Bay.

(405) **Hidden Basin**, the north branch at the head of Ugak Bay, has a slightly curving bottle-neck entrance. The controlling depth through the approach is only 5 feet. The channel is along the west shore of the approach. Strong currents are encountered in the entrance. Depths charted in the approach to the basin are reported to be inaccurate; this and the swift and turbulent current during periods of maximum and minimum flood make the entrance hazardous.

(406) The south branch at the head of Ugak Bay is about 7 miles long and about 0.5 mile wide. A rock, which bares 5½ feet at about half tide, is near the middle of the constricted part of the arm. The channel is south of the rock, which may be avoided by keeping 200 yards off the south shore in 10 fathoms.

(407) **Gull Point** and the point 1.8 miles south have bold rocky faces with islets of massive rock close by. The small cove on the south shore of Ugak Bay west of Gull Point provides anchorage for small boats in south weather. A sand beach is at the head.

(408) The cove about 3 miles south of Gull Point is connected by a tidal channel to a marsh which is flooded at high tide. The bottom at the entrance to the lagoon and along the beach for about 1 mile north is sandy and apparently free from rocks. A rock, covered 2½ fathoms, is 0.8 mile northeast from the rocky point at the south end of the cove.

(409)

Dangerous Cape to Knoll Point

(410) **Dangerous Cape**, on the southeast coast of Kodiak Island between Ugak and Kiliuda Bays, is the south end of a ridge. On the south side of the cape is a bluff over 500 feet high. A large rock, about 30 feet high, is about 400 yards south of the cape.

(411) **Boulder Bay**, just west of Dangerous Cape, affords poor anchorage on hard sand bottom. There are numerous rocks several hundred yards offshore. These rocks are mostly submerged or awash at high water, and extreme care should be taken in navigating this bay.

(412) Inner and Outer Right Capes form a double cape 3.5 to 5 miles southwest of Dangerous Cape. **Outer Right Cape** is comparatively low with eroded bluffs about 100 feet high; however, landslides extend almost to the summit of the mountains along the coast 1 mile northeast of the outer cape. On a clear day these are recognized a long distance offshore. **Inner Right Cape** rises to 493 feet. Broken ground extends about 1 mile offshore between the outer and inner capes.

(413) **Kiliuda Bay** has its entrance between Left Cape and Inner Right Cape. It extends about 4 miles northwest and then about 6 miles west.

(414) Indenting the northeast side of Kiliuda Bay are Santa Flavia Bay and Shearwater Bay. The shore between these bays is fringed with islands and rocks.

(415) **Kiliuda Rock**, 2 feet high and about 1 mile west of Inner Right Cape, is on the range of the tangents of Inner and Outer Right Capes and about on the range of the small points along the west shore of Santa Flavia Bay. The rock is surrounded close-to by depths of 17 fathoms.

(416) **Santa Flavia Bay**, between Inner Right Cape and Ermine Point, is apparently clear in the center with depths of 12 to 15 fathoms, sand bottom, but is exposed to swells and seas accompanying southeast weather. Kiliuda Rock should be avoided in entering.

(417) **Shearwater Bay**, the northeast arm of Kiliuda Bay, is about 2.5 miles in extent. Rocks awash extend from either side of the entrance. In the entrance channel between the rocks there are depths greater than 20 fathoms for a width of 0.4 mile. The rocks extending 0.2 mile west of Pillar Point bare at low stages of the tide, and shoal water extends about 200 yards channelward from the outermost rock. Near the outer end of the group of rocks on the northwest side of the entrance is a dry patch of rock 3

feet high. The outermost rock uncovers and is 300 yards from the dry patch in a direction toward the head of the bay.

(418) **Pillar Point** marks the southeast side of the entrance to Shearwater Bay. A small islet is about 110 yards north of Pillar Point. **Bluff Point**, 0.5 mile farther inside the bay, is marked by the eroding bluff of a knoll that overlooks the lowland back of Pillar Point.

(419) The small enclosure, back of the narrow strip of land at Bluff Point, provides secure shelter for small craft with local knowledge.

(420) About 0.7 miles from its head, Shearwater Bay contracts to a width of about 0.4 mile between **Observation Point** and the opposing point on the southeast side. The ruins of a cannery are on Observation Point. Anchorage may be had about 0.3 mile beyond this contraction midway between the shores in about 6 fathoms, mud bottom, avoiding shoal water extending 200 yards north of the opposing point and the shoal depths adjacent to the flats along the northwest side at the head of the bay.

(421)

Routes

(422) **Routes, Shearwater Bay**, from the southwestward: Round Cape Barnabas 2 miles off and make good the following courses: (1) **331°** for 9.5 miles to Pillar Point bearing **069°**, 1.4 miles; this course passes 1.1 miles off Left Cape and heads for Shearwater Point. (2) **048°** for 1.4 miles to Pillar Point abeam, 0.5 mile; this course heads for the deteriorating cannery wharf at Observation Point. (3) **056°** for 1.6 miles to anchorage.

(423) From the northeastward: Round Dangerous Cape 3.5 miles and make good the following courses: (1) **276°** for 3.5 miles to Outer Right Cape (east end) bearing **000°**, 2.5 miles. (2) **305°** for 3.4 miles to Inner Right Cape bearing **052°**, 1.6 miles; this course heads for the tangent of the bold shore about 2 miles northwest of Left Cape. (3) **330°** for 3.8 miles to Pillar Point bearing **069°**, 1.4 miles; this course heads for Shearwater Point. Then follow courses (2) and (3) of the preceding paragraph.

(424) The north side of Kiliuda Bay is indented by an open bay about 1.2 miles wide between **Shearwater Point** and **Coxcomb Point**. Foul ground extends 0.3 mile from Shearwater Point to Coxcomb Point. A rock, 4 feet high, is 0.5 mile east of Coxcomb Point. The entrance channel is 200 yards east of this rock. A north course leads to the center of the open bay, which has a depth of 3 fathoms. The bottom has a gentle rise to an extensive sand beach at the head. A vessel may be beached here in the event of an emergency.

(425) A rock, 45 feet high and 0.5 mile southwest from Coxcomb Point, marks the outer limit of shallow depths. A triangular-shaped bank is outside the line drawn from the rock to Shearwater Point and north of **Pivot Point**. Anchorage depths on the bank are 14 to 17 fathoms, sand bottom.

(426) The point on the north side of Kiliuda Bay, about 3 miles to the west of Coxcomb Point, is a low grass-covered sandspit. The axis of a channel of deep water is 300 yards from the sandspit, and the 40-fathom curve is only 150 yards from the spit. Just south of this channel the depths are very irregular and the area should be avoided.

(427) **Left Cape** is a bold headland separating Kiliuda Bay from the east part of Sitkalidak Strait. The southeast face of the cape is covered with a series of long rockslides extending almost to the mountain summit back of the cape. Numerous boulders are close inshore, and submerged rocks fringe the cape.

(428) **Sitkalidak Island**, about 18 miles long, is adjacent to the southeast coast of Kodiak Island. The island is grass covered and in general devoid of trees. The easternmost mountain summit at Cape Barnabas is a good landmark from the east and southeast.

(429) **Sitkalidak Strait** borders both the north and west sides of Sitkalidak Island, separating that island from Kodiak Island. Sitkalidak Passage is the name applied to the narrow part of the strait.

(430) That part of Sitkalidak Strait north of the Sitkalidak Island extends from the east entrance between Dangerous Cape and Cape Barnabas to Sitkalidak Passage. The broken bottom northeast of Barnabas Rock has been surveyed and no dangers were revealed. This part of the strait is navigable by all vessels as far as Sheep Island and offers several secure anchorages. The controlling depth through Sitkalidak Passage is 7 feet. The passage and its east approach are marked by lights and a lighted buoy.

(431) During June and July thick fogs occur around the south end of Kodiak Island that sometimes last for several days. These fogs generally drift about the sea but frequently do not enter the strait and adjacent bays. The east entrance to Sitkalidak Strait is frequently clear when a thick fog is less than 1 mile offshore.

(432) **Cape Barnabas**, the east end of Sitkalidak Island, is marked by a conspicuous mountain 1,719 feet high. There are rockslides on the slopes of this mountain and a series of eroded bluffs along the northeast face. Submerged rocks and rocks above high water border around the cape and numerous kelp patches are several hundred yards offshore. In thick weather this cape is usually easier to pick up than Dangerous Cape.

(433) Vessels making Sitkalidak Strait from the southeast should pass Cape Barnabas 2 miles off and steer **321°**, heading for the northeast tangent of Left Cape until Table Island Light bears **195°**, then change course to **252°** and follow directions given below.

(434) **Barnabas Rock**, which uncovers about 3 feet, is 0.8 mile 075° from Table Island. The sea breaks over this rock at high tide when there is a moderate swell, but often in calm weather at high tide there is no indication of the rock. It has no kelp. The passage between the rock and Table Island is apparently clear and has been used by steam whalers operating from Port Hobron; but because of uncertain currents the passage is not recommended. The water between Table Island and Sitkalidak Island is foul with submerged pinnacles.

(435) **Table Island** is a flat-topped island about 100 feet high 2 miles west-northwest from Cape Barnabas. **Table Island Light** (57°11'20"N., 152°55'13"W.), 106 feet above the water, is shown from a small house with a red and white diamond-shaped daymark on the north end of the island.

(436) **Tanginak Anchorage**, the bight east of the entrance to McDonald Lagoon, is a good anchorage in south weather. A rock awash at low water is about 0.5 mile off the eroded bluff forming the west end of the bight. Shoal water is between the rock and the point.

(437) **McDonald Lagoon**, about 4.5 miles west of Table Island, almost divides Sitkalidak Island. It has a bottleneck entrance. A bar channel, 13 feet deep, is west of the ½-fathom shoal 0.2 miles northwest of the bottleneck and follows the north side of the west entrance point until about 200 yards west of the bottleneck; here it is necessary to avoid a small shoal making out from the north side of the point. Strong currents run in the entrance and in north weather the bar breaks all the way across. Small vessels with local knowledge may enter the lagoon which deepens inside and has good holding ground.

(438) **Port Hobron** is the second deep-indenting bay along the north side of Sitkalidak Island west of Table Island. The bay is a good harbor for all vessels except during a northeast gale, when a comparatively heavy sea enters the bay.

(439) A former whaling station and wharf in ruins are on the east side of Port Hobron.

(440) At the head of Port Hobron is a small settlement known as **McCord**. A cattle ranch is on the east shore.

(441) **Cathedral Island**, the largest island in Sitkalidak Strait, is in the middle of the strait at the entrance to Port Hobron. The island is 192 feet high and covered with grass. It is dome shaped, with steep eroded cliffs on all sides except on the south side. The best water is found passing south of the island.

(442) **Nut Island Light N** (57°12'13"N., 153°09'35"W.), 40 feet above the water, is shown from a square steel frame with a red and green triangular daymark 0.9 mile west from Cathedral Island.

(443) **Aberdeen Rock**, in the middle of Sitkalidak Strait 0.7 mile west of Nut Island, is covered 1 fathom. It is unmarked and breakers occur over it only in the heaviest northeast weather at extreme low tide.

(444) The recommended passage in the vicinity of the three midstrait obstructions, Cathedral Island, Nut Island and Aberdeen Rock, is to the south of them. To avoid Aberdeen Rock when using the passage and when in the vicinity of the rock, do not go north of the line between Nut Island Light and Bush Point Light 2. The passage north of the three midstrait obstructions is clear and is used by local craft. **Three Sisters Rocks**, near the north shore, are low; after passing south of these when bound west in the north passage, care must be taken to stand well over toward the north shore in the vicinity of Aberdeen Rock.

(445) **Amee Bay**, 2 miles west of Port Hobron, is clear in midchannel and offers fair anchorage, but violent williwaws blow out of this bay in south weather.

(446) **Shag Rock**, 6 feet high, is about 150 yards north of **Cub Island** which in turn is about 2.4 miles west of Cathedral Island. Shag Rock forms an important turning point for vessels using the narrow parts of Sitkalidak Strait. It is reported that on the rising tide a south set is noticeable between Shag Rock and Bush Point.

(447) **Bush Point** is on the north shore of the narrow part of Sitkalidak Strait 2.8 miles west of Cathedral Island. **Bush Point Light 2**(57°13'04"N., 153°13'01"W.), 20 feet above the water, is shown from a skeleton tower with a red triangular daymark on the south extremity of the point.

(448) **Midway Bay**, known locally as **Sheep Bay**, is that part of Sitkalidak Strait between the narrows at Bush Point and Sitkalidak Passage. **Sheep Island**, 50 feet high, covers the central part of Midway Bay. The bay affords the best anchorage in the general vicinity of the strait. The recommended anchorage for large vessels is between Sheep Island and Bush Point; small vessels usually anchor northeast of Sheep Island in 5 fathoms, sticky bottom.

(449) The through passage is south of Sheep Island. A shoal bar, strewn with boulders, extends west from the shoal area surrounding Sheep Island to the east end of the north shore of Sitkalidak Passage. The channel for entering Sitkalidak Passage borders the south side of the shoal area and bar. The shoal on the south side of this channel is marked by a lighted buoy. In 1993, a visible wreck was reported to be just north of the channel about 500 yards northwest of the buoy.

(450) **Sitkalidak Passage** separates the north end of Sitkalidak Island from Kodiak Island and is the link between the two sections of Sitkalidak Strait. The controlling depth is only 7 feet through the passage. The passage is fairly straight and about 1 mile long. Inside the east entrance the channel slightly favors the north shore; in the west half of the passage it slightly favors the south shore.

(451) **Sitkalidak Passage Light 4** (57°12'33"N., 153°16'33"W.), 30 feet above the water, is shown from a skeleton tower with a red triangular daymark on the north side of the west end of the passage.

(452)

Currents

(453) The currents seem to meet at Sitkalidak Passage under ordinary conditions of wind and weather, but in strong south weather the current occasionally flows northeast continuously. No current velocities have been measured, but it is estimated that the maximum velocity never exceeds 3 knots.

(454)

Routes

(455) From eastward, enter Sitkalidak Strait on a midchannel course. Proceed to 0.5 mile **163°** from the

(472)



Sitkalidak Strait and Old Harbor, Alaska
Image courtesy of the U.S. Army Corps of Engineers

east end of Cathedral Island, thence 600 yards south of Nut Island Light, thence 300 yards south of Aberdeen Rock, thence 150 yards north of Shag Rock, thence 175 yards south of Bush Point Light 2, thence 400 yards **155°** from the west end of Sheep Island, thence 200 yards northeast of Sheep Island Light 3, and leave Light 3 to port. From this point, make a slow left turn to enter the narrows, avoiding the shoals west of Sheep Island. Keep in midchannel through Sitkalidak Passage, favoring the southeast side opposite Sitkalidak Passage Light 4. Continue on a midchannel course through the southwest end of the strait.

(456) **Outer coast of Sitkalidak Island**.–For several miles west from Cape Barnabas, the outer coast is particularly bold and rocky and seldom free of breaking seas. A series of mountain peaks stands close to the rounded outline of this projecting coastal section.

(457) About 5 miles west of Cape Barnabas, a channel navigable by launches in moderate weather leads to a lagoon. Practically all of the lagoon dries at low water.

(458) **Partition Cove**, having a small islet in the center and separated from McDonald Lagoon by a low narrow neck of land, is foul.

(459) **Ocean Bay**, the pronounced indentation of the outer coast of Sitkalidak Island, has a wide sand beach several miles long. The waters adjacent to a long section of the beach are apparently free of rocks. A sheltered anchorage during prevailing southwest weather may be found in 4 fathoms in the lee of the prominent rocky point marking the south end of the sand beach.

(460) On the coastal ridge between Ocean Bay and Black Point are two tips, 1,715 feet and 1,527 feet high, between which the ridge sags in a smooth curve. This feature may be recognized from seaward even against the distant background of higher mountains.

(461) **Black Point**, the southwest end of Sitkalidak Island, is a low grass-covered cape sloping gently to the adjacent hills. It does not show darker than the surrounding country, but there are some low eroding bluffs around the cape and scattered boulders along the shore.

(462) A coastal shelf, approximately defined by the 27-fathom curve around Black Point, extends 4 miles offshore and spreads fan shaped about the point; very broken bottom exists on the shelf. Kelp is present throughout the shelf and becomes thick within 2.5 miles of shore. It is recommended that Black Point be given a berth of at least 4 miles.

(463) That part of Sitkalidak Strait west of Sitkalidak Island extends from its south entrance between Black Point and Twoheaded Island to Sitkalidak Passage.

(464) The most prominent point on the southwest end of Sitkalidak Island is at the west extremity of the coastal ridge back of the lowland in the vicinity of Black Point.

(465) **Ship Rock**, 6 feet high, is at the southeast entrance of Sitkalidak Strait. Vessels should give the rock a wide berth to avoid the broken bottom extending about 1.2

miles to the southwest. A shoal area with a depth of 4½ fathoms is 1.8 miles west of Ship Rock in 56°59'41"N., 153°25'50"W.

(466) **Puffin Island**, 75 feet high, is a grass-topped irregular mass of rock 0.6 miles northeast of Ship Rock. Several bare rocks, some of the pinnacle type, are near the island. The passages on either side of the island are not safe. The area within a quarter mile of Puffin Island on all sides is foul with kelp and breaks in larger swells.

(467) **Tallapoosa Shoal**, with a least depth of 7 fathoms in 57°02'20.1"N., 153°27'11.8"W is in the middle of the strait 3.5 miles northwest of Ship Rock.

(468) **Rolling Bay**, the first bay on the east side of Sitkalidak Strait from the south entrance, has a sand beach and tide lagoon at the head, and a valley leads to Ocean Bay. The bay offers protection from easterly winds, but is exposed to the prevailing southwest swell. Anchorage is afforded for large vessels on the centerline of the bay, just inside the point to the north in about 12 fathoms.

(469) A prominent rock, 83 feet high, having vertical sides and terminating in a dome-shaped top, is on the extensive reef projecting from the north point of Rolling Bay. A needle-top rock, 40 feet high, is near the point.

(470) **Sitkalidak Lagoon** is the upper part of **Natalia Bay,** the 5-mile inlet just north of Rolling Bay. The restricted entrance to the lagoon around the end of the spit is navigable only by small craft.

(471) **Natalia Peninsula**, the rectangular mountainous headland on the east side of Sitkalidak Strait opposite Cape Kasiak, has two knolls; one of these is at the northwest end of the headland, the other is at **Natalia Point**, the southwest end. A 3-fathom shoal is 0.5 mile off the headland.

(473) **Newman Bay** is on the east side of Sitkalidak Strait opposite Three Saints Bay. A 5-fathom shoal is 0.5 mile off the north entrance point. Several dangers are near the south shore. A 4-fathom shoal extends 400 yards north of the point at 57°06'12"N., 153°21'07"W. The point appears as an island from a distance. Anchorage is available in 8 to 9 fathoms in the center of the upper bay.

(474) **Old Harbor** is a native village on the west side of Sitkalidak Strait 1 mile from the west end of Sitkalidak Passage. A school and a trading post are in the village. The City Dock has an available berthing area of 386 feet with dolphins and is used by the Alaskan State Ferry System and fishing vessels. Commercial air service is available from Kodiak.

(475)

Pilotage, Old Harbor

(476) Pilotage, except for certain exempted vessels, is compulsory for all vessels navigating the waters of the State of Alaska.

(477) The Kodiak Island area is served by the Southwest Alaska Pilots Association. (See **Pilotage, General** (indexed), chapter 3, for the pilot pickup stations and other details.)

(478) Vessels en route to Old Harbor can contact the pilot boat by calling "OLD HARBOR PILOT BOAT" on VHF-FM channel 16 or on a prearranged frequency between pilot and agent/vessel.

(479) A **small-boat basin** has been dredged at the head of the unnamed cove on the W side of Sitkalidak Strait, about 700 yards north of Old Harbor. A marked dredged channel leads west from the strait to the basin. A diversion dike protects the basin on the north side, and a 240-foot-long groin on the south side of the entrance protects the channel from shoaling. In 2005, the controlling depth was 8 feet in the entrance channel and basin except for lesser depths in the vicinity of Daybeacon 3 and along the west edge of the basin. The basin will provide protected moorage at a 562-foot float with berthing space for approximately 40 vessels. At the northwest side of the harbor is a dock available for handling supplies and equipment for fishing vessels and fueling small vessels.

(480) Between Old Harbor and the round point on the opposite shore, Sitkalidak Strait narrows to about 0.5 mile. The west half of this part of the strait is a sandy shoal having depths less than 3 fathoms. Some piles are at the south end of the shoal, 450 yards east of the L-shaped pier, at Old Harbor. A small reef, which uncovers 4 feet, is 100 yards off the east shore of the strait opposite Old Harbor.

(481) **Barling Bay** is the first bay south from Old Harbor. In northwest weather violent williwaws blow out of the bay. The bay near its head affords excellent holding ground for small craft and is secure except in northwest weather. The anchorage for large vessels is just inside the entrance in about 13 fathoms.

(482) A broad grass-covered sandpoint projects into Sitkalidak Strait forming the south entrance point of Barling Bay. One mile south of the point and about 0.6 mile off the west shore of the strait are a cluster of dangerous rocks marked by kelp. The least depth over them is 1 foot at low water. The outermost rock is 0.9 mile **204°** from the point. The area between the rocks and the west shore is shoal.

(483) **Three Saints Bay**, on the west side of Sitkalidak Strait, affords anchorage at the head in 14 to 18 fathoms, mud bottom. At the entrance, which is between Cape Liakik and Cape Kasiak, a shoal borders the southwest shore.

(484) A spit, with some rocks awash, and covered 2¾ fathoms near its outer end, extends about 0.6 mile south-southwest of **Cape Liakik**. **John Island**, 90 feet high, is near the outer end of the spit, with another islet between it and Cape Liakik. Foul ground extends from John Island to a submerged rock 2.2 miles north and about 150 yards off the east shore.

(485) A course through the middle of the entrance leads between the shoal on the southwest shore and a 4-fathom shoal 0.5 mile north-northwest of John Island.

(486) The first Russian settlement on Kodiak Island was established on this bay in August 1784 and named for the vessel THREE SAINTS.

(487) The cannery on the sandspit on the west side of Three Saints Bay was destroyed by fire in 1931. The face of the cannery wharf remains. Depths at the wharf are 11 feet at the northwest corner, 4 feet about 5 yards farther inshore, and 24 feet at the downstream corner. Southeast of the wharf the low water shore areas extend beyond the line of the face of the wharf. A port landing is always made. With a heavy wind broadside on, it is impossible for a vessel under her own power to leave the wharf.

(488) An excellent anchorage for small vessels is in the cove formed by a long sandspit inside the entrance on the southwest side of the Three Saints Bay. A vessel about 65 feet long may anchor here.

(489) Two streams enter at the head of Three Saints Bay draining separate valleys. The south valley is said to have a trail leading across Kodiak Island to Uyak Bay.

(490) The three rocky peaks on the ridge that terminate at the headland at the turn of Three Saints Bay are locally known as **The Three Saints**. The peaks are over 3,000 feet high and when clear form a leading mark at sea for identifying the south entrance to Sitkalidak Strait.

(491) **Cape Kasiak** is a prominent headland on the west side of Sitkalidak Strait south of the entrance to Three Saints Bay.

(492) **Kaiugnak Bay** and **Kiavak Bay**, collectively known as **Wide Bay**, indent the west shore of Sitkalidak Strait between Cape Kasiak and **Cape Kiavak**. A small shoal of 3½ fathoms is 1 mile southwest of Cape Kasiak. A shoal of 2 fathoms is near the middle of the upper part of Kaiugnak Bay. A rock, which uncovers 5 feet, is 0.5 mile northeast of Cape Kiavak, and a rock awash, about 700 yards offshore, is about 1 mile northwest of the cape. There are two lagoons, one at the head of each bay; neither permits entrance except at high water. A large waterfall is in the northwest branch of Kaiugnak Bay.

(493) Anchorage for all weather except east gales is provided in the southwest part of Kaiugnak Bay. Large vessels should not proceed west of a line bearing S from the small island off the projecting point at the head of the bay.

(494) **Knoll Bay** is about 2.5 miles south of Cape Kiavak and north of Twoheaded Island.

(495) The coast from Cape Kiavak to the north entrance point of Knoll Bay is foul for 0.3 mile offshore. The coast and shore of the bay are fringed with covered and visible rocks, which extend about 0.2 mile offshore.

(496) **Knoll Point**, the south entrance point to the bay, is fringed with many dangers. A rock awash, marked by kelp, is about 0.4 mile east of the point, and a large group of rocks, with kelp close east, are about 0.5 mile south of the point.

(497) Anchorage in Knoll Bay may be had in 12 fathoms during west weather, and small craft may anchor under the bluff in the south corner of the bay. The bay provides no shelter from east or south weather; anchorage is not recommended in these conditions.

(498)

Twoheaded Island to Sikinak Strait

(499) **Twoheaded Island**, off the S extremity of the west shore of Sitkalidak Strait, rises to two irregularly rounded peaks; the higher, 1,837 feet, is northeast of the south extremity of the island, and the lower, 1,724 feet, is west. A ridge, 1,442 feet high, extends along the northeast part of the island.

(500) The coast of the island is bold and precipitous, particularly on the west and north faces, with numerous large boulders and rocks awash along the shores. Two bare rocks, 24 and 28 feet high, are near the southwest shore. The 28-foot rock is block shaped and the 24-foot rock is shaped like a finger pointing up from a heavy base.

(501) The passage north of Twoheaded Island, to Japanese Bay and Kaguyak Bay, has a channel width of 0.8 mile. In navigating the passage, vessels should avoid the foul area extending south of Knoll Point and favor Twoheaded Island.

(502) **Japanese Bay**, consisting of an inner and outer bay, is narrow and has its entrance 2 miles northwest of Twoheaded Island. A rock, covered 2 fathoms and generally not marked by kelp, is in the middle of the entrance. Broken bottom extends northeast of the rock to a group of large rocks, 60 feet high, which overspread the east part of the entrance. The east and west shores of the bay are fringed with many submerged and rocks awash. The channel for entering the bay is west of the 2-fathom rock.

(503) Vessels may anchor near the head of the outer bay. After entering proceed midchannel until the inner tangent of the group of large rocks in the entrance is in range with the outermost of the two high rocks off Twoheaded Island. Then anchor in 12 to 16 fathoms, mud bottom.

(504) The restricted entrance to the inner bay is about 190 yards wide. The channel curves around the end of the gravel spit but has a depth of 11 fathoms. A vessel may be beached on the north side of the spit. It has been reported that vessels should avoid anchoring northwest of the spit, as the holding ground is poor. Several vessels have reported being blown ashore in heavy northeast weather.

(505) **Cape Kaguyak** is about 2 miles southwest of Twoheaded Island and between them is the passage leading to Japanese Bay. The area in the vicinity of the cape is foul. The 163-foot rocky islet at the southeast tip of the cape has the appearance of a huge sun dial. The outermost danger is a rock, covered 1¾ fathoms, 0.6 mile northeast of the cape. **Kaguyak Bay**, immediately west of the cape, affords anchorage at the head of the bay in 6 to 9 fathoms from west and south winds. Larger vessels are afforded anchorage directly south of the bluff point on the north side of the bay in about 15 fathoms. With northeast winds small craft may find a fairly comfortable anchorage under the bluff on the southeast side of the head of the bay.

(506) The coast of **Aliulik Peninsula** from Cape Kaguyak to Cape Trinity, the southwest extremity of Kodiak Island, is bordered by foul ground. Extensive foul areas also surround Geese Islands and Aiaktalik Island which are along this coast. Geese Channel is not navigable except for small vessels with local knowledge. Ships proceeding along this coast pass through Sitkinak Strait. Old Kaguyak Bay and Russian Harbor provide anchorage for small vessels.

(507) The southernmost peak, 2,215 feet high, on Kodiak Island, is about 5 miles west of Cape Kaguyak. This detached mountain is regular in outline and forms a distinctive mark. From the mountain toward Cape Trinity is a long gradual slope.

(508) **Flat Island**, about 0.9 mile off the entrance of Old Kaguyak Bay and 6 miles southwest of Twoheaded Island, is flat topped and 119 feet high. This island has sheer rocky bluffs. A pinnacle rock, 38 feet high, and another rock outside of it, are close to the southwest end of Flat Island. The rocky reef extending 0.7 mile to the northeast shows in small groups of rocks.

(509) A channel is between Flat Island and the mainland; its width is narrowed by heavy kelp beds on either side.

(510) **Old Kaguyak Bay** affords protection to small craft in north weather. A rock, 28 feet high, is in the center of the entrance and a rock, which uncovers about 3 feet, is 100 yards southwest of the elevated rock. To enter pass between the elevated rock and Boot Point but favor the shore around Boot Point to avoid the rock that uncovers 3 feet. Anchor in about 3 fathoms, sandy bottom, a little north of the center of the bay.

(511) **Boot Point**, forming the west side of the entrance of Old Kaguyak Bay, is marked by a humped hill 496 feet high with sheer bluffs rising from the seaward side.

(512) About 0.5 mile southwest of the west extremity of the headland forming Boot Point are three islets close together. The middle islet is the most prominent, appearing as a series of sharp, rocky points from offshore rising to 41 feet at the north end. The islet 0.2 mile farther offshore is 19 feet high. The islet 0.1 mile inside is 10 feet high. The bay to the north of these islets and west of Boot Point is foul with rocks and kelp.

(513) **Geese Islands**, three in number, are flat in appearance, the east and highest is 150 feet high. The passages between the islands are dry at low tide and the area for 1 mile south of the islands is foul.

(514) A reef and shoal area extends 3.4 miles east from the east Geese Islands, terminating in a rock covered 14 feet. The rock breaks in a moderately heavy sea but not in ordinary weather. The reefs, 0.4 to 1 mile inside of the rock, bare 4 to 7 feet. It should be noted that the bottom shoals very abruptly in this locality.

(515) **Aiaktalik Island**, about 2.5 miles west of the westernmost of the Geese Islands, shows as two knolls; the east one, 308 feet high, is the sharper and higher. The area south of the island is foul with kelp for 1.5 miles offshore.

(516) A cylindrical grass-covered rock, 50 feet in diameter and 58 feet high, stands on the shore reef at the west end of Aiktalik Island.

(517) **Sundstrom Island** is just off the southwest end of Aiktalik Island. Several wart-like projections rise above the general level of the island, which is about 70 feet; the highest is 158 feet. The shores consist of rocky bluffs.

(518) The passage between Sundstrom and Aiktalik Islands should prove useful to small craft in that it avoids the whirlpools and tide rips around the southwest point of Sundstrom Island. Both sides of the narrow passage are lined with heavy kelp but the midchannel is clear of kelp and has a controlling depth of about 2½ fathoms.

(519) The passage between Aiaktalik and Geese Islands is navigable for small vessels and has a controlling depth of about 6 fathoms and width of at least 0.4 mile; the chart is the best guide.

(520) The passage between Kodiak Island and the chain composing Aiaktalik Island and Geese Islands, via Geese Channel and Russian Harbor, is used considerably by small local vessels.

(521) **Geese Channel**, the passage north of Geese Islands, has a controlling depth of 2½ fathoms. Shoals and reefs are scattered in the passage. Three buoys mark the channel; they are numbered from east to west. Heavy kelp marks the shoal patch 0.5 to 0.9 mile west of the west island of the Geese Islands.

(522) **Russian Harbor**, between Aiaktalik Island and Kodiak Island, is a temporary anchorage in moderate weather, in about 8 fathoms, hard sand bottom. There is but little shelter, and strong tide rips are frequent.

(523) In general it is difficult to make courses good passing through Russian Harbor because of the strong currents, swirls and eddies. **Aiaktalik Island Light 5** (56°43’53”N., 154°03’06”W.), 57 feet above the water, is shown from a square frame with a green square daymark on the north point of the island. A middle ground in Russian Harbor has a least depth of 2 fathoms.

(524) In **Aiaktalik Cove**, the seas and wind sweep around the point in moderate weather, making the cove an uncomfortable anchorage. The best anchorage for small vessels, affording excellent protection from the prevailing northeast weather, is on the Kodiak Island side of Russian Harbor. This anchorage is 0.8 mile north of the point 3.4 miles east of Cape Trinity, opposite a stretch of sand beach in a break of the shore reef. The anchorage is in 4 fathoms, soft sand bottom.

(525) **Sitkinak Strait** is the broad strait lying between Trinity Islands and Kodiak Island. It is navigable for large vessels.

(526) The east approach is marked by Geese Islands on the north and **Cape Sitkinak**, the east end of Sitkinak Island, on the south. As viewed from seaward, this end of Sitkinak Island shows as precipitous dark rock and shale bluffs dominated by two peaks or heads; the north one is 605 feet high and the south one is 821 feet.

(527) Two groups of two bare rocks are 0.5 mile and 1 mile off Cape Sitkinak. The outer group, light gray in

appearance, is 17 feet high, and the inner group is 13 feet high. Rocks awash are outside of the outer group of bare rocks.

(528) An extensive fan-shaped reef, the limits of which are marked by thick growing kelp, extends almost 2 miles east and south of the southeast point of Aiaktalik Island. It is made up of a rocky ledge with many individual rocks, most of which uncover. It is believed that the rock on which the PAVLOF struck is located near the edge of this reef.

(529) A bank of considerable extent, with a least depth of 4¼ fathoms, is near the middle of Sitkinak Strait about 2 miles north of Whirlpool Point.

(530) **Whirlpool Point**, north point of Sitkinak Island, is low, flat, and sandy. **Whirlpool Point Light** (56°37'00"N., 154°05'43"W.), 51 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on the point. The tower is reported to be a good radar target.

(531)

Currents

(532) The currents in Sitkinak Strait set west-northwest on the flood and east-southeast on the ebb. There are heavy tide rips in the strait particularly southwest and west of Aiaktalik Island. So far as observed, they are heaviest with a west wind and a flood current. The tide rips are often dangerous for small vessels. At times when the current opposes seas from east in the vicinity of Whirlpool Point, the seas become very steep. Current predictions for Sitkinak Strait may be obtained from the Tidal Current prediction service at *tidesandcurrents.noaa.gov*. Links to a user guide for this service can be found in chapter 1 of this book.

(533)

Routes

(534) **Routes, Sitkinak Strait**: A rocky ridge on Albatross Bank on which a depth of 8 fathoms was found, is in the seaward approach to Sitkinak Strait from the southeast. The ridge is about 42 miles 105° from the summit of Sitkinak Island and should be avoided in heavy weather.

(535) Enter the strait on a **270°** course passing about 4.3 miles north of Sitkinak Cape and 1 mile off Whirlpool Point Light. Continue on this course for 4 miles until Dolina Point bears **190°**. Then change to **000°** and continue to a position 2.2 miles west from Cape Trinity. Due regard must be had for the strong currents in this strait.

(536) If bound for Alitak Bay, follow routes given later in this chapter.

(537)

Albatross Bank to Nagai Rocks

(538) **Albatross Bank**, about 45 miles off the southeast coast of Kodiak Island, has depths of 8 fathoms to about 61 fathoms.

(539) An area, having depths of 12 to 20 fathoms and covering about 50 square miles, is between 153°00'W. and 153°20'W. and between 56°20'N. and 56°28'N. The bottom characteristics noted on this area include gray mud, fine black sand and gravel and rock. Kelp has been seen in this area at various times. On occasion, moderate tide rips have been noted.

(540) A rocky shoal is a short distance to the east of the large shoal just described. The depths range from 8 to 20 fathoms with a very irregular rocky bottom. The shoalest part, in 56°22.5'N., 152°56.5'W., is a sharp rocky ridge with a depth of 8 fathoms. Currents with a velocity of about 3 knots were observed in this area. It should be avoided in heavy weather because of possible breakers.

(541) A 16-fathom bank is in 56°40'N., 152°10'W. There may be less water. This shoal is separated from the shoals previously described by an extensive trough of deep water. This trough extends north, and branches extend into both entrances of Sitkalidak Strait and toward Sitkinak Strait.

(542) **Trinity Islands**, off the south end of Kodiak Island, consist of Sitkinak and Tugidak Islands inhabited by occasional hunters and fishermen in the summer and trappers in winter. An active cattle ranch is located on Sitkinak island, but the island has no permanent residents. Unsurveyed areas include the southwest coast of Sitkinak Island and all of Tugidak Island except the north end. Soundings in these unsurveyed areas are from reports.

(543) **Caution** - A group of rocks, historically known as Dry Rocks, located just to the south of the eastern tip of Tugidak Island and Tugidak Passage were used as a bombing target during World War II. There is the potential for the presence of spent and/or unexploded ordnance remnants in the area. Dry Rocks and the immediate vicinity surrounding it should be treated as a potential munitions and unexploded ordnance hazard area. The unexploded ordnance are potentially hazardous and mariners are advised against anchoring, dredging, or trawling in these areas due to their potential presence.

(544) The island beaches are heavy shingle, gravel and in places fine sand; a few alder bushes are on both islands. Landings are easy with offshore winds, but with any change the sea makes up rapidly. Water can be obtained from the ravines and pools on the islands.

(545) **Sitkinak Island**, the east island, is divided into two parts by **Sitkinak Lagoon**, which is navigable through the north entrance by small vessels, except during east swells or seas. The south entrance, fringed with rocks that uncover, should be attempted only with a calm sea; a small launch may enter at high water. The lagoon is a flat traversed by tidal channels, which are fairly deep near and inside the entrance, but the connecting channel between them is only 3 feet deep at high water. When viewed from the east, ranch buildings are visible on the north side of the lagoon, where the bluffs begin to rise.

(546) **Sitkinak Dome**, 1,600 feet high, prominent, and with a smooth rounded top, dominates the west side of Sitkinak Island. The terrain drops gradually from the dome to Whirlpool Point. A parabolic antenna is just northeast of the dome.

(547) Anchorage for large vessels is afforded in the wide bay to the northeast of Sitkinak Lagoon, in about 11 fathoms of water. On multiple occasions while surveying the area in 2016, NOAA Ship *Fairweather* anchored in the vicinity of 56°34'42"N., 154°01'30"W., and found good holding ground and shelter from southerly and westerly weather.

(548) The island east of the lagoon is composed of many hills, some of which are separated from one another by low valleys. The northwest side of the island, southwest of **Dolina Point**, is made up of earth cliffs several hundred feet high, broken by narrow ravines.

(549) The south coast of Sitkinak Island is foul and should be avoided. Kelp beds extend 0.5 to 2 miles off the east and south shores. A bank with its center 9.5 miles south-southwest from Cape Sitkinak has not been fully surveyed. The bank has depths of 11 fathoms to 20 fathoms and covers an area about 0.5 to 1.5 miles wide and about 6 miles long. It extends in a north-northeast to south-southwest direction and is an extension of an extensive area along the south coast of Sitkinak Island having depths less than 20 fathoms with irregular bottom in most places.

(550) A temporary anchorage is off the south entrance to Sitkinak Lagoon. This part of the south coast of the island is recognized offshore by the flatland at the lagoon. A prominent rocky point with an arched opening 50 feet high marks the entrance to the lagoon. To reach this anchorage from outside the 20-fathom curve, steer for the point with the arched opening bearing **026°**, and anchor in not less than 11 fathoms about 1 mile from the point.

(551) **Tugidak Passage**, between Sitkinak and Tugidak Islands, has very strong and freakish tidal currents and rips. Only the north approach has been surveyed. The south approach is apparently blocked by shoals. Tide rips in the middle of the passage are extremely dangerous to small boats and should be avoided by hugging the Tugidak Island shore.

(552) **Tugidak Island**, in its north part, is chiefly sandflats but little above high water. A level boulder patch that uncovers is 0.5 mile off the north coast of Tugidak Island, 5 miles west of Tugidak Passage.

(553) The higher parts of the island are low grassy sandhills that terminate in bluffs in places along the shores. The north part is separated from the south or higher part by a large lagoon having one entrance from the southeast.

(554) The lagoon is reported to bare, except near the southwest side of the entrance where there is a pocket or basin of about 5 to 6 fathoms, sand bottom. The basin is a suitable anchorage for small boats and is protected from the sea by a long sandspit that extends east from the entrance point on the southwest side. A narrow channel follows the southeast side of Tugidak Island; however, it is almost bare at low water so passage in and out is possible only at half or greater tide.

(555) A foul and broken area extends about 10 miles south from the south end of Tugidak Island, as shown on the chart, by compass bearings on Tugidak Island and the summit of Sitkinak Island. Until a survey is available it is considered unsafe for vessels to cross this area. The bottom is very uneven, the depths changing abruptly from 2 to 4 fathoms in places, and boulder reefs with little depth may be expected. There are strong currents and heavy rips and overfalls.

(556) The waters off the north end of Tugidak Island have been surveyed. The general absence of kelp in this comparatively shoal area may be taken as an indication of the existence of little if any ledge rock. The bottom apparently is composed of loose material including boulders leveled down by the action of the sea to form the more or less flat area of this region of 5 to 7 fathoms. Slight shoaling occurs in patches where apparently there is a predominance of boulders resisting the general leveling action of the sea.

(557) The north and west sides of Tugidak Island may be generally approached as close as 1.5 miles in good weather. Care should be exercised near the middle of the west side of the island, as an unsurveyed bank reported to be covered as little as 2 fathoms is possibly 2 or 3 miles off. Anchorage can be found on the east side of the island between the entrance to the lagoon and the foul area extending off the south end.

(558) **Chirikof Island** is about 60 miles south-southwest of the Trinity Islands. The south part of the island has bold, high peaks and bluffs, from which it gradually slopes to the north end, terminating in a low, green undulating country. The island is easily recognized and is visible for many miles in clear weather.

(559) The south shore of Chirikof Island is a Steller sea lion rookery site. There is a 3-mile vessel exclusionary buffer zone around the southern half of the island. (See **50 CFR 224.103**, chapter 2, for limits and regulations.) In emergency situations anchorage may be found in **Southwest Anchorage**, a bight at the southwest corner of the island. On multiple occasions in 2012, NOAA ship RAINIER anchored in the vicinity of 55°51'12"N, 155°33'00"W., and found the area to have good holding ground. The anchorage is sheltered from west and southwest seas. Anchorage difficulties may be experienced in heavy weather due to williwaws and limited swinging room. Foul ground is between Chirikof Island and **Nagai Rocks**. **Round Rock**, resembling a haystack, is the largest of the Nagai Rocks group.

(560) A conspicuous 40-foot rock pillar is about ¾ mile northeast of South Cape. A foul area extends from the east side near the middle of the island. Large kelp areas extend up to 2 miles from shore on the north side of the island.

(561) Currents of over 3 knots may be experienced in the vicinity of Chirikof Island and generally set to the north and south. These currents, in conjunction with the bathymetry, may cause large standing waves and breakers, particularly to the south and southwest of Round Rock and at the north end of the island.

(562) The wide passage between Chirikof Island and Tugidak Island has not been adequately surveyed.

From widely scattered soundings taken in this locality, it appears that a submarine ridge with depths less than 19 fathoms extends from one island to the other. Foul and broken bottom extends about 10 miles south from Tugidak Island. Fairly regular depths across the ridge are indicated in the more closely sounded area 10 miles north of Chirikof Island. Tugidak Island is low and featureless and cannot be used as a navigational guide in the passage. Vessels bound for Chignik from the east use this passage.

(563)

Currents

(564) Between Sitkinak and Chirikof Islands the general set of the current is reported to be about 249°, 0.5 knot. The current between Chirikof Island and Lighthouse Rocks has a south set, less than 0.5 knot. From Lighthouse Rocks to Kupreanof Point the current sets generally 260° and varies from 0.3 to 0.7 knot.

(565) On three runs between Chirikof Island and Castle Rock on the Shumagin Islands, a south set was experienced each time, an average of as much as 1.5 knots having been noted.

(566) Vessels crossing the Gulf of Alaska westbound are often subjected to a strong north set and should verify their position by sounding when approaching the meridian of Chirikof Island.

(567)

Alitak Bay to Shag Bluff

(568) **Alitak Bay**, at the south end of Kodiak Island, has its entrance between Cape Alitak and Cape Trinity and extends 26 miles in a north direction to the head of Deadman Bay. Lazy Bay is a good anchorage.

(569) The country is treeless and except for outcropping ledges of bare rock on the knolls and peaks, the land is covered by thick moss and grass. A herd of reindeer is maintained in the vicinity of Lazy Bay by the natives.

(570) The prominent feature in the approach is Twin Peaks on the peninsula between Lazy Bay and Kempff Bay. It can be seen from off Cape Ikolik on a clear day. The peninsula between Kempff Bay and Olga Bay is mountainous and rises to 2,000 feet.

(571)

Pilotage, Alitak

(572) Pilotage, except for certain exempted vessels, is compulsory for all vessels navigating the waters of the State of Alaska.

(573) The Kodiak Island area is served by the Southwest Alaska Pilots Association. (See **Pilotage, General** (indexed), chapter 3, for the pilot pickup stations and other details.)

(574) Vessels en route to Alitak Bay can contact the pilot boat by calling "ALITAK BAY PILOT BOAT" on VHF-FM channel 16 or on a prearranged frequency between pilot and agent/vessel.

(575) **Cape Trinity**, the south entrance point to Alitak Bay, is a tableland terminating in an almost vertical bluff. Rocks and reefs extend a short distance off the cape.

(576) **Cape Alitak**, the north entrance point of Alitak Bay, is the south end of a sloping ridge with numerous knolls. It is partly grass covered with much bare rock. Deep water extends close up to the cape on its southwest side, but a long shoal of fine gray sand makes off its southeast side in the direction of Cape Trinity. Numerous rocks are also close off the north, east and west sides of the cape. The 10-fathom curve extends 3 miles off the cape and the 5-fathom curve is about 1.3 miles off. At the outer end of the shoal the depth increases rapidly to 20 fathoms. **Cape Alitak Light** (56°50'35"N., 154°18'25"W.), 63 feet above the water, is shown from a small house with a red and white diamond-shaped daymark on the south end of the cape.

(577) **Lazy Bay**, 4 miles northeast from Cape Alitak, is well marked by Twin Peaks and Egg Island on its north side and some white rocky ledges close to its south entrance point. The shore south of the entrance is clear if given a berth of 0.4 mile with the exception of the shoal making off the southeast side of Cape Alitak.

(578) A cannery with a wharf is on the north shore about 1 mile west from Egg Island. The wharf is 180 feet long with 30 feet reported alongside the face. Water is available at the wharf, and the cannery has limited machine shop facilities. Diesel and fuel oils are stored in some quantity for cannery use. The cannery season is May through September. Caretakers man the cannery in the off-season. The cannery monitors VHF-FM channel 16 and 4125 kHz single sideband (SSB); call sign is KBL-75. VHF-FM channel 79A is used as a working frequency; 2450 kHz SSB is also available. Telephone service is available at the village of Akhiok. The cannery maintains a store seasonally. A nurse or first aid technician is available during the canning season, but there are no hospital accommodations. Injuries or illnesses requiring hospitalization are flown to Kodiak. Air service is available to and from Kodiak on Tuesdays and Fridays during the off-season and six days a week during the open season.

(579) A slipway capable of hauling out vessels up to about 130 tons, with a maximum draft of 6 feet forward and 8 feet aft, is at the cannery.

(580) The north part of the bay beyond the sandspit above the cannery consists of mudflats and many boulders.

(581) Anchorage in 9 to 15 fathoms, mud bottom, may be had between the cannery and the east entrance point to Rodman Reach. With east gales the wind blows directly in Lazy Bay and there is little room in case of dragging or parting a cable. Northwesters blow with great force into Lazy Bay from over the ridge back of the head of the bay. Small craft can find excellent shelter and smooth water in the entrance to Rodman Reach during east weather.

(582) **Rodman Reach** is a narrow arm that extends southwest from Lazy Bay and inside of **Tanner Head** to Cape Alitak where it forms a shallow basin from which **Alitak Lagoon**, also shallow, extends 3 miles north, being separated from the sea by a narrow shingle spit. About 100 yards off the east entrance point are two rocks

awash. Excellent shelter for small craft will be found in the entrance to Rodman Reach.

(583) **Kodiak National Wildlife Refuge** includes waters of Lazy Bay, Rodman Reach and Alitak Lagoon. Kodiak National Wildlife Refuge is a Marine Protected Area.

(584) **Egg Island** is the low, flat rocky islet off the north entrance to Lazy Bay. **Lazy Bay Light 2** (56°53'31"N., 154°13'03"W.), 25 feet above the water, is shown from a skeleton tower with a red triangular daymark on the south side of the island.

(585) **Twin Peaks**, between Lazy and Kempff Bays, are a mark from as far west as Cape Ikolik. **North Twin Peak**, the higher one, is 1,494 feet and **South Twin Peak** is 1,310 feet. Both peaks are fairly definite, devoid of vegetation and very rocky and stony. From the W they are first raised as an island.

(586) **Kempff Bay**, on the north side of Twin Peaks, is too deep for convenient anchorage and on its north side has broken bottom that should be avoided. There are neither settlements nor improvements in Kempff Bay. In 2021, NOAA Ship Fairweather found favorable anchorage in sticky mud approximately 1.6 miles east-southeast of the mouth of Kempff Bay at 56°53'48"N., 154°09'37"W. This anchorage offered little protection from the strong northwest winds, but held in over 40 knots of wind.

(587) Favoring somewhat the south shore through the bay, anchorage can be selected near the head in about 18 fathoms. A spit with deep water close-to extends 350 yards from the north shore at a point 0.7 mile from the head.

(588) A reef, covered at high water, is between **Drake Head** and **White Rock** and extends 0.5 mile from the shore just south of Kempff Bay. White Rock, 10 feet high, should be given a berth of 0.3 mile when passing east of it in Alitak Bay and the same distance when passing north of it entering Kempff Bay.

(589) **Akhiok**, a native village on the beach of **Akhiok Bay** about 1.5 miles northeast from Kempff Bay, has a schoolhouse and a Russian Orthodox Church. A foot trail leads from the cannery at Lazy Bay to Akhiok. Akhiok is best reached by launch via the passage from Kempff Bay. This passage is shoal and has many rocks. A pilot can usually be obtained at the Lazy Bay cannery.

(590) **Round Hill**, 193 feet high, is a symmetrical, round grassy knoll at the east end of **Akhiok Island** that forms the north side of the entrance to Kempff Bay.

(591) **Akhiok Reef**, awash at extreme high water and always showing, is a group of black jagged rocks about 0.6 mile off the southeast point of Akhiok Island. In clear weather the reef makes a good landmark. A deep pocket of 30 fathoms is 350 yards southeast of Akhiok Reef. A 4¼-fathom spot, marked on its east side by a buoy, is 0.4 mile east of Akhiok Reef.

(592) Small vessels, with local knowledge, when bound from Lazy Bay to Moser Bay pass between Akhiok Reef and Akhiok Island. Strangers are advised to keep to the east of the buoy marking the 4¼-fathom spot.

(593) **Middle Reef** covers an area about 2 miles long in the central part of Alitak Bay. The northwest end of the reef area is marked by a group of black rocks that uncover about 7 feet and will usually be seen or breaking. A kelp-marked rock, has a least known depth of 1 foot, and a ledge, which uncovers 5½ feet, are along the east side of the reef area. The kelp-marked shoal at the south extremity is covered 2¾ fathoms. There is little if any warning of shoaling of the general depths of the bay adjacent to the reef area.

(594) **Nelson Reef**, which has a least known depth of 1¾ fathoms, is 1.5 miles north of Middle Reef and 2.7 miles east-southeast from the entrance to Moser Bay. A thin growth of kelp is sometimes seen on this reef.

(595) **Moser Bay**, the large northwest arm of Alitak Bay, has depths of 10 to 15 fathoms, soft mud bottom. It is a secure harbor and an excellent anchorage. The entrance is between **Bun Point**, low, sandy, and marked by a light, and **Amik Island**, rocky, on the south; it is obstructed by a rocky shoal that makes north from Amik Island for about 0.5 mile. The north end of the shoal is marked by a buoy.

(596) The channel between Bun Point and the north end of the rocky shoal is 175 yards wide and is close to Bun Point. It has a least depth of about 5½ fathoms, and strong tidal currents flow in the direction of the axis of the channel.

(597) About halfway between Bun Point and Fassett Point is a shoal that extends halfway across from the northeast shore toward a spit on the opposite shore. The shoal has a depth of 3 fathoms at its outer end, which is marked by a buoy.

(598) A gravel shoal, which uncovers, extends 400 yards east-northeast from the spit on the south shore opposite the shoal described above.

(599) **Fassett Point**, a low grassy head with lower land back of it, is the turning point on the northeast side of Moser Bay, about 2 miles inside the entrance.

(600) **Trap Point** is the low point across the channel from Fassett Point. An abandoned wharf has a face of 100 feet and a least depth of 34 feet alongside.

(601) **Snug Cove**, southwest from Trap Point, shoals gradually to its head. A pass between the mountains extends from Snug Cove to the sea.

(602) **Chip Cove** is on the west side of Moser Bay, 1.5 miles north of Trap Point. The cannery pier, on the west side of the cove entrance, has depths of 20 feet alongside the working faces.

(603) Radiotelephone and radiotelegraph communications are maintained by the cannery.

(604) **Olga Narrows** connects Moser Bay with Olga Bay. It is possible to carry about 21 feet through the passage only by carefully following the narrow and crooked channel. It should not be attempted except with local knowledge.

(605) The **current** in the narrowest part of Olga Narrows attains an estimated velocity of 8 knots. During large tides there is no stage at which there is slack water the entire

length of the narrows. During small tides there is said to be a period of slack water lasting from ½ to 1½ hours.

(606) **Olga Bay** is an irregularly shaped body of water 17 miles long. The west end is separated from the ocean by a strip of land 1 mile wide at a point 6 miles north of Low Cape. The shores of Olga Bay are rocky except at the west end where low grassy bluffs are from 10 to 80 feet high. On the north and south shores of the bay the land rises abruptly from 800 to 2,000 feet.

(607) The bay has the appearance of a lake and the rise and fall of the tide is only from 1 to 2 feet at the former cannery, which was on the north shore about 8.5 miles above the narrows. The buildings and wharf of the former cannery now are used as a base camp for big-game guides. The wharf has depths of 7 to 11 feet alongside.

(608) Anchorage for fishing craft can be found at several places along the shores. The best anchorage is in Anchor Cove on the south side of Olga Bay, 5.5 miles above the north end of the narrows. The cannery company had dolphins here where small boats tied up over the winter.

(609) **Deadman Bay** is deep except near the head where it divides into two arms. The N arm terminates in a mudflat, while the east arm, known as Alpine Cove, affords excellent anchorage. The northwest shore of Deadman Bay is fringed with numerous rocks and reefs, while the southeast shore is bold and unusually clear. No settlements are along the bay, only an occasional cabin used by trappers during the winter.

(610) Between Bun Point and Fox Island are several off-lying islets and rocks and much foul ground. The shore here should not be approached closer than 1 mile except with local knowledge.

(611) **Fox Island**, about 0.5 mile off the west shore near the entrance to Deadman Bay, is bordered by bluffs and is 90 feet high. It is grass covered, comparatively flat, and a good mark in entering Deadman Bay.

(612) **Alpine Cove**, the east arm at the head of Deadman Bay, is a beautiful cove surrounded by high rugged mountains. An excellent anchorage is near the entrance in 12 to 15 fathoms, mud bottom, and sheltered from all winds and seas.

(613) From Cape Trinity, the east shore of Alitak Bay trends north-northeast for about 14 miles to Shag Bluff, the south entrance point of Portage Bay. This section of the coast has many visible and submerged rocks and reefs extending in places as much as 0.6 mile offshore.

(614) **Portage Bay** opens into Alitak Bay from the northeast. **Bert Point**, dark and rocky, 3.7 miles east of Cape Hepburn, separates the bay into two arms.

(615) **Sulua Bay**, the main or west arm, extends 3.5 miles north from Bert Point. Between **Cape Hepburn** and the west entrance point of Sulua Bay, a bank, with reefs and rocks submerged and awash, extends as much as 0.5 mile offshore.

(616) The shores of Sulua Bay are precipitous, except at its head where a stream enters through the flats. Several short gravel spits extend from the west side, and on the two nearest the entrance are cabins used by fishermen during the season. Mooring piles are on the north side of these spits.

(617) On the east side of this arm, a bank with depths of less than 5 fathoms extends about 0.3 mile offshore. Two rocks, the south one of which uncovers 2 feet, are on this bank and are about 1.7 and 2.1 miles, respectively, north of Bert Point.

(618) The east arm of Portage Bay is short and terminates in a large shoal lagoon extending 2.5 miles northeast. A stream enters through the flats at the head of the lagoon.

(619) **Shag Bluff** is on the south side of Portage Bay, 2.4 miles south of Bert Point. A group of rocks, bare and awash, the highest 10 feet, is about 1 mile west of the bluff. Between Shag Bluff and the head of the east arm, a bank covered less than 3 fathoms, extends about 0.4 mile offshore. A shoal covered 3½ fathoms is on this bank about 0.5 mile southwest of Bert Point.

(620) A good anchorage is about 0.5 mile southeast of a 44-foot pinnacle rock at the head of Sulua Bay in 10 fathoms, mud bottom.

(621)

Routes

(622) **Routes, Alitak Bay:** Coming from the west, steer **075°** for 88 miles from Foggy Cape bearing **327°**, 10 miles. This will lead to a position in the middle of the entrance to Alitak Bay 3.6 miles **145°** from Cape Alitak. The southernmost peak, 2,215 feet, on Kodiak Island should be about **3°** on the port bow while passing Cape Alitak on the course given.

(623) If following the southwest coast of Kodiak Island in approaching Alitak Bay, follow the routes given later in this chapter: Cape Karluk to Cape Alitak bearing **010°**, 1.5 miles. Then steer **121°** for 2.7 miles to clear the shoal making southeast from Cape Alitak. This will lead to the midentrance position 3.6 miles **145°** from Cape Alitak.

(624) **To enter Lazy Bay:** (1) From Alitak Bay midentrance position given above, steer **015°** for about 5.5 miles until the south shore of Lazy Bay is abeam. Then change to **309°** until Egg Island is abeam on the starboard hand, 350 yards, then change to **284°** and enter the bay.

(625) (2) If coming from Sitkinak Strait, follow routes given earlier in this chapter, to a position 2.2 miles west from Cape Trinity. Then steer **003°** for about 8 miles until the south shore of Lazy Bay bears **287°**. Then change to **309°** until Egg Island is abeam on the starboard hand, 350 yards. Then change to **284°** and enter the bay.

(626) **To enter Moser Bay:** (1) From Alitak Bay midentrance position given above, steer **034°** for 9.2 miles until Akhiok village bears **297°**, 3 miles. Then change to **348°**, heading 150 yards off Bun Point. When nearly up to Bun Point change to **005°**, passing 150 yards off the highwater line at the point. When the buoy bears **237°**, haul west to a **290°** course, passing about 275 yards north of the buoy.

(627) Continue on this course for 1 mile until past the buoy marking the end of the long shoal that makes out from

the northeast shore. Then haul to the north and anchor as desired.

(628) Strong tidal currents will be found at Bun Point setting along the axis of the channel. Large vessels should wait for slack water.

(629) (2) If coming from Sitkinak Strait, follow directions given earlier, to a position 2.2 miles west from Cape Trinity. Then steer **019°** for 11.5 miles until Akhiok village is abeam on the port hand, 2.6 miles. Then change to **348°**, heading 150 yards off Bun Point, and follow directions given above for entering Moser Bay.

(630) **To enter Deadman Bay:** From a position with the northwest Middle Reefs bearing **121°**, 1.5 miles, make good a **041°** course for about 4 miles until the south end of Fox Island is on the port beam, nearly 1 mile. This course leads 0.5 mile northwest of Nelson Reef, a shoal with a least known depth of 2½ fathoms. When the south end of Fox Island is abeam haul to the north and steer midchannel courses up Deadman Bay, if anything favoring the southeast shore.

(631)

Shelikof Strait

(632) **Shelikof Strait** separates Kodiak and adjoining islands from the mainland of Alaska. The strait is reached from the east via the passages north and south of the Barren Islands or via Kupreanof Strait.

(633) From Barren Islands to Cape Ikolik, depths ranging from 80 fathoms in the north end to 140 fathoms in the south entrance will be found in midchannel. Along the east shore, the 100-fathom curve is from 1 to 3 miles off the various headlands. Suitable depths for temporary anchorage will be found near the shores in most places.

(634) In thick weather when not sure of the position, depths should not be shoaled less than 50 fathoms. For deep-draft vessels it is considered safer to favor the east shore.

(635)

Currents

(636) The limited current data available for Shelikof Strait indicate that the flood sets into the strait from both ends.

(637) Current observations have been made for short periods at various anchorages used by surveying vessels near the shore. On the west side of the strait currents of 1 knot have been recorded, setting alongshore in either direction, with the current in the southwest direction predominating. Apparently the current is less along the west coast of Afognak Island than on the opposite side of the strait.

(638) At the northeast entrance to the strait in the vicinity of Dark Island and Latax Rocks, heavy tide rips, variable in position, are frequent; strong tidal currents are encountered along the coast of Shuyak Island.

(639)

Weather, Shelikof Strait Vicinity

(640) Northeast winds invariably bring rain and thick weather, and it is from this direction that most of the heavy weather comes.

(641) Southeast winds generally bring clouds but may be accompanied by either rain or fair weather.

(642) Southwest and west winds are invariably accompanied by fine clear weather, but they often blow with great force. The southwest gale is perhaps the most to be dreaded in Shelikof Strait, as it raises a short, heavy sea that is trying to a small vessel.

(643) South winds generally bring haze, which is sometimes so thick as to resemble fog.

(644) Northwest winds bring fair weather and clear atmosphere; however, in the wake of the Katmai region, the air may be hazy due to volcanic dust.

(645) During the early spring, northwest gales are often accompanied by freezing weather and vessels are in danger of becoming iced down. Small craft, especially, should hug the northwest shore under such conditions, so that they may seek shelter before the icing becomes serious.

(646) Gales in this region last without intermission anywhere from 1 to 3 days.

(647) Northeast winds are generally accompanied by a low barometer and southwest winds by a high barometer, but the rule is not invariable. The barometer is of little or no value in foretelling the weather, as it accompanies rather than precedes corresponding conditions. The slope of the barometric curve is apt to change suddenly, the weather changing with equal suddenness. A sure sign of rainy weather and wind from the northeast is the gathering of clouds on the northeast side of the mountains.

(648) Blinding snowstorms are frequent in early spring.

(649) In 1975, the NOAA Ship FAIRWEATHER, working in Shelikof Strait, reported the following weather conditions: July and August afforded the best weather and May the worst. Storms with winds to gale force occurred about twice a month. Some snow showers were experienced in May.

(650) The wind in Shelikof Strait usually blows in only two directions, either “up” (southwest to northeast) or “down.” The direction usually depends on whether the area south of Kodiak Island contains a low pressure (when down the strait winds result accompanied by driving rain) or a high pressure (when up the strait winds result). Winds and seas can increase suddenly and subside just as quickly.

(651) During windy conditions, wind force is sharply higher in the vicinity of, and even in the lee of the capes and point that extend into Shelikof Strait. During these conditions, entry well into the bays is necessary for refuge. With “down” wind conditions, seas on the west side become considerably worse as one progresses northeast from Kukak Bay, and with “up” wind conditions, the same applies along the west side from Cape Kuliak to the southwest.

(652) Weather conditions in Shelikof Strait can also be of wide variance from one location to another at any one time. However, as a rule, weather and seas are much more amenable on the Kodiak Island side of the strait than on the mainland side.

(653) The west coasts of Shuyak and Afognak Islands trend 218°. The distance from the northernmost Latax Rocks, described earlier in this chapter, to Raspberry Cape is 48 miles. From Raspberry Cape the east coast of Shelikof Strait trends 230° for 45 miles to Cape Karluk.

(654)

Shag Island to Big Bay

(655) The west side of **Shuyak Island** is irregular and fringed by a chain of islets and rocks about 1 mile offshore. Between them and the island are many rocks and kelp patches. The outer ones are nearly on a line through Gull Island from Black Cape.

(656) **Shag Island**, a group of grass-covered islets, is 36 feet high and 0.9 mile west of Party Cape. A bare rock, 3 feet high, is 0.6 mile north of Shag Island. A shoal with a least depth of 4 fathoms is about 1.7 miles northwest of the islets.

(657) **Wonder Bay**, southeast of Shag Island, is rock strewn and should not be entered except by launches with local knowledge.

(658) **Gull Island**, 2.8 miles southwest of Party Cape, has a distinctive dome-shaped top, grass covered and 83 feet high. Several large reddish rocks are to the north of it. It marks the entrance to **Western Inlet**, which is shallow and foul. Gull Island is connected to the large island at the entrance of Western Inlet by a sandspit that bares at minus tides. This area is extremely foul.

(659) **Big Bay**, 2.5 miles south of Gull Island, is of considerable size, having a main arm branching into four smaller arms at its head. The main arm has a controlling depth of 2¼ fathoms, and although it affords protection in northeast weather, it should not be attempted without local knowledge, as its entrance is obstructed by numerous rocks, many of which uncover. The smaller arms are not accessible except to very small craft.

(660) In 1971, the 231-foot NOAA Ship RAINIER anchored a number of times off the west side of Shuyak Island in about 58°33.6'N., 152°42.4'W., 1.7 miles northwest of Eagle Cape, in 18 fathoms for protection from east winds. The ship reported that the anchor nearly always dragged some when dropped before setting in rocky bottom. The holding quality was fair, though on one occasion no dragging was experienced in winds of 50 knots.

(661)

Shuyak Strait to Bluefox Bay

(662) **Shuyak Strait**, between Shuyak and Afognak Islands, is not recommended as a through passage for ships because of its restricted east entrance and broken bottom in the seaward approach from the east. Its west approach in Shelikof Strait is characterized by less uneven bottom and the west entrance is mainly clear and 1.5 miles wide.

(663) Entering Shuyak Strait from Shelikof Strait, vessels pass about 1 or 1.5 miles north of Rocky Island and head for the middle of the strait on a course of about **113°**.

(664) Islets and rocks, which uncover, are on both sides of the west approach to Shuyak Strait. The best water is found by favoring the north side of this approach.

(665) Shuyak Strait is apparently clear of dangers in midchannel except as noted below. Soundings indicate depths of 60 to 80 fathoms near midchannel as far east as Redfox Bay. Wooded hills, about 400 feet high, line the rocky shores on both sides, and there is practically no low flatland.

(666) **Rocky Island**, 4 miles west from Lighthouse Point, is on the south side of the west approach to Shuyak Strait. It is a bare rock 12 feet high and about 100 feet wide. Midway between Rocky Island and Lighthouse Point but south of a line between them is a reef bare at half tide. The reef is marked by kelp and surrounded by shoal water.

(667) The outermost danger on the north side of the west approach to Shuyak Strait is a group of submerged rocks with a least depth of 2¼ fathoms about 3 miles **052°** from Rocky Island. A rock baring at minus tide is 400 yards northeast of the rocky shoal, and the area inside of them to **Green Island** and thence to the shore at Neketa Bay is foul.

(668) **Neketa Bay** is a small bay east of Green Island, very shoal, with a reef extending nearly across its entrance.

(669) A rocky bank of 12 to 17 fathoms is about 1.5 miles northeast of Rocky Island. In approaching the west entrance of Shuyak Strait it would be advisable to pass north of the bank.

(670) **Alligator Island**, so called from the resemblance from certain directions, is grass covered, 0.3 mile in diameter and 64 feet high; the island is 1.3 miles south from Rocky Island. **Alligator Island Light** (58°28'28"N., 152°47'17"W.), 72 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on the northwest side of the island.

(671) **Cape Newland**, the southwest extremity of Shuyak Island, is 75 feet high and grass covered to the tree line. Rocks awash at various stages of the tide are detached 500 yards west and about 600 yards south from the cape. Broken bottom extends into the entrance to Shuyak Strait about one-third the way from the cape to Lighthouse Point.

(672) **Lighthouse Point**, 4.2 miles east of Alligator Island and grass covered to the tree line, is on the south side of the west entrance to Shuyak Strait. The bight just east of the point is foul. **Lighthouse Point Light** (58°28'57"N., 152°39'09"W.), 60 feet above the water, is shown from a small house with a red and white diamond-shaped daymark on the point.

(673) **Shuyak Harbor** is about 1.3 miles north of Lighthouse Point and southeast of Cape Newland. Two bare rocks, 12 and 5 feet high and 100 yards apart, are in

midentrance to the harbor; they are surrounded by rocks awash and are nearly connected at low water. A pinnacle rock, covered 1¼ fathoms, is east of the midentrance rocks, leaving a narrow channel between it and the east entrance point. The better channel into Shuyak Harbor is west of the midentrance rocks. The harbor has about 200 yards of swinging room. The salteries in this harbor have been abandoned and the wharves are no longer maintained.

(674) **Port Lawrence** is a bight on the north shore of Shuyak Strait, 1.5 miles from the west entrance. A small grass-covered 10-foot islet, surrounded by foul ground, is in the east part of the bight. The wharf at the abandoned herring plant is in bad condition and unusable.

(675) **Port William**, 0.5 mile east of Port Lawrence, is 0.3 mile wide and 0.5 mile long. The wharf of a former cannery is in disrepair.

(676) Rocks awash are about 250 yards offshore between Port Lawrence and Port William. Nearby and closer inshore is a rock about 10 feet high.

(677) **Redfox Bay**, the largest indentation on the south side of Shuyak Strait, has general depths of less than 20 fathoms, mud bottom, and affords excellent anchorage in any weather.

(678) An islet, 158 feet high, and wooded on its south half, is in the middle of the entrance. West of the islet, about 100 yards off the west shore of the bay, is a rock awash. Freight steamers use the channel between these rocks and the islet, which is about 200 yards wide and clear, and anchor just south of the islet to discharge cargo to boats and barges; swinging room of about 700 yards is available here.

(679) A rock awash, unmarked by kelp, is off the entrance to a small cove on the east shore of the bay 0.8 mile south from the entrance islet.

(680) **Daylight Harbor** is 0.5 mile southeast of Port William. The herring plant here has been abandoned, and the wharf is in ruins. From this harbor to **Cape Current**, about 3 miles, there are no important indentations.

(681) A dangerous patch of small rocky heads with a least depth of 3¼ fathoms is in about the middle of the strait 2.3 miles from its east end. This danger is abreast of two small islets; the west one is about 100 yards in diameter, partly grass covered and wooded. The kelp marking this spot usually is drawn under by the current.

(682) **Cape Current Narrows**, about 1 mile long, forms the east end of Shuyak Strait. Rocky obstructions in the narrows near the east end greatly reduce the width of the channels on either side of them.

(683) The Shuyak Island shore of the narrows is abrupt, wooded and about 500 feet high. The Afognak side is grass covered for about 200 feet back from the shore and about 50 feet high with level top and abrupt shore.

(684) In the middle of the west part of the narrows, general depths are about 8½ fathoms or more. In the east part of the narrows, broken ground with numerous rocks awash extends almost completely across from Cape Current to Shuyak Island. Two narrow channels lead through the broken ground, one about 450 yards northwest of Cape Current, and the other about 75 yards off the south shore of Shuyak Island. The former channel has a least found depth of 4½ fathoms; the latter channel has a least found depth of 5½ fathoms. Mariners are advised to seek local knowledge before attempting to make passage through Cape Current Narrows.

(685) The **tidal currents** at Cape Current Narrows are strong, and bad tide rips are frequent. See the Tidal Current prediction service at *tidesandcurrents.noaa.gov* for specific information about times, directions, and velocities of the current at numerous locations throughout the area. Links to a user guide for this service can be found in chapter 1 of this book.

(686) A large kelp patch is northeast of the east entrance to the narrows just south of Big Fort Island.

(687) **Bluefox Bay**, indenting the shore of Afognak Island southwest from Lighthouse Point, has an entrance about 2 miles wide.

(688) **Teck Island**, Hogg Island and **Bear Island** are the three principal islands overspreading the entrance and the area inside of Bluefox Bay. The buildings of an abandoned herring reduction plant, now used as family dwellings and for the storage of fishing gear, are on the south side of Hogg Island.

(689) Three channels lead into Bluefox Bay. The west channel has been used by small craft, but it is foul and is not recommended.

(690) The east channel is the one in general use, but it also has several dangers and should be navigated with caution. A 4¼-fathom spot is in midchannel about 200 yards off the middle of the east side of Hogg Island. A rock with a least depth of 1½ fathoms is 375 yards east from the southeast point of Bear Island. A rock awash is about 0.5 mile south from the same point. At this rock the tangents of Hogg and Bear Islands are nearly in range. A rock with 2¼ fathoms over it is 200 yards off the southeast side of the small island just south of Bear Island.

(691) To enter Bluefox Bay, vessels are reported to hold the course into Shuyak Strait until the east channel opens then to change course to about **177°** and proceed through the east entrance in midchannel, heading for a wooded point on the east side of the bay near its head but favoring the west side of the channel near the 4¼-fathom spot mentioned above. Navigation beyond Bear Island is difficult, and the chart should be followed closely.

(692)

Devil Inlet to Tanaak Cape

(693) The west coast of Afognak Island from Shuyak Strait to Black Cape is irregular, rocky and wooded to an elevation of about 700 feet. Some grass appears on the points. The small island about halfway between Black Cape and Alligator Island is about 0.3 mile in diameter, 48 feet high and covered with grass. Inside a line from Black Cape to Alligator Island the water is generally foul with numerous rocks and islets.

(694) **Devil Inlet**, 3 miles northeast from Black Cape, has wooded shores. About 0.3 mile inside the entrance, rapids run heavily except for short periods of nearly slack water preceding and following high tide. The inlet level inside the rapids is about 11 to 12 feet above low water. Vessels drawing 3 feet or less may enter about 2½ hours before high tide. Numerous rocks exist in the channel and caution is required in making the passage. The preferred time to navigate this passage is during the slack before ebb which occurs about 2 hours after high water. Both slack water periods last for about 5 minutes. Within the inlet, shoal areas exist off the inshore points of the two islands about 1 mile south of the entrance. Passage must be made to the west of the northernmost island, thence southeast between the islands leading to the south portion of the inlet where depths in excess of 20 fathoms exist. The entrance outside the rapids is a good anchorage in heavy weather for small craft.

(695) **Black Cape** is low and grassy at the end and rises gradually in a narrow heavily wooded ridge to a prominent bald knob, 1,151 feet high. Bare and submerged rocks extend a short distance off the cape, and a reef, mostly showing above water, is on its south side. A fair anchorage protected from southeast weather can be found 1.2 miles northeast of the cape in 17 fathoms, rocky bottom.

(696) **Foul Bay**, between Black Cape and Ban Island, is about 4 miles wide at its entrance. The bay extends east about 4 miles where it divides into a north arm extending east for about 2.5 miles and a south arm extending south for about 4 miles. The bay was surveyed in 1973, and depths in excess of 10 fathoms were found throughout most of the bay. Vessels wishing to enter Foul Bay are advised to parallel the Ban Island shore about 0.4 mile off, passing south of the island 1 mile east of the north point of Ban Island. The 231-foot NOAA Ship RAINIER used this passage to enter and anchor about 0.5 mile off the point dividing the bay into north and south arms. The bottom throughout the bay is broken with numerous rocky areas, and several attempts at anchoring may be necessary in any given area before finding soft bottom. Small craft may find shelter in the numerous coves within the bay. The southeast arm of Foul Bay leads to an extension of Paramanof Bay and may be navigated by small vessels steering midchannel courses.

(697) **Ban Island**, separating Foul Bay from Paramanof Bay, is mountainous with steep slopes on all but the east end. The island is about 6 miles long in an east-west direction, and about 1.8 miles wide in a north-south direction. Kelp is close to its west end.

(698) **Paramanof Bay**, between Ban Island and Cape Paramanof, was surveyed in 1973 and found to be deep and nearly clear of hazards. In the outer bay, it is recommended to favor the Ban Island side when entering. Care must be taken to avoid two rocks that are about 4.5 miles east of Cape Paramanof. The westernmost rock is bare and is 0.3 mile **025°** from a rocky islet close to the south shore of the bay. A submerged rock, covered about 5 feet, is 0.5 mile **065°** from the same rocky islet.

(699) An excellent anchorage is in the cove on the south side of the bay about 5 miles east of Cape Paramanof. Vessels should pass north of the rocks mentioned above, thence steer a south course to the center of the cove where good protection is afforded from all but strong northwest winds. Holding ground is good in 20 fathoms, soft bottom, with ample swinging room. Smaller vessels may anchor closer in. The long straight inlet leading south from this cove can be entered by small craft at one-half tide or higher.

(700) The east end of Paramanof Bay narrows to a pass with a small wooded island in the center. Passage south of this island provides the best water with a minimum of 4½ fathoms at midchannel. Current measurements just west of the island indicate the existence of weak tidal currents, less than 1 knot. The two bays extending southeast from Ban Island are clear of hazards and gradually shoal towards the streams at the head of each bay.

(701) The lower levels of Afognak Island in general are wooded with the exception of the east coast and the southwest end south of Paramanof Bay.

(702) **Cape Paramanof** is the northwest end of the peninsula included between Paramanof and Malina Bays. It is a low tongue of land projecting 0.5 mile north from the mountains. A reef is on the north side of the cape inside Paramanof Bay, and a part of it, about 0.5 mile from shore, is awash.

(703) The peninsula between Paramanof and Malina Bays is marked by two mountain ridges trending east, with a small stream in the valley between. The land is grass covered, with bare rocks in places, and has no timber. The north ridge rises in steep, grassy slopes to 1,830 feet with a saddle behind it and then extends east with about the same height. **Tanaak Cape** is the north point at the entrance of Malina Bay.

(704)

Malina Bay to Terror Bay

(705) **Malina Bay**, indenting the west coast of Afognak Island, is between the mountainous peninsulas terminating in Tanaak and Steep Capes. It is about 10 miles long and is a secure harbor. Water can be obtained from numerous small streams. Some timber is found near the head of the bay and in some of the valleys. Steep Cape and the high cliff at the south point at the entrance and a prominent slide about 1 mile southeast of Tanaak Cape on the north side of the bay mark the entrance.

(706) The bay, 2.5 to 3 miles wide for nearly 4 miles, narrows to a neck about 1.5 miles long with a least width of 0.4 mile and then separates into two arms. The south arm, known as Malka Bay, extends from the south side of the neck 1.5 miles southeast. The east arm is about 800 yards wide near its entrance; it then opens out, forming a basin about 2 miles long and about 1.2 miles wide. A shallow arm, about 0.2 mile wide, extends 2 miles east from the east end of the basin.

(707) The outer part of the bay is clear, with the exception of a rock awash 0.2 mile from shore in the bight on the south side about 4 miles inside the entrance. Rocks awash extend 300 yards off the south side at the entrance to the neck and 0.5 mile west of the island in the entrance of Malka Bay. The depths are suitable for anchorage 0.3 to 0.4 mile from shore nearly anywhere in the bay. Holding is good in 12 to 18 fathoms, sloping bottom, along both shores about 1 mile inside the entrance. An anchorage with fair holding is available on the north side of its east end, about 0.3 mile west of a rocky islet, and the same distance from the shore northeast, in 15 fathoms. This anchorage is exposed to west weather, and northeast winds sometimes blow with considerable force.

(708) In the neck off the entrance of Malka Bay is an island 0.4 mile long and 115 feet high with a clump of trees near its middle. There is no safe passage between it and the shore southeast. An islet 30 feet high is on the south side of the neck 0.4 mile east of the island, and foul ground extends 225 yards from the south shore just east of the islet. A rock, 15 feet high, with a small one close west, is 400 yards northeast of the islet. The best channel is between the 30-foot islet and the 15-foot rock. A rock awash is 400 yards east of the 15-foot rock and over 300 yards from the north shore.

(709) To pass through the neck, pass 200 yards north of the island, steer **121°** and pass 100 yards south of the 15-foot rock, in the middle of the neck.

(710) The basin has depths of 30 to 47 fathoms in its west half and shoals gradually east, affording secure anchorage. A rock covered at high water is 400 yards west from the north point at the entrance to the narrow arm extending east, and a shoal extends 600 yards southwest from a point on the north shore 0.4 mile north of the rock. The best anchorage is about 0.4 mile off the bight at the north end of the basin, with the entrance (neck) just closed, in 15 to 18 fathoms, sticky bottom.

(711) **Malka Bay** is a secure anchorage with a clear width of 0.2 mile. The northwest point of the island in the entrance should be given a berth of over 100 yards; a rock awash is 100 yards from the shore southwest of the same point.

(712) To enter Malka Bay, steer **163°**, pass 150 yards south of the northwest point of the island, and follow the southwest shore of the arm at a distance of about 250 yards. Anchor in the broad part about 0.6 mile from the head, in about 10 fathoms, sticky bottom. A flat extends nearly 0.4 mile from the head.

(713) High and low water in Malina Bay occur about 10 minutes earlier than at Seldovia.

(714) **Raspberry Strait**, between Raspberry Island and Afognak Island, is about 16 miles long, uniformly narrow and about 1 mile wide from Shelikof Strait, at its northwest end, to Afognak Strait at its southeast end.

(715) The approach to the northwest entrance is clear of dangers; no known shoals or detached rocks are more than 100 yards offshore. The Shelikof Strait sides of Raspberry Island and Afognak Island are rugged with barren cliffs and bluffs except where valleys make into the interior of the islands.

(716) The southeast end of Raspberry Strait ends in two passes that lead into Afognak Strait around Little Raspberry Island. Both passes are dry at from 2 to 3 feet above low water, and numerous reefs border the shores of Raspberry Island in this vicinity and of Little Raspberry Island. However, the northeast pass is used at high water by local boats drawing less than 8 feet. Neither of these is recommended without local knowledge.

(717) **Steep Cape**, also known as **Twin Heads**, about 2.5 miles north of the northwest entrance to Raspberry Strait, is the most prominent headland between Malina Bay and the strait. Its bare, gray rocky sides rise abruptly from the water's edge to its twin summits, 1,535 and 1,562 feet high. A light-colored rockslide is quite noticeable. A prominent 78-foot-high pinnacle rock is about 100 yards offshore; it is indistinguishable when seen against the cape.

(718) Between Steep Cape and the entrance to the strait is a bight with a gravel beach at the foot of a valley blocked by a bluff of glacial moraine about 250 feet high. The shore between the cape and this bight consists of a steep gravel bluff, 213 feet high, grass covered at the top, and giving the appearance of a tableland. The bluff is in the form of a point from which shoals extend for 0.5 mile offshore.

(719) The rounding point of the headland on the southwest side of the entrance to Raspberry Strait when seen from the southwest is somewhat similar to Steep Cape. However, its cliffs and rockslides are covered with grassy patches and do not have the general gray appearance that makes Steep Cape more prominent. The summit of this headland is 1,996 feet high and the slopes are steep. A pinnacle rock, 25 feet high off the southwest shore, makes a good landmark when not seen against the foot of the headland. Between this headland and Raspberry Cape are bights from which low valleys lead into the interior of Raspberry Island. The shores of these bights are gravel and the valleys are easily distinguished from offshore.

(720)

Anchorages

(721) Since Raspberry Strait itself is not wide, small vessels may anchor along the shores throughout the strait where depths appear suitable, depending upon the protection required. The following anchorages are recommended for deep-draft vessels:

(722) On the northwest shore of Raspberry Island in Shelikof Strait are two bights, with gravel beaches, about 3 and 5 miles southwest of the entrance to Raspberry Strait. At the head of these bights deep valleys extend inland. Anchorage may be had in 10 to 15 fathoms, sand bottom, with good protection from east storms but exposed to the west. The northeast of these two bights is clear; the southwest bight is foul; coming in from the north vessels should keep at least 800 yards offshore.

(723) North of the entrance to Raspberry Strait and south of Steep Cape is a small bight with suitable protection

from east storms and where anchorage may be had in 10 to 15 fathoms, sand and gravel bottom. The shore of this bight is a gravel beach just north of which are low grass-covered hills of glacial gravel.

(724) About 1.5 miles northwest of Dolphin Point, vessels may anchor off the northeast shore of the strait, in 12 to 15 fathoms, sand bottom, with good protection from east storms about 400 to 500 yards offshore.

(725) Fair anchorage for deep-draft vessels is 0.9 mile about **210°** from Dolphin Point, in 12 to 15 fathoms, mud bottom.

(726) The best anchorage in the strait for large vessels with protection from east storms is 2 miles southeast of the mouth of Muskomee Bay and 600 yards off the northeast shore. A prominent white cabin, which bears between **250°** and **270°**, is at the Port Vita Cannery ruins. Depths are 12 to 18 fathoms, sticky bottom.

(727) Another possible anchorage is located in deeper water, in midstrait off Selief Bay in about 18 fathoms, sand bottom.

(728) Anchorage for small vessels with good protection in any weather may be found in Selief Bay.

(729)

Dangers

(730) There are no off-lying dangers or shoals at the northwest approach and entrance to Raspberry Strait. From the entrance of the strait to Selief Bay, the only dangers are inside 300 yards of the strait shore except for a shoal of 3½ fathoms about in midstrait, 0.75 mile **124°** from Dolphin Point. This shoal is passed to the north as broken bottom is between the shoal and the gravel point on the south side of the strait.

(731) From Selief Bay to the southeast end of the strait are numerous shoals and dangers, and local knowledge is required even by small boats. Deep-draft vessels should not proceed beyond the entrance to Selief Bay. Between this bay and The Narrows are four rocky shoals well offshore; one of these has a least depth of 11 feet and is in midchannel about 0.4 mile north of Tiger Cape. From this cape southeast to The Narrows, sandspits make well out into the strait from many of the points.

(732)

Routes

(733) The northwest entrance to Raspberry Strait may be approached from any direction by keeping 1 mile offshore. Come into the middle of the entrance off Raspberry Strait Light and steer a course **138°** for about 4 miles until Dolphin Point is abeam about 700 yards. Thence steer **090°** for about 1.5 miles until abeam the end of a low gravel point. Pass this gravel point about 0.4 mile and change course to **120°**. Hold this course for about 1 mile and when the abandoned Iron Creek Cannery comes abeam, follow the middle of the strait on a course **151°**.

(734) Approaching The Narrows at the southeast end of Raspberry Strait from Kupreanof Strait set a course **007°** with the east end of Little Raspberry Island ahead. Approaching from the east, that is from Afognak Strait, set a course **270°** with the south tangent of Little Raspberry Island ahead and pass 500 yards south of the foul ground south of Shoal Point. Give the east tip of Little Raspberry Island a berth of 400 yards as reefs make out 200 yards off the high-water line. Enter the pass favoring the north side and pass about 100 yards off Nochlega Point and the next point, which is adjacent. These two points form a double point with a short gravel beach between them. The Narrows uncovers several feet and is not recommended to vessels without local knowledge. This pass can be negotiated at high water springs by vessels up to 8-foot draft with extreme caution.

(735)

Currents

(736) Tidal currents in Raspberry Strait are weak, except at The Slough and The Narrows where the range at the north end is greater than the range at the south end. It is estimated that from approximately midtide to high tide and vice versa, the current flows from Raspberry Strait into Afognak Strait. This current probably amounts to from 2 to 3 knots during spring tides. At approximately midtide the tidal level at the two ends of The Narrows is equalized, and as the tide falls below midtide the current reverses and flows from southeast to northwest until the pass goes dry at 2.5 feet above low water. See the Tidal Current prediction service at *tidesandcurrents.noaa.gov* for specific information about times, directions, and velocities of the current at numerous locations throughout the area. Links to a user guide for this service can be found in chapter 1 of this book.

(737)

Weather, Raspberry Strait and vicinity

(738) Southwest winds prevail from June to September. This prevailing wind is attended by good weather, mostly clear skies with little rain. These winds, however, often blow with such force as to build up heavy seas in Shelikof Strait, uncomfortable for all except full-powered vessels. The storms with east winds come with a frequency of one or two per month from June to October. During the summer, July is the worst month as the prevailing wind seems to be east attended by much rain although there are no severe east storms.

(739) **Raspberry Strait Light** (58°09'35"N., 153°13'25"W.), 50 feet above the water, is shown from a small house with a red and white diamond-shaped daymark on a small grass-covered island off **Cape Nuniliak** on the northeast side of the entrance. This island blends with the shore and it is difficult to pick up except when approaching from the north. Inside the strait, about 1 mile southeast from Raspberry Strait Light on the northeast side, is a prominent light-gray rocky bluff, which rises from the water's edge 150 to 200 feet high.

(740) Both shores of Raspberry Strait, from the northwest entrance for about 7 miles, consist of rock ledges and numerous short gravel beaches between small rocky points. The shores rise steeply to the mountains except where valleys intervene. Close along the southwest shore

about 1 mile inside the entrance are a number of off-lying pinnacle rocks, 5 to 41 feet high.

(741) **Dolphin Point** when approached from Shelikof Strait appears as a long grass- and tree-covered point with several low hills or nobs between it and the foot of the steep slope inland.

(742) **Muskomee Bay**, receding 1.5 miles, is about 3 miles east of Dolphin Point on the east side of the strait. This bay is not suitable as an anchorage for large vessels, and it offers little protection for smaller vessels as east and west winds draw through the deep valleys at the head of the bay. Along its shores are outcropping ledges and a few gravel beaches. The bottom near the head is rocky. At the south side of the entrance, 200 yards off the shore, is a reef that uncovers 7½ feet. Off the north shore at the entrance to the bay are three rocky shoals with least depths of 6 to 20 feet. The head of the bay is foul except around the north side of an island in the head of the bay.

(743) From Muskomee Bay, the shores of the southeast part of the strait consist of boulder and gravel beaches and several low, grass-covered shale or gravel points. The terrain back of these shores is not as steep as in the northwest part of the strait and is timbered from Dolphin Point. The points extend from 200 to 300 yards and have shoals or outcropping ledges extending into the strait another 100 yards or more. One of these is on the northwest side of the strait about opposite Selief Bay.

(744) **Selief Bay** is on the southwest side of the strait about 6 miles southeast of Dolphin Point. The outer part of the small peninsula on the east side of the entrance to Selief Bay is a grass-covered glacial hill 93 feet high, serrated at the top and the most prominent landmark southeast of Dolphin Point. This bay offers good protection and anchorage for small vessels in any weather, particularly from southeast or east storms. The entrance to the bay is shoal with a bottom formation similar to a bar and with a least depth of 8 feet. Inside the bay the best anchorage is with the end of the point at the east side of the entrance bearing about north and in 1½ to 3 fathoms. The bottom is mud and the west side is shoal.

(745) **Tiger Cape**, about 2 miles southeast of Selief Bay on the same side of the strait, is a low grass-covered shale point with several abandoned houses near the foot. More abandoned buildings of a former sawmill are about 0.25 mile farther to the southeast.

(746) The two islands opposite Tiger Cape and about 2 miles east of the entrance to Selief Bay are also prominent. The crests of these islands are wooded and the westernmost is 100 feet high, the other 160 feet.

(747) No other landmarks are between Tiger Cape and the south end of Raspberry Strait.

(748) On the opposite side of the strait north of Tiger Cape is **Yukuk Bay**, a shallow bay, about 1 mile wide in a northwest and southeast direction, locally known as **Cottonwood Bay**. This bay shoals to 1 fathom about 300 yards inside the general trend of the northeast shore of the strait. Throughout the bay the depth varies from 2 to 8 feet. A long gravel and rocky spit making into the bay from the north point at the entrance uncovers. Favor the opposite side in entering.

(749) Another bay, locally known as **Waskanareska Bay**, is east of Tiger Cape and on the southeast side of a gravel spit that separates it from Yukuk Bay. Depths vary from 3 to 6 feet. The inner part of the bay and the part along the northeast shore for 200 yards offshore uncovers. The east half of the entrance is foul and uncovers.

(750) Through **The Narrows**, which is the pass on the northeast side of **Little Raspberry Island**, and the approaches in Afognak Strait, the shores are mostly rock ledges with many off-lying dangers, some of which are dangerous to small craft.

(751) Rocks and shoals too numerous to mention are in the passes among Deranof Island, Little Raspberry Island and Raspberry Island. The pass on the west side of Little Raspberry Island is **The Slough**. These passes are used only by small vessels with local knowledge and at high tide only.

(752) The west side of Raspberry Island is mountainous and grass covered; the principal points are three high cliffs, between which are two deep valleys trending east. The south valley, about the middle of the island, is especially low and extends through to Onion Bay. The south side of Raspberry Island and Kupreanof Strait have been described earlier in this chapter.

(753) **Viekoda Bay** is on the east side of Shelikof Strait between Outlet Cape and Uganik Island. It extends east-southeast about 15 miles into Kodiak Island to a narrow head. Uganik East Passage enters Viekoda Bay on the south side about 7 miles inside the entrance. Good anchorage for moderate-sized vessels in 12 to 17 fathoms may be had 0.5 to 1 mile northwest from the islands 1.5 miles from the head of Viekoda Bay.

(754) Off the entrance, about 3 miles from Outlet Cape, is a bank on which the least depth found is 6¾ fathoms.

(755) A narrow point, its end detached, extends 0.4 mile from Uganik Island 1 mile east from its north end. Broken ground, with depths of 4 and 5 fathoms, extends 0.6 mile north from the point. A fair anchorage in south weather is in the bight on the east side of the point, 0.3 to 0.4 mile from shore, in 10 to 15 fathoms.

(756) A rock covered 4¾ fathoms, which should be avoided, is 0.6 mile from Uganik Island and 2.5 miles northwest of **Naugolka Point**.

(757) This point has an islet near it, and a rock that uncovers, is 0.8 mile east of the islet and 0.4 mile from the south shore of Viekoda Bay. Depths of 3 to 5 fathoms extend 0.3 mile north of the rock.

(758) **Uganik Passage** and **Uganik East Passage** border the south and east sides, respectively, of **Uganik Island**, and connect Viekoda and Uganik Bays. Fishing gear extends outward along the shoreline of Uganik Passage between the spring and fall; mariners are advised to use caution.

(759) Uganik East Passage is clear of dangers in midchannel except for a flat that extends about 600 yards from the east shore, about 5 miles south-southeast of Naugolka Point,

and a rock covered 5¼ fathoms, near the middle of the channel at the south end of the passage. An islet is close to Uganik Island in the bight about 0.2 mile southwest of the flat.

(760) Uganik Passage is 9 miles long from the southeast end of Uganik Island to East Point, where it joins Uganik Bay. The west end of the passage is broad and free from outlying dangers. Rocks that uncover extend 0.5 mile from the south shore of the passage, 1.8 miles east of East Point, and 0.5 mile farther east rocks extend 600 yards on the northwest side of a point on the south shore.

(761) A large bight on the south side of Uganik Island, 5 miles east of East Point, has shallow water extending 0.5 mile from the north shore for 1 mile from its head. From this bight a broad, low divide extends across the island. Anchorage in 12 fathoms, with good holding ground and protection from all except west weather, can be had off the entrance to the bight in 57°50.7'N., 153°21.8'W.

(762) The east end of the passage is much narrower than the west end. A 500-foot high peninsula extends south from Uganik Island, 2 miles from its southeast end, and narrows the passage to 0.2 mile. From the point on the south shore southeast of the peninsula, a ledge, which uncovers, makes out nearly half way across the narrowest part of the passage. Vessels transiting through this section should favor the southeast end of the peninsula. In the approach towards the peninsula from the east, a rock which uncovers is 0.3 mile from the south side of Uganik Island and 0.7 mile from its southeast end. A 5-fathom spot is reported 500 yards southeast of this rock.

(763) An island is in the middle of the passage west of the peninsula. Several rocks, submerged and bare at various stages of the tide, are in the vicinity and west of the island. Vessels from east may pass north of the island by following the southwest shore of the peninsula at a distance of 175 yards, taking care to avoid a rock awash on the west side. Once the island is abaft the port beam, steer 300° for the southernmost point of Uganik Island, which shows ahead with the summit of a peninsula a little on the port quarter. Foul ground and rocks awash extend 0.3 mile from Uganik Island 0.4 to 0.9 mile northwest of the peninsula.

(764) Vessels transiting the channel south of the island from east should bring the south end of the peninsula barely open from the point east, astern, and steer for the prominent point on the south shore 0.8 mile west of the island, course 281°. Keep close on this line, passing midway between the island and an islet near the south shore 0.3 mile southwest of the island. When the islet is passed, haul northwest and give the point a berth of over 100 yards. The principal dangers are a rock that uncovers, 200 yards southeast of the island, and a rock with 8 feet over it 0.3 mile west of the island. The islet should be given a berth of over 130 yards.

(765) **Terror Bay** extends several miles south from the turn of Uganik East Passage at the southeast end of Uganik Island. The main part of the bay is clear with the exception of a rock and charted shoals along the west shore. Secure anchorage for vessels of any size is 3 miles above the entrance and about 2.5 miles from the head of the bay, in 7 to 15 fathoms.

(766)

Uganik Bay to Spiridon Bay

(767) **Uganik Bay** is on the east side of Shelikof Strait between Cape Uganik and Miners Point. In general the bay and its arms, with exception of East Arm, have depths too great for anchoring. Several small shoal spots rise abruptly from the general level of the bottom. One of these is in midchannel about 1 mile northwest from Mink Point at the junction of East and South Arms, and two others are in the passage between Sally Island and the shore at Starr Point. The shores of Uganik Bay rise abruptly from cliffs in places and are generally covered with grass and alder bushes.

(768)

Pilotage, Uganik Bay

(769) Pilotage, except for certain exempted vessels, is compulsory for all vessels navigating the waters of the State of Alaska.

(770) The Kodiak Island area is served by the Southwest Alaska Pilots Association. (See **Pilotage, General** (indexed), chapter 3, for the pilot pickup stations and other details.)

(771) Vessels en route to Uganik Bay can contact the pilot boat by calling "UGANIK BAY PILOT BOAT" on VHF-FM channel 16 or on a prearranged frequency between pilot and agent/vessel.

(772) **Cape Uganik**, the northwest end of Uganik Island, is low and flat for about 0.3 mile back and then rises 1,200 to 1,500 feet. Foul ground extends 1.5 miles south from the cape and 0.3 mile or more offshore. Vessels should give the cape a berth of 1 mile.

(773) **Noisy Islands**, a group of two, are 0.5 and 0.6 mile from Uganik Island and 2.5 miles SW from Cape Uganik. The north island is rolling with round-topped, grass-covered hills, the highest of which is about 192 feet. **Noisy Islands Light** (57°55'55"N., 153°33'48"W.), 80 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on the west bluff of the north island. The south island is also grass-covered, but is low and flat. Two fine sand beaches are near the north end of this island and a house is nearby. When off Uganik Bay, these islands are sometimes hard to pick up as they merge into the brown hills of Uganik Island. Noisy Islands should be given a berth of 1 mile.

(774) **Noisy Passage**, between Noisy Islands and Uganik Island, appears to be clear in midchannel with a least known depth of 7 fathoms. It is in constant use by small coasting vessels, but it is not recommended for deep-draft vessels. Vessels using this channel should avoid the rock awash, about 0.2 mile north of the north Noisy Islands. The area between the islands is shoal and rocky and should only be navigated by mariners possessing local knowledge.

(775) **Miners Point**, 8 miles southwest from Cape Uganik, is distinctive in appearance as it terminates in three mound-like hills; the inner one is 390 feet high, and the outer one about 188 feet high.

(776) **Broken Point**, about 3.5 miles east-southeast of Miners Point, is low and flat for 0.4 mile back and then rises to the highland back of it. The outer end of the point is detached and appears as if it had been broken off. A reef, which uncovers on a 2-foot minus tide, is about 250 yards off the point. The point should be given a berth of 0.8 mile.

(777) Anchorage in 12 to 18 fathoms, fair holding ground and protected from south wind, can be found about 1 mile west of Broken Point in 57°53.4'N., 153°39.0'W.

(778) A stream enters the bay in the bight 1.6 miles south from Broken Point. Good anchorage sheltered from south to west winds is off the mouth of the stream in 8 to 15 fathoms.

(779) **West Point** is a comparatively low rocky cliff that rises rapidly to the highland behind it.

(780) **East Point**, 5 miles southeast from Broken Point, is the northwest extremity of the peninsula separating Uganik Bay and Uganik Passage. Two flat rocks with bluff sides are close to the point and from the point is a long gentle slope to the high land.

(781) **Northeast Arm**, the first and largest arm in Uganik Bay, is about 3.3 miles south of East Point. **Northeast Arm Light 1** (57°47'08"N., 153°27'14"W.), 58 feet (17.7 m) above the water, is shown from a small house with a square green daymark and marks the north entrance point to this arm.

(782) **Rock Point**, the south entrance point, has several bare rocks that extend 250 yards north.

(783) **Starr Point** is the low rounding point on the northeast side of Northeast Arm where the channel is split by Sally Island. **Starr Point Light 3** (57°45'21"N., 153°22'04"W.), 30 feet above the water, is shown from a skeleton tower with a square green daymark on a rock just off the point. The rock is awash at extreme high tide and attached to the shore at low tide.

(784) **Sally Island**, just 2 miles long, occupies a central position in the basin at the head of Northeast Arm. The 1,000-foot-high island is covered by grass and alder bushes.

(785) **Sheep Island** is a small island just off the southeast point of Sally Island and is connected to it by a gravel spit which is covered at high water.

(786) A cannery is about 1.3 miles east-southeast of Starr Point. The wharf at the cannery has a face 110 feet long, with a least depth alongside of about 20 feet. In approaching this wharf care should be taken to avoid the spit that bares 150 yards off a small stream 0.3 mile west from the wharf. Deep water extends close up to the spit.

(787) The cannery at **Port O'Brien**, 2.2 miles southeast of Starr Point, has a wharf 390 feet long with a 105-foot face and a depth of about 32 feet alongside. The oil wharf parallel to this main wharf is of equal length with a 30-foot face and has a depth of about 20 feet alongside. Both canneries store fuel oil, diesel oil and gasoline for their own use and have an abundant supply of water. They have some machine shop facilities and scow ways. Tides of 16.5 feet are necessary to use these ways. There are no marine railways. The cannery at Port O'Brien maintains radiotelephone and radiotelegraph communications.

(788) Deep water surrounds Sally and Sheep Islands except for the narrow passage between Sheep Island and the mainland, where it is nearly bare.

(789) A shoal with a least depth of 5¼ fathoms, sand and gravel bottom, is about 300 yards north from the north tip of Sally Island.

(790) Anchorage may be had off either cannery in about 30 fathoms.

(791) **Village Islands** are numerous islands and rocks 2 to 3.5 miles south from West Point. A cannery back of the islands maintains radiotelephone and radiotelegraph communications. An abandoned native village is in the cove just south of the islands. Anchorage for small craft may be had in 6 to 12 fathoms, but the approach is over broken ground making it safe for launches only. There are apparently no continuous channels between the various rocks and islands.

(792) **East Arm** extends southeast from Uganik Bay 7 miles south from East Point. It is 1 mile wide at the entrance and over 3 miles long, but a flat extends 1.5 miles from its head or 0.3 mile below the unnamed island on the bight on the south side of the arm. Depths range from 15 fathoms at the entrance to 3 fathoms near the flats. A rock 450 yards northwest from the island near the south shore uncovers 2 feet. Between this rock and the shore is another rock that uncovers. A row of four rocks, covered about 2 feet, is reported near the west shore about 0.4 mile southeast of Mink Point and to extend south about 0.2 mile to the beach. A saltery is on the south shore west of the unnamed island. It has a small wharf that bares at low water. In approaching the saltery, care should be taken to avoid the rocks mentioned above.

(793) East Arm affords an excellent anchorage for vessels of any size in 10 to 15 fathoms, sticky mud bottom. It is subject to heavy williwaws during south gales.

(794) **South Arm** extends 5.5 miles south from **Mink Point**, the south entrance point to East Arm. The arm near its head is only 0.2 mile wide. A rock, covered ½ fathom, is 225 yards off the east shore, 0.6 mile south of Mink Point. Between the point and the submerged rock is a rock that uncovers 2 feet, 200 yards offshore. Anchorage may be had near the head in 16 fathoms, sticky mud bottom, where the arm is 0.7 mile wide.

(795)

Routes

(796) **Routes, Uganik Bay**: From north, round Cape Uganik 1 mile and steer **222°** for 3.5 miles to a position 1 mile off of Noisy Islands. Round the islands 1 mile and steer **158°** for about 6 miles to a position midway between East and West Points.

(797) From south, give Cape Ugat and Miners Point a berth of 1.5 miles and Broken Point a berth of 0.8 mile. Then steer **143°** for 4 miles to a point midway between East and West Points.

(798) **To enter Northeast Arm:** From a position midway between East and West Points steer **163°** for 2.3 miles until the north tangent of the largest and most north of the Village Islands is on the starboard beam. Then change to **133°** for 1.8 miles until Northeast Arm Light 1 is on the port beam, about 0.5 mile. Then change to **101°** for 1.6 miles, thence change to **132°**, heading about 0.2 mile off Starr Point. Round Starr Point 0.2 mile or less and continue in midchannel along the east side of Sally Island to anchorage or wharf.

(799) **To enter South Arm:** From a position midway between East and West Points, steer **163°** for 2.3 miles until the north tangent of the largest and most north of the Village Islands is on the starboard beam. Then change to **190°**, heading 0.4 mile off Mink Point, which separates East and South Arms. From midchannel off Mink Point, steer midchannel courses taking care to avoid the rocks that are as much as 225 yards offshore for 0.8 mile south from Mink Point.

(800) **To enter East Arm**: Follow courses as above until off East Arm and then enter on a midchannel course taking up anchorage as desired.

(801) **Cape Ugat**, on the east shore of Shelikof Strait 12 miles southwest from Cape Uganik, is a high ridge sloping to a low rocky cliff at the point of the cape. A short distance off the cape is a small, rocky, grass-covered islet 104 feet high that can be seen for 15 miles up and down the coast on a clear day. A reef that uncovers about 5 feet is about 175 yards west of the islet. Between the islet and the cape is a channel used by the local cannery tenders. **Little River** is a meandering stream that enters the strait a short distance south of Cape Ugat.

(802) **Caution**

(803) Cape Ugat was used as a bombing target during World War II. There is the potential for the presence of spent and/or unexploded ordnance remnants in the area. Cape Ugat and the immediate vicinity surrounding it should be treated as a potential munitions and unexploded ordnance hazard area. The unexploded ordnance are potentially hazardous and mariners are advised against anchoring, dredging, or trawling due in this area to their potential presence.

(804) **Cape Kuliuk**, about 5 miles southwest from Cape Ugat, is a cliff at the end of a ridge about 2,000 feet high. A peculiar and prominent clump of rocks is on the summit back of the cape.

(805) **Uyak Bay** is on the east side of Shelikof Strait, south of the mountainous peninsula terminating in Capes Ugat and Kuliuk.

(806) The approach between Cape Kuliuk and Rocky Point is about 11 miles wide, east of which the bay converges rapidly to Harvester Island. It extends 25 miles southeast from Harvester Island. The shores of the bay rise in steep slopes of 2,000 to 4,000 feet and have many mountain streams. The only timber is some alders in the gulches and some cottonwoods at the heads of the bays. Uyak Bay is an important salmon fishery. The best anchorage in Uyak Bay is found south of Harvester Island and in Zachar Bay.

(807) **Chief Point**, on the north shore of Uyak Bay opposite Harvester Island, is formed by a grass-covered island about 90 feet high and has several ridges and small hills. Several rocks awash are about 0.3 mile west from the northwest point of this island. The highest of a group of rocks, known as **Bird Rock**, is 0.5 mile southeast from Chief Point and is 110 feet high.

(808) **Chief Cove** is the narrow strait behind the island forming Chief Point. A rock that uncovers 6 feet is in the north entrance. The south entrance is very shoal. Depths of 8 to 12 feet are in the north part of the cove. It is used as an anchorage by cannery tenders during the fishing season.

(809) **Spiridon Bay** opens into Uyak Bay northeast of Harvester Island. It extends 12 miles inland in an east-southeast direction. Broken ground, with a least depth of 4½ fathoms, extends about 0.6 mile northwest from the point on the south side of the entrance. The only good anchorages for large vessels in Spiridon Bay are at the head in 13 to 16 fathoms, sand and mud bottom. Care should be taken to avoid the 2¾-fathom shoal 0.3 mile off the east shore and 1.2 miles southeast from Telrod Cove. A temporary anchorage can be had in 16 to 18 fathoms about 0.5 mile north from Clover Rock. The bottom is volcanic ash, which has the appearance of yellow sand and has fair holding qualities.

(810) In entering Spiridon Bay from the north, Chief Point should be given a berth of 1 mile. In approaching from the south, the point separating Spiridon and Zachar Bays should not be approached closer than 1 mile to avoid the rock that is nearly 0.5 mile off the point. From a position 1.5 miles south from Chief Point steer **097°** for about 8 miles until Ditto Islets are abeam to starboard, about 0.3 mile. Then change to **135°** and anchor as desired.

(811) **Clover Rock**, 34 feet high, is a rocky islet 0.2 mile off the south shore and 1.5 miles from the south entrance point to Spiridon Bay. It is connected to the mainland by a gravel shoal that bares at minus tides. A large stream enters the bay just east of Clover Rock.

(812) **Thistle Rock** is a small islet consisting of black jagged rocks, about 10 feet high, 0.8 mile northeast of Clover Rock. It is always bare and affords a good mark in clear weather. There are three dangerous rocks in the vicinity of the Thistle Rock. One rock, about 250 yards northwest of Thistle Rock, uncovers 1 foot. The other two are submerged 0.9 and 2.3 fathoms and are about 180 yards east and 440 yards south-southwest of Thistle Rock, respectively.

(813) **Ditto Islets**, a pair 30 and 35 feet high, are in the middle of Spiridon Bay about 7 miles inside the entrance. The bottom between the pair and the south shore is broken and has several rocks awash and a rock 25 feet high. A group of islands in a foul area adjacent to the south shore is southwest of the Ditto Islets; of these, Anguk Island is

the largest. There are several dangerous rocks, shoals and ledges amongst these islets and between Auguk Island and the south shore. These islands should be given a berth of at least 0.25 mile.

(814) **Telrod Cove** is a small cove on the north side of the bay about 10 miles from Chief Point. It affords good shelter in west weather for small craft. The cove shoals rapidly with mudflats at its head. Anchorage may be had in 7 to 15 fathoms, sand and shell bottom. A large stream enters the bay here.

(815) **Weasel Cove**, which forms the west arm at the head of Spiridon Bay, is 0.3 mile wide and has depths of 5 to 7 fathoms in the middle, sand and mud bottom. The cove is an excellent anchorage for small craft. To enter Weasel Cove keep from 250 to 300 yards off the west shore and enter the cove in midchannel, taking up anchorage as desired.

(816)

Harvester Island to Uyak Anchorage

(817) **Harvester Island**, about 9 miles south of Cape Kulink and 0.3 mile off the southwest entrance point to Uyak Bay, is over 1 mile long, 844 feet high, steep sided and grass covered. The 20-fathom curve is about 0.3 mile off the north and east sides of the island, and foul ground extends off the north and east sides for 350 yards in places. A spit, which uncovers and is steep-to, extends 425 yards southwest from the south end of the island. **Harvester Island Spit Light 2** (57°38'15"N., 153°59'41"W.), 22 feet above the water, is shown from a red triangular daymark on a multi-pile structure on the end of the spit.

(818) **Bear Island**, 249 feet high and grass covered, is about 0.8 mile west of Harvester Island. It is 0.3 mile from the shore, with which it is connected by a boulder spit that uncovers about 7 feet.

(819) **Uyak Anchorage**, between Harvester Island and the coast to the southwest, is one of the best harbors on the east side of Shelikof Strait south of Uganik Bay. It has two entrances of which the south is preferred. The depths range from about 5 fathoms between Harvester Island and Bear Island to 20 fathoms 0.4 mile north-northwest of Harvester Island Spit Light 2. The best anchorage is about 0.6 mile north-northwest of the light, in 12 to 14 fathoms. Good anchorage, except with heavy northeast or east winds, can be had about 500 yards south of the light 0.3 mile offshore, in 12 to 14 fathoms.

(820) The northwest entrance is 0.3 mile wide between two reefs, partly bare at half tide and marked by kelp, one extending 400 yards west from the northwest end of Harvester Island and the other 250 to 550 yards east from Bear Island. With care this entrance is not difficult in the daytime, especially at low water when the principal dangers show above water. Once entrance is made and the reefs are passed, favor the east side of the channel to avoid a 2-fathom shoal that is about 0.3 mile south-southwest of the northwest tip of Harvester Island.

(821) The better and safer entrance to the anchorage is around the south end of Harvester Island. **Cormorant Rock**, which uncovers about 7 feet, is about 0.6 mile south-southeast of Harvester Island and 400 yards offshore.

(822) The native village of **Uyak** and the cannery on the southwest side of Uyak Anchorage have been abandoned and are in ruins. There are a few homestead cabins along the shore south of these ruins.

(823)

Routes

(824) **Routes, Uyak Anchorage:** From northward, round Cape Ugat about 1.5 miles and steer **220°** for 6 miles to a position 2.5 miles off Cape Kuliuk, bearing **102°**. Then steer **172°** for 10 miles, giving the east shore a berth of about 2 miles, to a position 0.5 mile east of Harvester Island.

(825) Then steer **237°**, passing about 0.3 mile southeast of Harvester Island. Anchor 500 yards northeast or north of the slipways, in 10 to 14 fathoms.

(826) To go to the inner harbor, follow the preceding directions and then haul northwest, round the light at 100 yards, steer **335°** for the northwest end of Harvester Island, pass 150 to 200 yards off the ruins of the cannery wharf at Uyak and continue the course to midchannel.

(827) **From southward**: Give Cape Uyak, Rocky Point and Bear Island berths of 1 mile or over, and follow the east shore of Harvester Island at a distance of 0.5 mile or more. Then follow directions as given above.

(828) In passing Rocky Point care should be taken to avoid Wolcott Reef, which is 0.3 mile off the point and bares only at extreme low water.

(829)

Zachar Bay to Alf Island

(830) **Zachar Bay**, about 7 miles southeast of Harvester Island, is 0.8 mile wide at the entrance and extends southeast for 5.5 miles where the bay terminates in an extensive mudflat that uncovers. This mudflat affords an excellent place for beaching a vessel in an emergency.

(831) **Carlsen Point**, the south entrance point to Zachar Bay, is low and appears as a bluff when off the entrance. Care should be taken with several rocks that lie about 200 yards off the north shore of the entrance.

(832) A dangerous rock, covered 2¾ fathoms, is 1.6 miles north from Carlsen Point and 0.6 mile offshore.

(833) **Carlsen Reef**, which uncovers 10 feet, is a danger about 0.3 mile northwest from the northeast tip of Carlsen Point.

(834) A reduction plant is on the north shore of Zachar Bay 3 miles above the entrance. The plant has a wharf with a 100-foot face and a least depth alongside of 18 feet. Large vessels dock port-side-to. Radiotelephone and radiotelegraph communications are maintained. There is also float plane service available from Kodiak.

(835) A large stream, with many cottonwood trees along its sides, enters the head of the bay. Kodiak bears are numerous in the area.

(836) Excellent anchorage sheltered from all winds may be had in 12 to 15 fathoms, mud bottom, off the mudflats at the head of Zachar Bay. The anchorage is subjected to moderate williwaws. In anchoring, care should be taken to avoid the mudflats that extend 1.5 miles from the head of the bay.

(837) In entering Zachar Bay, the shore on the port hand should not be approached closer than 1 mile, and a course should be laid to pass 300 yards off the 2¾-fathom rock. From this point steer **127°** until Carlsen Point is abeam on the starboard hand, then change to **145°** and continue, keeping in midchannel.

(838) **Amook Island**, formed by a mountainous ridge, divides an 8-mile stretch of Uyak Bay into two passages. The east passage is narrow and obstructed in places, and as a through route should be used only by small vessels with local knowledge. Reefs extend 0.3 mile north from the north end of Amook Island.

(839) The ship passage is west of Amook Island. **Aleutian Rock**, marked by a daybeacon on its southwest side, is 0.3 mile off the southwest shore of Amook Island, in the south end of this passage. This dangerous rock uncovers 1 foot and is not marked by kelp. Vessels should pass between Aleutian Rock and Alf Island. The steamship ALEUTIAN was lost here in 1929.

(840) A cannery is on the west shore of Uyak Bay opposite the south end of Amook Island.

(841) In the bight on the west side of Amook Island, 2.5 miles from its north end, is an anchorage for a small vessel in about 10 fathoms, with shelter from east and south winds. The bottom is uneven with a possibility of dangers. The entrance is between the south point of the bight and a bare rock 0.6 mile north from the point and 0.5 mile from Amook Island. Between this rock and the island is a reef, partly bare at low water, which extends 0.5 mile southeast from an islet.

(842) The passage east of Amook Island for about 2.5 miles from its north end has suitable depths and sufficient width for anchoring vessels of moderate size. The passage then narrows to 300 yards, and from the point on the east side a kelp-marked reef extends west and northwest more than halfway across, leaving a narrow channel between the reef and the west shore. Near the northwest end of the reef is a bare rock. An anchorage for small vessels may be found on the west side of the south end of the narrows, around the point, in 5 to 8 fathoms. A small vessel can also anchor 300 yards off the narrow entrance of the shallow lagoon 0.4 mile northeast of the point of the narrows, in 5 to 6 fathoms. A 2¼-fathom spot is about 500 yards off the lagoon entrance.

(843) Thence for 2 miles the passage is clear to the second narrows where a spit, partly bare at low water, extends halfway across from a low grassy point on the west side and leaves a channel 125 yards wide between the south end of the spit and an island. The channel is west of this island and the next island 0.4 mile south; the west shore should be favored until over 0.2 mile south of the south island. South of this point the passage is clear. Some prospecting has been done on the east side of the passage 2 miles from its south end.

(844) Lying 0.8 to 2.5 miles south of Amook Island is a chain of islands with foul ground between them and about 300 yards off the northwest end of **Alf Island**.

(845) The safer and recommended passage is east of the chain composing Alf Island. Broken bottom extends about 300 yards into the passage from the central islets of the chain, and directly opposite, a reef extends 200 yards from the east side of the passage. The reef is marked at its outer end by a bare rock visible at all times.

(846) At the south end of the chain of islands is a small inlet in the west shore about 0.8 mile long and 300 yards wide, affording anchorage in about 12 fathoms.

(847) From 3 to 6 miles south of Alf Island, Uyak Bay shoals gradually from 20 to 4 fathoms and anchorage may be selected in any depth desired. The swinging room is about 1,400 yards in diameter.

(848) The upper end of Uyak Bay is bordered by high snow-covered mountains.

(849)

Larsen Bay

(850) **Larsen Bay** is on the west side of Uyak Bay, 6 miles south of Harvester Island. Depths inside the bay are 7 to 38 fathoms; the north shore slopes steeply to the flat bottom, while the south shore slopes more gradually. From its head, a trail leads over a low divide to the Karluk River. A large pier and a large cannery are on the west side of the spit that separates Larsen Bay from Uyak Bay. The pier, built over the shoal water, is 1,190 feet long and has a depth of 12 feet at its outer end. A 3-ton crane is on the pier. Water is available through a pipeline during summer months only. Gasoline, kerosene and diesel oil are stored for cannery use and may be purchased. A machine shop is maintained for cannery use, and a store is available for the purchase of food and clothing in small quantities. A small dispensary and first aid station are available but no doctor is in residence. There is a row of public pay telephones south of the cannery office.

(851) The entrance is between a spit extending 150 yards south of the north shore and a 20-foot islet about 150 yards from the south shore. There is a reef, marked by a light, in the middle of the entrance that uncovers at low water. Two narrow crooked channels lead on either side of the reef. The preferred south channel, between the mid-entrance reef and the 20-foot islet, 200 yards southeast of it, is marked by a **248°** range. The front range is a pile on the flats bearing a circular orange disk, and the rear range is another circular orange disk painted under the gable of a building. This channel has a least depth of 3.7 fathoms on the range. A **291.3°**inner lighted range marks the final approach to the bay.

(852)

Anchorages

(853) A good anchorage for larger vessels will be found about 600 yards north of the small island on the south side of the bay and about 800 yards west of the cannery pier. This anchorage is in about 20 fathoms of water with mud bottom. In west weather, the winds blow down the bay with great force. The holding ground is good. On the south side of the small island there is a harbor for small vessels. A reef, marked by a buoy, extends about 50 yards west off the west end of the island. The harbor is bordered by three breakwaters. The south breakwater, which extends from Kodiak Island, is marked by a light. Depths in the harbor range from 1.5 to 2.7 fathoms.

(854)

Routes

(855) Small vessels can enter Larsen Bay at any stage of the tide, but large vessels should choose a high-water slack with calm weather for entering or leaving.

(856) Enter on the range and pass midway between the reef marked by a light on the north side and the 20-foot rock, 200 yards south from it. Hold this range, **248°**, until within about 300 yards of the dolphin with the orange disk and then pick up the **291.3°** inner range, passing between Daybeacons 2 and 3. Maintain course **291.3°** until 400 yards from Larsen Bay Range Front Light and turn left to **245°** for 0.5 mile, then haul south and anchor as desired.

(857)

Currents

(858) A strong tidal **current** sweeps through the entrance with an estimated velocity of 4 to 5 knots. Steep waves will build at the entrance when strong easterly winds blow opposing the ebb current. See the Tidal Current prediction service at *tidesandcurrents.noaa.gov* for specific information about times, directions, and velocities of the current at numerous locations throughout the area. Links to a user guide for this service can be found in chapter 1 of this book.

(859)

Pilotage, Larsen Bay

(860) Pilotage, except for certain exempted vessels, is compulsory for all vessels navigating the waters of the State of Alaska.

(861) The Kodiak Island area is served by the Southwest Alaska Pilots Association. (See **Pilotage, General** (indexed), chapter 3, for the pilot pickup stations and other details.)

(862) Vessels en route to Larsen Bay can contact the pilot boat by calling "LARSEN BAY PILOT BOAT" on VHF-FM channel 16 or on a prearranged frequency between pilot and agent/vessel.

(863)

Sevenmile Beach to Northeast Harbor

(864) **Sevenmile Beach** is the long boulder-strewn beach from Bear Island to Rocky Point. It is backed by low cliffs from which a broad grassy valley extends back several miles toward Karluk Lake.

(865) **Rocky Point** is a double point on the south side of the approach to Uyak Bay. It consists of bold cliffs which rise rapidly to the ridges, of that the point is a termination.

(866) **Wolcott Reef**, a dangerous group of rocks that bare at extreme low water, is 0.3 mile off the east spur of Rocky Point. A channel is between the reef and the point and has a least known depth of 4 fathoms. This channel is used by beach seiners in good weather. A buoy is 0.2 mile west of the reef.

(867) **Cape Uyak**, on the east side of Shelikof Strait about 4 miles southwest from Rocky Point, is a precipitous high headland at the end of a ridge. From the water the slope rises abruptly to 647 feet. There is then a slight fall to a deep notch in the narrow neck back of the cape, from which there is a rise in steep, grassy slopes to higher land.

(868) **Northeast Harbor** is the bight on the south side of Cape Uyak. In northeast weather it affords excellent shelter for small craft that can anchor close under the shore in 3 to 5 fathoms, sandy bottom. Larger vessels anchor farther out in 9 fathoms with some protection but subject to an uncomfortable swell.

(869) Between Cape Uyak and Karluk are two long cliffs about 1,300 feet high, the south one having a marked slide extending from its highest point almost to the water. In the valley between the cliffs are two waterfalls. Beach seining is carried on here during the season, and a number of shacks used by fishermen are on the beach at the foot of the cliffs.

(870)

Karluk

(871) **Karluk**, 5.5 miles south from Cape Uyak and 1.5 miles east from Cape Karluk, is a native village with a school and a church. Fishing is the principal industry. Two of the old cannery buildings are still standing next to the river entrance, but they are no longer used, as the fish are now taken to Uyak Bay for canning. A strong set south toward the shoals inshore has been experienced.

(872) Radiotelephone and radiotelegraph communications are maintained.

(873) The entrance to **Karluk River** is through a narrow channel at the south end of a spit and is only passable by launches at high water. About 1.5 miles up the river is a weir where the salmon are counted as they ascend the river. The weir is removed during the winter.

(874) **Karluk Anchorage**, off Karluk, is sheltered from offshore winds but is exposed to winds from the southwest around through west to northeast. Vessels should be prepared to move on short notice. Anchorage may be had off the town in 12 to 14 fathoms, sandy bottom. During the fishing season a number of scows and launches are usually found moored in the roadstead.

(875) The abandoned cannery buildings and the church spire are the principal objects to be seen in approaching Karluk.

(876) **Tanglefoot Bay** is the bight adjacent to Cape Karluk on its east side. It is separated from Karluk by a high cliff, the base of which is not passable by pedestrians at high water. **Tanglefoot Beach** is very steep and has a bad undertow. Landing here is dangerous if there is any surf.

(877)

Cape Karluk to Gurney Bay

(878) **Cape Karluk** is the most conspicuous landmark along the west coast of Kodiak Island. The cape is a prominent, projecting head, 1,420 feet high, with bare rock cliffs on its seaward face and grassy slopes on its east side to lowland. It is readily identified by its cone-shaped appearance, a notch in the summit and the lowland behind it.

(879) **Sturgeon River** has its mouth about 2 miles south from Cape Karluk. The entrance is between 2 shingle spits covered with driftwood. It can be entered by small boats at half tide or better. For about 1 mile back of the beach the river flows through a mudflat, which is covered at high water.

(880) **Sturgeon Head** is a high whitish eroded headland 5 miles southwest from Cape Karluk. Several rocks and reefs are as much as 200 yards offshore at the foot of Sturgeon Head.

(881) **Cape Grant**, about 10 miles south-southwest of Cape Karluk, is a rugged headland at the end of a high ridge, the summit of which is marked by a small cluster of peculiar pinnacle rocks.

(882) A rock nearly awash at low water is 0.3 mile off the southwest tip of Cape Grant. Shoal water extends some distance beyond this rock and vessels rounding the cape into Halibut Bay should give it a berth of 0.8 mile.

(883) **Halibut Bay** is the large bight just southwest from Cape Grant. The bight is bordered by eroded bluffs and a broad sand beach. A stream enters the sea at the south part of Halibut Bay. Vessels anchor in 7 fathoms, hard sand bottom, 0.8 mile off the beach. Small craft may find more protection closer in near the mouth of the lagoon.

(884)

Anchorages

(885) Anchorage is also available in the north corner of the bay, but care should be taken to avoid the reef that makes out from the southwest tip of Cape Grant.

(886) An abandoned cannery is at the south end of Halibut Bay at the entrance to the lagoon; the cannery wharf dries at low water.

(887) **Middle Cape**, the westernmost promontory on Kodiak Island, consists of two headlands having precipitous, rocky cliffs facing the sea and smooth grassy slopes facing inland. The north headland is the higher, a little over 1,000 feet. Its summit consists of three rocky clumps, the middle one of which is the highest. These rocky clumps are prominent and easily distinguished from the north.

(888) A prominent high pinnacle rock is at the foot of the north slope of Middle Cape.

(889) **Tombstone Rocks** consist of two detached rocks about 100 yards apart 0.8 mile off Middle Cape. The south rock is 99 feet high while the north rock is only a few feet high. From some directions these rocks appear as the headstone and footstone of a grave. Deep water is close to the rocks.

(890) **Mushroom Reef**, which uncovers 13 feet, is about 0.3 mile offshore and 1 mile southeast from Middle Cape. This rock when exposed by the tide is round and has the appearance of a huge mushroom. Deep water is close up to it.

(891) A prominent pillarlike shaft of rock, 170 feet high, with overhanging sides, is about 100 yards offshore and east from Mushroom Reef.

(892) **Middle Bay** is a small bight about midway between Middle Cape and Cape Ikolik. The 5-fathom curve is about 0.3 mile off the beach.

(893) **Gurney Bay** is the bay immediately northeast from Cape Ikolik. The head of the bay is shoal with a sand beach strewn with boulders. Anchorage may be had in 10 fathoms, sandy bottom, midway between the two entrance points. This is a comfortable and secure anchorage in east weather.

(894)

Cape Ikolik to Sukhoi Bay

(895) **Cape Ikolik**, 4 miles south of Middle Cape, is a rugged headland 1,008 feet high, with its summit forming a ridge lying in a northeast and southwest direction.

(896) **Outer Seal Rock**, 1.8 miles west from Cape Ikolik, resembles a sail and is 89 feet high. The rock has deep water close-to except about 200 yards to the southwest where there are submerged rocks. Outer Seal Rock is a sea lion rookery.

(897) **Caution**

(898) Outer Seal Rock was used as a bombing target during World War II. There is the potential for the presence of spent and/or unexploded ordnance remnants in the area. Outer Seal Rock and the immediate vicinity surrounding it should be treated as a potential munitions and unexploded ordnance hazard area. The unexploded ordnance are potentially hazardous and mariners are advised against anchoring, dredging, or trawling in this area due to their potential presence.

(899) **Inner Seal Rock**, 0.3 mile west from Cape Ikolik, is a steep-sided bare rock 125 feet high, surmounted by a rocky nub that gives it the appearance of a lighthouse. From some directions it appears as a huge bell.

(900) **Bumble Bay** is 2.5 miles east of Cape Ikolik. The west point of the bay is marked by three pinnacle rocks, while the east point is marked by a single pinnacle rock 127 feet high. Small craft will find shelter from east winds in the east part of the bay, while large vessels will find anchorage in the center of the bay in 12 fathoms, sand bottom.

(901) **Ayakulik Island**, 5 miles southeast of Bumble Bay, is small and 220 feet high. A reef extends east from the

east point of the island to a sandspit on the mainland of Kodiak Island. About 300 yards west and north of the island are bare rocks and rocks awash.

(902) Small launches will find shelter in southeast or east weather in 5 fathoms, 300 yards northeast of the island. Larger vessels will find shelter from east weather in 7 fathoms, 0.5 mile north of the island.

(903) **Ayakulik River**, known locally as **Red River**, discharges at a point 1.8 miles southeast of Ayakulik Island. With local knowledge, the river can be entered at high tide in smooth weather by small launches. The Fish and Wildlife Service maintains a station here during the salmon season.

(904) From a point 3 miles north of Ayakulik Island to Low Cape, the shoreline runs in a nearly north-south direction and is marked by earth bluffs varying from a few feet to 267 feet high.

(905) **Ikpik Hill**, a prominent high dark-colored earth bluff, is 3.2 miles north of Low Cape, and in approaching from Cape Ikolik, this bluff may be mistaken by a stranger for Low Cape.

(906) **Low Cape**, 11.5 miles northwest from Cape Alitak, is the west extremity of the lowland in this vicinity. The extremity of the cape is marked by a peak-shaped light-colored earth bluff about 90 feet high. A spit, bare at low water, extends nearly 0.3 mile off the cape. The water deepens gradually, the 10-fathom curve lying 2.3 miles off the cape.

(907) From a position 2 miles west of Low Cape, heavy kelp extends east-southeast. Soundings in this kelp showed depths of from 3 to 7 fathoms, but much shoaler water probably exists. Low Cape should be given a berth of about 3 miles.

(908) **Sukhoi Bay** has its entrance about 6 miles south of Low Cape. The entrance is narrow and is between two sandbars. It has a depth of about 6 feet but should not be attempted except with local knowledge.

(909) The coast from Low Cape to Cape Alitak apparently has no off-lying dangers.

(910) Cape Alitak has been described earlier in this chapter.

(911)

Routes

(912) **Routes, Cape Karluk to Cape Alitak**: From a point 2 miles off Cape Karluk, steer **222°** for 5.5 miles to a position with Sturgeon Head (a high white eroded cliff) abeam. Then change to **213°** for 11.5 miles until Tombstone Rock is on the port beam, 2 miles.

(913) Then change to **196°** for 4 miles or until Outer Seal Rock (a sail-shaped pinnacle) is a little abaft the beam, 2 miles.

(914) Then change to **154°** for 23.3 miles to pass 2.8 miles off Low Cape. On this course Low Cape should be passed in a depth of 14 fathoms.

(915) When Low Cape bears **083°**, 3 miles, haul to **132°** for 12.5 miles, passing about 1.3 miles off Cape Alitak, to a position with the cape bearing **010°**, 1.5 miles.

(916) If bound to Alitak Bay, follow routes given in the description of that place.

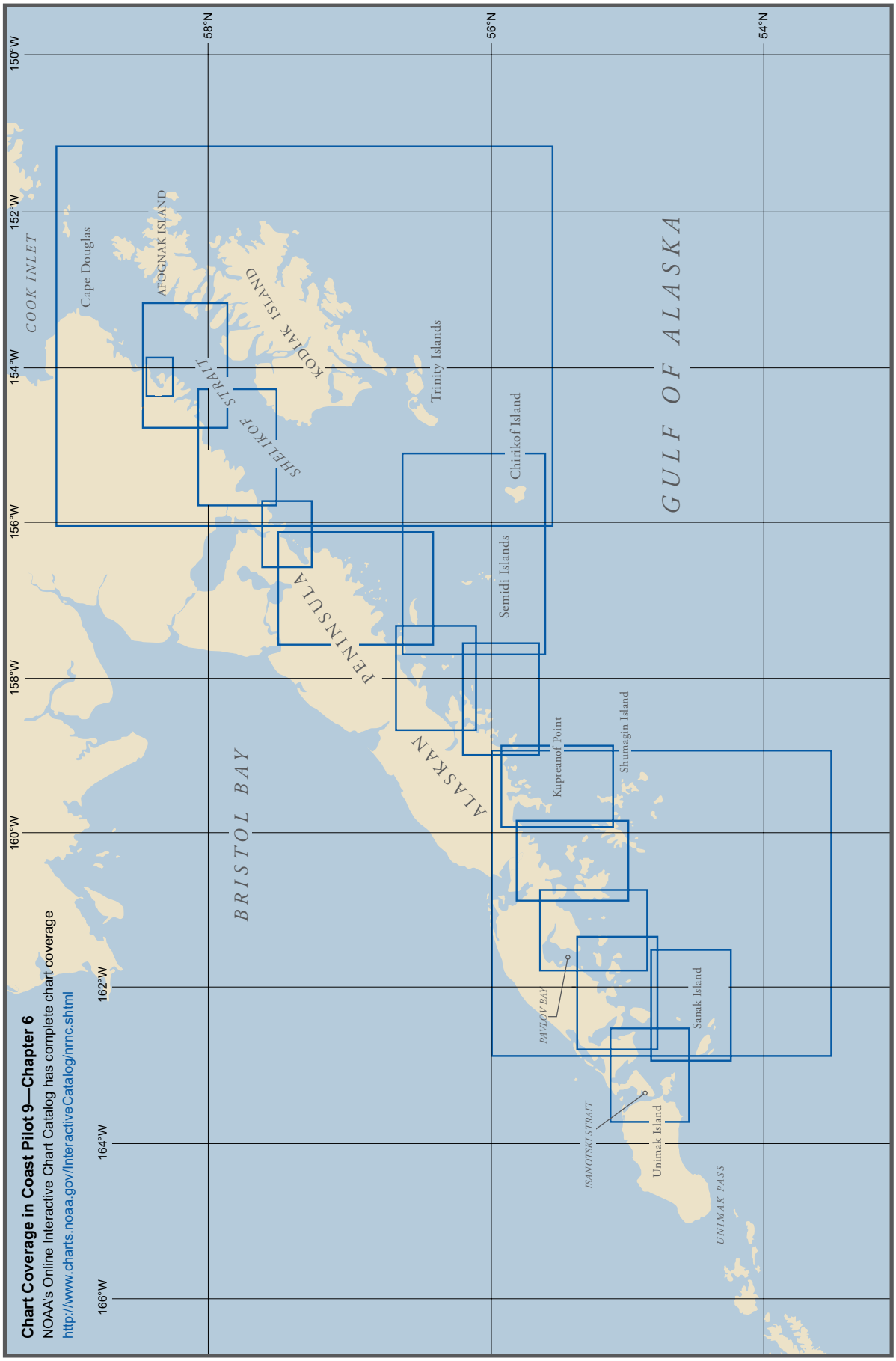


Chart Coverage in Coast Pilot 9—Chapter 6
NOAA's Online Interactive Chart Catalog has complete chart coverage
http://www.charts.noaa.gov/InteractiveCatalog/nrnc.shtml
150°W
152°W
154°W
156°W
158°W
160°W
162°W
164°W
166°W
58°N
56°N
54°N
COOK INLET
Cape Douglas
APOGNAK ISLAND
KODIAK ISLAND
SHELIKOF STRAIT
Trinity Islands
Chirikof Island
GULF OF ALASKA
PENINSULA
Semidi Islands
ALASKAN
BRISTOL BAY
Kupreanof Point
Shumagin Island
PAVLOV BAY
Sanak Island
ISANOTSKI STRAIT
Unimak Island
UNIMAK PASS

Alaska Peninsula

(1) This chapter describes the south coast of the Alaska Peninsula from Cape Douglas to Isanotski Strait as well as the Semidi Islands, Shumagin Islands, Sanak Islands and many other smaller off-lying islands that fringe this part of the coast. Also described are Katmai Bay, Wide Bay, Chignik Bay, Stepovak Bay, Unga Strait, Pavlof Bay, Ikatan Bay, Isanotski Strait and many smaller bays and lagoons, and the fishing communities of Sand Point, King Cove, Cold Bay and False Pass. The north coast of the Alaska Peninsula is described in chapter 8.

(2) **Alaska Peninsula**, extending southwest over 400 miles from Alaska mainland (59°30'N., 155°00'W.) to Isanotski Strait (54°52'N., 163°23'W.), is mountainous with many irregular and bold peaks reaching 2,000 to 9,000 feet. **Pavlof Volcano** (55°25'N., 161°54'W.), the most prominent of several active volcanos on the peninsula, has three symmetrical peaks in a general north-south line; the middle and highest peak rises to almost 8,300 feet. **Frosty Peak** (55°04'N., 162°50'W.), a conspicuous snowcapped mountain with several irregular peaks near the southwest end of the peninsula, reaches nearly 5,800 feet. There are many lakes and sizable streams on the peninsula; several portages cross between the adjacent bays.

(3) The south coast of the Alaska Peninsula from Cape Douglas (58°51'N., 153°17'W.) to Cape Pankof (54°40'N., 163°02'W.) is irregular and broken by numerous indentations affording anchorage. Some settlements, canneries and fishing stations are scattered along the coast and among the off-lying islands.

(4) Many of the points are high rugged cliffs with offshore reefs, while other points are low with shoal water extending from the shore. Kelp does not always mark rocks and shoals, especially in early or late summer. Sometimes only thin ribbon kelp grows on the dangers that is either drawn under by currents and seas or cannot be seen until the kelp is entered.

(5) Many vessels from southeast Alaska use the Shelikof Strait route southeast of the Alaska Peninsula to the Bering Sea. The route is described in chapter 3. The run between Shelikof Strait and Shumagin Islands is one of the most difficult in Alaska because of the prevalent thick weather and unknown currents. The current effect near Foggy Cape (56°31'N., 157°00'W.) is particularly confusing.

(6)

Local magnetic disturbance

(7) Differences from the normal variation of as much as 14° have been observed along the Alaska Peninsula.

(8)

Currents

(9) A continual current of considerable strength follows the coast all the way from Shelikof Strait to the Aleutian Islands. This west current is considered an eddy that accompanies the general east drift across the Pacific south of latitude 50°N. and forms a part of the general circulation of the North Pacific Ocean.

(10) The current along the Alaska Peninsula has been called a warm current originating in the Gulf of Alaska and it doubtless assists in causing the south side of the peninsula to be warmer than the Bering Sea side. It is also well known that the islands off this coast have a milder climate than the mainland; almost the entire population of the area is found on them as a result.

(11) The coastal current searches out all the passages, large and small, between and around the many islands, and in some of them it becomes strong enough to be important. An approaching northeast storm gives warning by strengthening this current; in many places the current will indicate northeast weather a day before the barometer falls. west winds weaken the current.

(12) On three runs between Chirikof Island and Castle Rock, a survey ship experienced a south set indicating an average strength of current of 1.5 knots.

(13) The tidal currents in the vicinity of the south coast of the Alaska Peninsula are strong in many of the constricted passages. In the open waters offshore they are generally weak. See the Tidal Current prediction service at *tidesandcurrents.noaa.gov* for specific information about times, directions, and velocities of the current at numerous locations throughout the area. Links to a user guide for this service can be found in chapter 1 of this book.

(14)

Weather, Alaska Peninsula

(15) Winds along the rugged Alaska Peninsula are local and variable. At Chignik, they are mostly from the west through northwest in early winter, the southeast in midwinter, and southeast through southwest from March through September. Strong winds often blow from the Bering Sea through the mountain pass over Chignik Lake. In the Shumagin Islands, summer winds are often out of the southwest, while winter winds frequently blow out of the south. At Cold Bay, southeasterlies are common all year around. Northwesterlies are also frequent in winter. In summer, west through northwest winds are common. In winter, windspeeds at Cold Bay average 15 knots and reach gale force about two percent of the time.

(16) Annual rainfall ranges from 20 to 60 inches (508 to 1524 mm), with heaviest amounts usually occurring on the southeast side of the peninsula. At Cold Bay, which averages 36 inches (914 mm) annually, measurable precipitation falls on 320 days in an average year; on nearly half of those days, it snows. September through November are usually the wettest months, while snow is common from October through April.

(17) January and February are usually the coldest months of the year. The average daily maximum is around the freezing mark (0°C) or above on the southeast side of the peninsula and 3 or 4 degrees cooler on the northwest side. Average daily minimum temperatures on the southeast side range from 16°F (-8.9°C) in the north to 28°F (-2.2°C) in the south. On the northwest side, they fall to an average of 16°F (-8.9°C) at Port Heiden, increasing to 28°F (-2.2°C) to the south and decreasing to below 10°F (-12.2°C) to the north. At Cold Bay, extreme low temperatures have fallen to -13°F (-25°C, March 1971), while Coal Harbor has recorded a -19°F (-28.3°C) temperature. Temperatures climb steadily from March through early August. In August on the average, daytime highs range in the mid-fifties (12° to 13°C) to low sixties (16° to 18° C), while nighttime lows drop into the mid- to upper forties (7° to 9°C). Extreme temperatures have reached the mid-eighties (28° to 31°C) at sheltered locations. The all-time high for Cold Bay is 77°F (25°C) recorded in July 1960.

(18) Though fog may be encountered along this coast at any time during the summer, it is most prevalent from June through September. The southeast winds bring in the fog banks that lie over the North Pacific. Fog is reported on an average of 18 to 25 days per month at Cold Bay in mid-summer; however, visibilities fall below two miles (4 km) on only about three to six days. Fog often hangs about the headlands and entrances to bays when the upper parts of the bays are clear. Land fog and precipitation reduce visibilities in winter.

(19) All harbors on the southeast side of the peninsula are free from ice and open to navigation throughout the year. Pack ice has been known to drift through Isanotski Strait and interfere with navigation in Ikantan Bay.

(20) **Prominent points and most off-lying islands on the south side of the Alaska Peninsula are adequately charted. However, much of the coast between Cape Douglas and Chignik Bay has not been surveyed. Notes on the unsurveyed portions are from the most reliable sources available; these waters should be used with caution.**

(21)

Cape Douglas to Ninagiak Island

(22) **Cape Douglas** (58°51'N., 153°17'W.), the mainland promontory on the west side of the north end of Shelikof Strait, is a grassy peninsula about 3 miles long and 190 feet high. At its west end it breaks off in a bluff to a low, narrow neck that connects it to the mainland. Rocks that uncover extend about 0.2 mile east from the cape.

(23) The three points on the southeast side of Cape Douglas and the small projecting point on the mainland in 58°49.8'N., 153°21.3'W., about 1.5 miles southwest of Cape Douglas, are reported to be distinctive radar targets at 10 miles.

(24) In 1971, the NOAA Ship RAINIER reported that good anchorage in 12 fathoms, very even sand and mud bottom, good holding ground and sheltered from west and north weather, could be found about 1.5 miles south of Cape Douglas and about 1.5 miles off the mainland shore. There is some shelter from southwest and northeast winds, but if winds are heavy, northeast swells roll around the point. In making the anchorage, keep 2 miles northeast of the 28-foot-high rock near the center of Douglas Reef, and maintain a distance of 1.5 miles off the mainland shore when anchoring. The small projecting point on the mainland, 1.5 miles southwest of Cape Douglas, is a good radar target for approaching the anchorage, and the 28-foot-high rock is also a good radar target at 5 miles, but only when the tide is high enough to cover the rest of the reef (half tide or higher).

(25) **Mount Douglas**, 7,064 feet high, and **Fourpeaked Mountain**, 6,903 feet high, are snow-covered mountains west and southwest, respectively, of Cape Douglas.

(26) **Douglas Reef**, 5.5 miles south of Cape Douglas, is about 2 miles in diameter. Part of the reef uncovers; near its middle is a rock 28 feet high. A sounding of 6 fathoms with 40 to 60 fathoms close-to was obtained 1 mile 081° from the rock. Several rocks, close together and awash at high water, are 2.8 miles southwest from Douglas Reef and 1.5 miles offshore. A reef bare at low water extends about 0.8 mile southeast from them. About 10 miles southwest of Cape Douglas is a point marked by a hill 673 feet high. In the valley south of the point is a small glacier. About 1.2 miles from the point and 168° from the hill is a rock awash at about half tide. There is no kelp on the rock, and the sea seldom breaks on it when it is covered.

(27) Two submerged rocks with kelp patches are about 1.5 miles southwest of the preceding rock and the same distance from shore. The kelp shows well only at low water, and the sea seldom breaks on the rocks.

(28) Dangerous pinnacles are in the area N of 58°40.0'N. and W of 153°27.0'W., about 5.5 miles north-northeast of Kiukpalik Island. Mariners are advised to exercise extreme caution while navigating in the area.

(29) **Kiukpalik Island**, 17.5 miles south-southwest of Cape Douglas and 2 miles offshore, is 1.2 miles long, 155 feet high, nearly level and grass covered. A reef with a submerged rock at its outer end extends about 0.3 mile north of the island, and a shoal, scantily marked by kelp, is about 0.5 mile northwest of the island. The channel between the island and these outlying dangers is not safe. Temporary anchorage, with shelter from east winds, can be had in the bight on the west side of the island in 8 fathoms, muddy bottom. The mainland opposite the

island should be avoided, as there is a possibility of shoals on that side.

(30) **Shakun Rock**, a prominent dark pinnacle 50 feet high, is 5 miles 232° from Kiukpalik Island. From the rock, a semicircular reef, partly bare at low water, extends northeast 2 miles and south and west to the south end of the chain of grass-covered **Shakun Islets**. A 1975 survey indicated that the channel between the islets and the reef was clear of rocks and had depths of 1½ to 3 fathoms. The waters between the north tips of Shakun Islets and the reef that extends northeast of Shakun Rock and the south side of Kiukpalik Island are clear, with depths of 5 to 10 fathoms. The waters between the mainland and Shakun Islets are free of danger, except for reefs just off the mainland. Depths of 1 to 3 fathoms are in this area.

(31) **Swikshak Lagoon**, about 5 miles north of Shakun Islets, is a lagoon that is practically closed at all stages of the tide. The entrance is about 200 feet wide and rocky. Depths inside the lagoon average less than 1½ fathoms. Just southeast of the lagoon entrance is a group of reefs, one of which is bare at all stages of the tide.

(32) **Kaguyak**, an abandoned village in ruins, is behind a large bare rock that is joined to the beach at low water. Approaching from southeast, a Coast Guard vessel is anchored in about 7 fathoms, hard sand bottom, with Cape Chiniak bearing **205°**, Shakun Rock **096°** and the rock in front of Kaguyak **346°**. Between Cape Chiniak and Shakun Rock, the bottom was found to be uneven, depths 10 to 30 fathoms, mud and hard sand alternating.

(33) **Cape Chiniak**, the north point of Hallo Bay, is 27.5 miles south-southwest of Cape Douglas. It has a high hill near its end.

(34) **Hallo Bay**, between Cape Chiniak and Cape Nukshak, is 6 miles wide and ends in tidal flats that extend out up to 0.5 mile along the head of the bay.

(35) **Ninagiak Island**, in Hallo Bay, has a knob 305 feet high. A rock, bare at most stages of the tide, is 0.7 mile southeast of the island. A reef extends 0.3 mile northeast of the rock, and a submerged rock is 0.3 mile southwest. Good anchorage, open to northeast weather, can be had close into the mainland between the island and the tidal flats to the west. Safe passage can be made on either side of the small island 0.5 mile southwest of Ninagiak Island, but the passage between the north side of Ninagiak Island and the mainland is foul.

(36) A reef, about 1.2 miles long east and west, is in Hallo Bay about midway between Ninagiak Island and Cape Nukshak. The reef is bare in places at low water and has no kelp.

(37)

Cape Nukshak to Kaflia Bay

(38) **Cape Nukshak** (58°23.5'N., 153°59.0'W.), 36 miles southwest from Cape Douglas, is flat and grass covered to the foot of a prominent sharp peak. Just off the cape is narrow **Nukshak Island**, which is 0.5 mile long, 133 feet high and has two knolls. Between the island and the cape is a narrow passage about 75 yards wide that has a depth of 5 fathoms in midchannel. A prominent pinnacle is close to the west end of the island. Anchorage and shelter from west winds can be had 0.2 mile south of the island in 10 fathoms, pebble bottom. In 1972, the NOAA Ship RAINIER anchored in 31 fathoms, hard bottom, with the pinnacle bearing **233°**, 0.6 mile.

(39) A large reef that uncovers 9 feet is 0.5 mile off the mainland and 1.8 miles southwest of the outer end of Nukshak Island. A rock, awash and marked by kelp, is 0.6 mile east-southeast of the reef. From Cape Nukshak to Kukak Bay the cliffs along the shore are irregular, and numerous high-water and submerged rocks extend about 1 mile offshore.

(40) **Yugnat Rocks**, about 3 miles southwest of Cape Nukshak, are several prominent rocks about 20 feet high. The area around the rocks is foul, and ships are warned to keep outside the 20-fathom curve.

(41) **Kukak Bay**, between Cape Nukshak and Cape Ugyak, has depths as great as 63 fathoms and extends inland about 6 miles. The entrance is 0.6 mile wide and is easy of access. The shores are steep in most places and anchorage area is limited.

(42) **Kukak Point**, 4.5 miles southwest of Cape Nukshak, is low and grassy; a reef extends 0.5 mile southeast from the point. **Devils Cove**, between Kukak Point and **Tiny Island**, has a flat muddy bottom and depths of 3 to 7 fathoms. Located at the east end of Devil's Cove is a privately owned lodge receiving periodic seaplane traffic during the summer months. There is a waterfall at the west end of the Cove. Entrance to the cove is obstructed to the southeast by two rocks and by a foul area with rocks and kelp in the center of the entrance. These features cover at high water. The best passage into the cove is between Tiny Island and the foul area at mid-entrance. Mariners unfamiliar with the area are cautioned to enter at low stages of the tide and only if the reefs and rocks are visible.

(43) On the south side of Kukak Bay are two islands; **Aguligik Island** is just inside the entrance and **Aguchik Island** is near the head of the bay. The ruins of an abandoned salmon and clam cannery are in the small cove opposite the east side of Aguligik Island. The ruins of the cannery wharf bare at extreme low water. Aguchik Island connects with the shore at low water.

(44) Cannery tenders formerly anchored in a small bight south of Aguligik Island in 28 fathoms, mud bottom. In 2000, NOAA Ship RAINIER anchored in this bight 0.3 mile south of Aguligik Island in 37 fathoms, mud bottom, and found the bight to be protected from most winds. A large anchorage is also available south of Aguchik Island in 11 to 23 fathoms. Mariners should note that the sand and gravel bar from the river at the head of Kukak Bay had extended itself approximately 0.2 mile seaward in 2000. Both anchorages afford good protection against wind and swell. The holding bottom is good.

(45) A reef, covered 8 feet, is near the center of the inner part of Kukak Bay. The reef is 0.5 mile from the north

shore, 0.8 mile from the south shore and about midway between Aguligik and Aguchik Islands.

(46) **Cape Ugyak**, 8 miles southwest of Cape Nukshak, is the east end of the mountainous peninsula between Kukak and Kaflia Bays. **Kulichkof Island** is a small grass-topped islet 0.2 mile north of the cape.

(47) The area north of Cape Ugyak is foul for a radius of about 2 miles. Bare and covered rocks, and reefs are numerous. A rock awash, not marked by kelp, is 1.3 miles north-northwest from Kulichkof Island and 0.8 mile off the mainland. There are, however, heavy patches of kelp in the vicinity of Kulichkof Island and neighboring reefs. A rock covered 11 feet is 0.8 mile north-northeast of Kulichkof Island; a small patch of kelp is visible only at extreme low tides.

(48) **Kaflia Bay**, between Capes Ugyak and Gull, has at its head two small basins with depths of 20 to 35 fathoms in the middle that are joined by a very narrow channel that passes south of a large islet just off the north shore. The channel into the first basin is about 30 feet wide and subject to very swift currents during ebb and flood. Approach the channel south of several rocks in the entrance, then turn north passing between the rocks and islet in the center. Hug the east and north sides of the islet as you pass around. The channel has depths of 2 to 3 fathoms but is not recommended to those unfamiliar with the area.

(49) In the outer bay, a rock which bares at low water is 0.6 mile southwest of the prominent point on the north side.

(50)

Cape Gull to Dakavak Bay

(51) **Cape Gull**, about 47 miles southwest of Cape Douglas, is a bold headland, terminating in a cliff 503 feet high. Temporary anchorage can be had in the cove on the south side in 9 fathoms, sandy bottom. The south point of the cove is a rocky islet about 15 feet high. Foul ledges and reefs extend seaward 0.6 mile from this point to a small grassy island. Dangerous pinnacles are in the area extending about 0.5 mile north, 0.5 mile east and 1.5 miles south of the island. Mariners are advised to exercise extreme caution while navigating in the area.

(52) Between Kaflia Bay and Cape Gull, the bottom is irregular and rocky for a distance of 1 mile offshore and should be avoided.

(53) **Cape Kuliak**, 52.5 miles southwest of Cape Douglas, is the outermost headland on the midsection of Shelikof Strait's west shore. The cape rises gradually from a crumbling bluff at the end to high mountains inland.

(54) **Kuliak Bay**, immediately north of Cape Kuliak and locally known as **Halferty Bay**, is over 4 miles long and 3 miles wide at its entrance. The only obstruction in the entrance is a rock awash about 1.25 miles southwest of the small grassy island off the point south of Cape Gull. The area between this rock awash and the north shore of the bay is generally foul and should be avoided. A shoal, covered about 4½ fathoms, is about 1.25 miles southeast of the rock awash.

(55) The head of Kuliak Bay is separated into two arms by a peninsula. The south arm is deep and clear of hazards except for a pinnacle covered 4 fathoms in its center. The north arm contains a basin 0.7 mile long with depths of 8 to 15 fathoms but it is separated from the outside bay by a sandbar extending 0.3 mile from the northeast shore. The basin is entered through a narrow channel, about 75 feet wide, with depths of about 2 fathoms; the channel is discernable only at low tides.

(56) **Missak Bay**, between Capes Kuliak and Atushagvik, is nearly 4 miles long and has deep but good holding ground. A reef and bare rocks extend from the north shore, and rocks are close to the south shore. A midchannel course should be steered into the bay.

(57) NOAA Ship FAIRWEATHER anchored in Missak Bay in 1975 but experienced no storms during this period.

(58) **Cape Atushagvik** is 4.2 miles **225°** from Cape Kuliak. It has a low bluff at the water and rises in a gentle slope to a prominent knoll, 904 feet high, with a decided saddle between it and the higher land farther back. A reef with a submerged rock at its outer end, marked by kelp, extends 0.7 mile south of the cape.

(59) Between Capes Atushagvik and Ilktugitak are Kinak and Amalik Bays. **Kinak Bay** is over 8 miles long and about 3 miles wide at the entrance. On the east side of the bay, 1.5 miles northwest of Cape Atushagvik, is a low peninsula 0.6 mile long, with a bluff 150 feet high near its end. **Russian Anchorage**, on the north side of the peninsula, has good holding ground, 300 to 500 yards from shore, in 10 to 18 fathoms. Water, except during dry periods, can be obtained by boat. The only directions necessary are to give Cape Atushagvik a berth of about 1 mile and the islands on the southwest and the Russian Anchorage peninsula a berth of at least 0.5 mile. The final course into the anchorage should be southeast straight toward the middle of the bight. The bottom levels out between 15 to 20 fathoms where large vessels should anchor. This anchorage is completely protected but is subject to williwaws during northerly blows, with gusts comparable in force to those blowing simultaneously in Shelikof Strait.

(60) The remainder of Kinak Bay is mostly deep. When en route to **Hidden Harbor**, at the head of Kinak Bay, favor the west side of the bay to avoid reefs and rocks awash on the east side. Take care to avoid the rock awash at 58°09.6'N., 154°26.8'W. The entrance to Hidden Harbor is constricted by ledges on both sides. The channel is about 20 yards wide, clear of obstructions, and 2 to 3 fathoms deep at midchannel. The harbor offers good anchorage for small craft. Fresh water is available from a stream on the southwest side of the harbor.

(61) **Amalik Bay**, 3 miles west of Kinak Bay, is separated from Kinak Bay by a high peninsula and numerous small islands. Takli Island, the largest of these islands, is in the entrance to the bay. About 0.6 mile north of Takli Island

is an inner chain of islands that extend 1.5 miles west from the high peninsula. Small vessels can find excellent anchorage with good holding ground and protection from any weather in the basin to the north of the chain of islands. Enter Amalik Bay west of Takli Island, and then proceed around the west side of the chain of islands to the anchorage. Avoid the foul areas that extend about 300 yards north from the westerly and northerly islands in the chain.

(62) **Takli Island** is about 2 miles long, and its east part is low, broken, and rocky. At its west end, a hill, 455 feet high, has a sheer drop to the water. A chain of reefs and rocky islands extend 1.5 miles east from Takli Island. Passage between them is dangerous and should be avoided. When navigating between Amalik Bay and Kinak Bay through the passage north of Takli Island, keep to the center of the channel and pass to the north of the islands at 58°04.8'N., 154°25.5'W.

(63) About 3 miles northwest of Takli Island at the head of Amalik Bay is **Geographic Harbor**. The middle of the narrow channel leading into the harbor has a least depth of 5¼ fathoms and is clear of obstructions, except for a rock awash and a 2½-fathom shoal off the northeast shore at about 58°06.2'N., 154°33.8'W., and 58°05.5'N., 154°32.7'W., respectively. Geographic Harbor is actually two large bays and two narrow fjords that branch from the entrance channel. The bays are separated by two prominent islands. The south bay is deep and offers numerous anchorages. The north bay is shoal on the north and west sides but offers some anchorage for smaller vessels. The fjords are narrow with uneven bottom and should be avoided.

(64) **Cape Ilktugitak** (58°01.5'N., 154°35.0'W.), just southwest of Takli Island, is fairly low but rises rapidly to the high land back of it. Between the cape and Takli Island is a small islet. The passage between this islet and Takli Island is clear. A reef extends from this islet toward the south and southeast for 1.5 miles with numerous submerged rocks. Vessels should stay outside the 25-fathom curve when navigating in this area.

(65) The passage between the small islet and Cape Ilktugitak has depths of 5 to 10 fathoms, except for lesser depths over the pinnacles that are scattered throughout the area.

(66) The steamer GOLDEN FOREST was lost on the south side of Cape Ilktugitak in 1929. In 1980, the remains of the steamer were visible on the beach and in the surf in 58°01.6'N., 154°35.7'W.

(67) **Dakavak Bay**, between Cape Ilktugitak and Katmai Bay, is foul along the west side. A foul area that bares is near the center of Dakavak Bay in about 58°02.1'N., 154°41.6'W. Depths from 8 to 23 fathoms are in the east half of the bay. Fair anchorage, but exposed to south and southwest winds, can be found in the northeast corner of the bay about 0.5 mile from shore in 15 to 18 fathoms, mud bottom.

(68) Vessels transiting between Dakavak Bay and Katmai Bay should stay at least 1.5 miles offshore because the area is foul in places. An extensive foul area with submerged rocks and rocks awash extends 1.5 miles southwest of the west point of Dakavak Bay.

(69)

Katmai Bay to Dry Bay

(70) **Katmai Bay** is a large roadstead that offers protection from north, northwest and west weather. In 1980, hydrographic surveys by the NOAA Ship DAVIDSON revealed that the bay has several large submerged reefs with least depths of 4 to 8 fathoms. In the northwest corner of the bay, about 0.5 mile offshore, is a reef with a least depth of 2 fathoms, in 57°58.2'N., 155°00.4'W. In the northeast corner of the bay is a reef with a least depth of 2¾ fathoms, in 58°00.0'N., 154°50.2'W.

(71) **Katmai River**, its head extending to Mount Katmai before the eruption in 1912, was navigated by launches at high tide to the abandoned village of Katmai. In 1980, the river was choked with pumice, which washes down from the higher slopes faster than the stream can dispose of it. Occasional steam and smoke from Mount Katmai volcanic activity can be seen in the area. Strong north winds raise large clouds of pumice that cause a murky haze throughout the area.

(72) The area in the vicinity of Mount Katmai from Cape Douglas to Cape Kubugakli is the **Katmai National Park and Preserve**. The park is a Marine Protected Area. The most spectacular feature of the park is the mountain-encircled **Valley of Ten Thousand Smokes** in the northwest portion of the reservation. Here the ground is broken open, giving vent to several million fumaroles or little volcanoes, from which rise jets of steam. Some of the jets throw their steam 1,000 feet into the air, and hundreds of others go up to a distance of 500 feet, all merging above the valley into one colossal cloud.

(73) **Kashvik Bay**, just southwest of Katmai Bay, offers good anchorage in 10 fathoms or less near the center of the bay. A submerged reef extends about 0.8 mile from the north shore, and scattered rocks are close off the southwest and west shores. The entrance and middle of the bay are free of hazards.

(74) **Mount Katmai**, a volcano 6,715 feet high, is part of a high ridge and is not easily distinguishable from Shelikof Strait. In 1912 this volcano gave vent to a violent eruption, the initial stages lasting three days, during which several cubic miles of material were emitted. This eruption was of such violence as to rank in the first order of volcanic explosions. The volcano is now quiet, and in its crater is a lake over 1 mile long and about 1 mile wide.

(75) **Mount Mageik**, a volcano 7,250 feet high, is about 10 miles southwest from Mount Katmai. It has a more definite summit and can be easily identified from Shelikof Strait.

(76) **Cape Kubugakli**, 83 miles southwest of Cape Douglas, is bold and rises rapidly to **Mount Kubugakli**, a prominent mountain with two summits. The 2,920-foot

south peak is the higher. The area off Cape Kubugakli is foul and should be given a wide berth.

(77) **Alinchak Bay**, opening south of Cape Kubugakli, is divided into two arms. **Little Alinchak Bay**, the south arm, is shallow with extensive foul areas and should be avoided by those without local knowledge. **Big Alinchak Bay**, the north arm, is an excellent harbor of refuge with protection from all but northeast and east winds. The center of the arm has good anchorage in 10 fathoms, mud and fine sand bottom. Depths decrease to 2 fathoms in the northwest and southwest corners. Vessels should keep 0.5 mile off the north shore of the bay and 0.15 mile off the south shore. The approach to Big Alinchak Bay is from southeast on a course midway between the extensive foul area off the mouth of Little Alinchak Bay and a 7-fathom shoal in about 57°48.0'N., 155°13.0'W.

(78) **Cape Kekurnoi**, between Alinchak and Puale Bays, is fairly low but rises gradually to over 1,500 feet. A 6½-fathom shoal is about 1.6 miles southwest of the east tip of the cape in 57°42'26"N., 155°20'24"W. Reefs and rocky islets extend 3.5 miles south from the southwest tip of the cape. There are bad tide rips off these reefs, which is frequently the case along the west side of Shelikof Strait. These reefs and islets are also foul with heavy kelp. Passage should only be attempted with local knowledge.

(79) **Puale Bay** is open to the south and is only partly protected on the east by the reefs and islets extending south from Cape Kekurnoi. The north shore has low rocky bluffs and small rocky beaches. The west shore has two long sandy beaches separated by a rocky bluff 400 feet high. The southwest shore is formed by the bold rocky bluffs of Cape Aklek.

(80) The east and northeast sections of the bay have numerous dangerous rocks, reefs and foul areas. There is a large kelp forest foul with reefs and rocks 1.0 mile off the east shore of the bay in about 57°44.0'N., 155°29.0'W. that should be avoided. The west part has fairly regular sand bottom. Reefs and kelp-covered rocks extend 0.2 to 0.4 mile off the east side of Cape Aklek.

(81)

Routes

(82) **Routes, Puale Bay**: From Shelikof Strait steer a course of **325°** for the highest point on Cape Aklek. When about 2.4 miles off the cape, change course and steer about **015°** through the bay entrance for about 4.5 miles to a point in about 57°42'N., 155°31'W. From this point, the vessel can proceed to a variety of anchorages in the inner bay. By steering **338°** for 4.5 miles the vessel will find anchorage near the head of the bay in 10 fathoms on even sand bottom. If seeking shelter from south winds and seas, the vessel may run 2.5 miles on course **276°** to anchorage in 10 fathoms. Protection from east to north winds may be found by steering **075°** for 3 miles to anchorage in 12 fathoms, taking care to avoid the 2¼-fathom rock in 57°43'N., 155°27'W.

(83) There are no satisfactory ranges for entering the bay but they are unnecessary. Cape Aklek can be approached with safety on any heading between **305°** and **020°**. The channel between the 10-fathom curves at the entrance to the bay is over 2 miles wide.

(84) Fishing craft sometimes enter the bay from the east, using a narrow channel between the mainland and the south rocky islets. This channel has a least depth of 5 fathoms but is only about 350 yards wide, is bordered by kelp-covered rocks and has a 4-fathom rock near its outer end. Extreme caution should be used when transiting this route.

(85) Anchorages in Puale Bay have the good holding qualities of a sand and mud bottom but are considered to be indifferent or poor because they offer little protection from southeast weather. South swells enter the bay a large part of the time and increase in size in the shoal water. Williwaws are frequent. Even in west weather the winds funnel through the low passes to the west of the bay with greater velocity than that encountered in Shelikof Strait.

(86) **Cape Aklek**, the most prominent headland in the vicinity, rises to 1,877 feet within 0.6 mile of the shoreline in a series of bare slides, bluffs and cliffs.

(87) **Dry Bay** is between Cape Aklek and Cape Unalishagvak. As the name implies, the entire inner bay bares at low water. The outer bay has a rocky, irregular bottom. Here again williwaws are frequent and west winds are increased in violence in the low passes to the west.

(88)

Jute Bay to Wide Bay

(89) **Jute Bay** is between **Cape Unalishagvak** and **Cape Kanatak**. The part inside **Jute Island** is called **Island Bay**. Reefs marked by kelp and breakers extend southeast from Jute Island and west-southwest from the east side of Island Bay to about halfway to Jute Island; both reefs tend to break the swells during southeast winds. The channel between the reef extending west-southwest and the island has depths ranging from 11 to 5 fathoms. The channel west of Jute Island has depths of 1¼ to 5 fathoms, but its south end is obstructed by rocks and reefs extending southwest from the island, and its use is not recommended except by boats with local knowledge. A 2¾-fathom shoal is 0.7 mile southwest of Jute Island. Indifferent anchorage, sheltered except from southeast winds, can be obtained north of Jute Island in Island Bay.

(90) As in all of the bays in this vicinity, the williwaws are violent with west winds and are very troublesome, if not dangerous, to small craft.

(91) **Portage Bay**, between Cape Kanatak and Cape Igvak, is clear except for reefs and rocks about 1 mile from its head. The bay is open to southeast winds and is subject to northwest winds, which draw down from the mountains with great force.

(92) A kelp-covered reef extends 0.5 mile southwest from **Kelp Point**. Just off the reef and separated from it by a narrow channel is a rock, covered ¾ fathom, leaving a

clear channel 0.2 mile wide west of it for entering the inner part of the bay.

(93) The best anchorage is in depths of about 5 to 10 fathoms southeast of the ¾-fathom rock; coasting vessels sometimes use the inner anchorage northwest of the rock. The anchorages are subjected to violent williwaws with west weather, and at such times the inner anchorage should not be used. The wind is apt to shift from northwest to southeast with little warning. In such cases, launches make for Kanatak Lagoon for shelter.

(94) Vessels with passengers or freight usually anchor as far in as their draft permits. With northwest winds there is but little swell.

(95) **Kanatak Lagoon**, on the west side of the bay about 3.5 miles from the head, has a narrow entrance with less than 4 feet at low water but has depths of 4 to 15 fathoms, mud bottom, inside. It affords excellent anchorage in east weather but is a maelstrom with northwest winds. Under such conditions the williwaws blow with almost hurricane force, and the water level at the east end is higher than that at the west end.

(96) In approaching Portage Bay from Shelikof Strait, keep a careful track of the reckoning, as the various headlands are similar and the bay is difficult to recognize from a distance. Enter on a midchannel course and, if bound to the inner anchorage, pass 200 yards southwest of the ¾-fathom rock, then head north and anchor as desired.

(97) **Cape Igvak** (57°26.1'N., 156°01.3'W.), a conspicuous headland separating Portage and Wide Bays, is the south extremity of a ridge of mountains rising 2,000 to 2,600 feet and covered with clouds most of the time.

(98) **Wide Bay**, between Cape Igvak and Cape Kayakliut, is obstructed across the entrance by many islands that are surrounded by foul ground.

(99) In 1983, a 3-fathom shoal was reported about 5.5 miles east of the islands in about 57°20'37"N., 156°06'54"W. The preferred entrance to the inner bay for deep-draft vessels is through a 300-yard-wide channel between **East Channel Island** and **Channel Rock**; the channel has a least depth of 9 fathoms. Rocks and reefs, marked by kelp and usually breakers, extend almost 1.5 miles southeast and 0.3 mile north of Channel Rock. Foul ground extends almost 2 miles northeast and 0.2 mile south of East Channel Island. Small shallow-draft vessels may enter the inner bay between **Terrace Island** and **West Channel Island** or between **Hartman Island** and the unnamed islet 0.4 mile southwest. Ledges and shoals surround the islands, and in the channel between Terrace and West Channel Islands a distance of 175 yards should be maintained off the southwest side of West Channel Island; a midchannel course should be maintained in the channel between Hartman Island and the unnamed islet. Passage elsewhere should not be attempted without local knowledge. Moderate rip currents have been observed in all the entrances to Wide Bay during maximum currents. Once inside the inner bay, secure anchorage in any weather is available in 5 fathoms to more than 20 fathoms, excellent holding ground. The williwaws are disagreeable with west winds but are not dangerous to moderate-sized vessels. Small craft can anchor in the lee of the islands.

(100) The ruins of an abandoned pier, causeway and oil drilling platform are about midway on the west side of Wide Bay. In 1971, it was reported that only about a 150-yard inshore section of the pier remained. The abandoned oil drilling platform, about 0.3 mile offshore, was reported to be about 3 feet in diameter and to stand about 15 feet above the water. Mariners are advised to navigate with caution in this area.

(101)

Local magnetic disturbance

(102) Differences of as much as 14° from the normal variation have been observed on Terrace Island and as much as 3° on East Channel Island.

(103)

Cape Kayakliut to Foggy Cape

(104) Small-craft inshore route between Wide Bay and Sutwik Island has many dangers; mariners are advised to use caution when navigating this area.

(105) **Cape Kayakliut** (57°17.7'N., 156°18.9'W.), on the south side of Wide Bay, has a generally flat appearance, sloping smoothly back to the mountains. The shoreline is formed by low, steep cliffs, and close to the point is a prominent grass-topped island.

(106) **Imuya Bay** is 4 miles south of Cape Kayakliut. A group of islands is in the northwest corner and a shoal area with a least depth of ½ fathom extends about 2.8 miles east-northeast from the south point of the entrance. Depths shoal gradually from 17 fathoms inshore from a line between the north and south points to 5 fathoms at a point 0.4 mile from the center of the sand and gravel beach that heads the bay. The area close-to and between the islands is shoal and foul, and the area between the largest island and the mainland to the north and west is mostly bare at lower low water. A large stream enters the bay at the west end of the sand and boulder beach at the head.

(107) The wreck of a large vessel is against the shore west of the islands at the south point of the bay.

(108) To enter Imuya Bay from the north, follow the trend of the shoreline from the north point around the islands, keeping the islands at least 0.4 mile on the starboard hand, and thence midway between the islands and the south shore to the head of the bay. Indifferent anchorage can be had for small craft in 5 fathoms, hard, fine sand bottom, 0.4 mile from the beach at the head of the bay.

(109) In entering the bay from the south, care should be taken to avoid the shoal area extending about 2.8 miles east-northeast from the south point of the bay.

(110) **Kilokak Rocks**, two rocky islets, are about 2 miles offshore and just southeast of Imuya Bay; the 30-foot northwest rock is the higher. The area west of these rocks is clear for 1 mile toward the shore. Depths of 15 fathoms

or more can be carried to within 100 yards of the north, west and south sides of the higher rock. A shoal area extends 0.1 mile southeast of the smaller islet.

(111) A rock that uncovers about 6 feet is 1.3 miles northwest of Kilokak Rocks. This rock marks the southeast end of a foul area that extends inshore to a group of reefs and islets near the shoreline.

(112) **Agripina Bay**, 12.5 miles southeast of Cape Kayaklut, is a deep indentation with a generally low but bold rocky shoreline indented with numerous small bights and clefts. The north and south points forming the entrance are marked by groups of small steep rocky islands; a larger group of very prominent islands and rocks, near the south central part of the bay, roughly divides the outer and inner parts of the bay. A large shoal area, with a least depth of 3 fathoms, is about 0.5 mile north of the east end of the largest island.

(113) Anchorage for large vessels can be had in 16 to 18 fathoms in the west end of the outer bay about 0.3 mile north of the islands and 0.3 mile from the west shore. This area is protected from all but northeast to southeast weather. One of the best small-boat anchorages along this section of the coast is in the bight at the head of the inner bay, midway between the east and west shores, in 5 to 11 fathoms, sticky, mud bottom. No swell makes into the bight even in heavy weather, and there are no williwaws even in strong winds. Northwest of the bold rocky hill that forms the west side of the bight, is an extensive gravel flat bare at low water except for the shallow delta channels of a large stream that enters the bay at this point.

(114) The only danger in the inner bay is a reef near the west side. The outermost part of this reef is about 350 yards off the west shore and about 400 yards south of the anchorage. The area between this reef and the prominent point about 800 yards south of the anchorage has several submerged rocks.

(115) The coastline from Agripina Bay to Port Wrangell is very broken, with many indentations and small inshore islands. The area is rocky and foul within 400 yards of the beach. Outside the small islands, some pinnacle rocks exist. Kelp extends 500 yards southeast from the point 0.5 mile south-southwest of Agripina Bay.

(116) Offshore are numerous rocks and islands.

(117) **Ashiiak Island** is high and rocky with a rounded central dome. The west side has sheer cliffs to the waterline and the water is deep close inshore. The east side of the island appears foul, with small islets extending 0.3 mile offshore and with one submerged rock, that breaks in heavy weather, about 0.7 mile offshore. A small rocky islet about 10 feet high is 400 yards west of the island. A rock that uncovers about 8 feet is 0.9 mile southwest of Ashiiak Island. Another rock that uncovers is about 150 yards to the east. In a moderate swell these rocks break at high water.

(118) **Port Wrangell**, 7 miles southwest of Agripina Bay, is a deep, narrow indentation in the coastline. The outer bay, open to the southeast and east, has depths in midchannel ranging from 130 fathoms at the entrance to 14 fathoms at the inner end. The shoreline is steep and rocky.

(119) The inner bay has depths from 10 fathoms near the entrance to 5 fathoms at the head. The shoreline rises steeply all around the bay and there are often williwaws on strong northwest winds. The ground swell does not make into the inner bay.

(120) About 500 yards inside the inner bay on the east shore is a small stream, dry during extremely dry weather, where small craft can come close alongshore and take water aboard with 200 feet of hose at about 30-foot head.

(121) East of Port Wrangell is a group of three large islands. **David Island**, the most north and largest of the group, is high and bold with steep rocky sides marked by numerous caves and clefts. Two small, rocky islets are close inshore on the north side.

(122) **Lone Rock**, 1 mile northeast of David Island, is about 100 feet high, of a distinct brick red color, and with vertical or slightly overhanging cliffs on the west end that rise to a flat grassy top.

(123) **Poltava Island**, 0.8 mile southeast of David Island, has the same general appearance as David Island but is smaller and lower. The passage between David and Poltava Islands is not recommended without local knowledge.

(124) **Navy Island**, the most south and smallest of the group, is 0.4 mile southeast of Poltava Island. Several detached rocks or islets extend 600 yards west from the main island. The passage between Poltava and Navy Islands is not recommended without local knowledge. Thick kelp and foul ground are between Navy Island and a low rock 400 yards to the northeast.

(125) **Cape Providence**, 3 miles south of Port Wrangell, is fairly low with a steep rocky shoreline and many small indentations. A group of five rocky islets extends southeast about 0.6 mile from the tip of the cape. Submerged rocks extend about 0.6 mile north and northeast of the islets.

(126) **Chiginagak Bay**, between Cape Providence and Cape Kuyuyukak, is 6 miles long, 10 miles wide between the capes, and 2 miles wide at the inner end. The outer bay has scattered groups of rocks and small islands, and a group of four larger islands is along the west shore. In 1989, numerous uncharted shoals, covered rocks, and foul areas were reported to exist throughout the northern and eastern parts of Chiginagak Bay.

(127) Offshore from the bay and 5 miles south from Cape Providence is a prominent group of islets known as the **Aiugnak Columns**. The highest islet rises to about 102 feet. The areas immediately surrounding the columns are extremely complex, particularly the area northeast of the highest islet. Vessels should give them a wide berth. A surface current of about 2 knots often sets to the northeast in the vicinity of the columns.

(128) **Devils Finger** (56°52'10"N., 156°37'27"W.), about 2.5 miles southwest of Aiugnak Columns, is a narrow rock pinnacle covered 1 fathom rising abruptly from general depths of 20 fathoms.

(129) A group of four major islands and numerous islets, about 3 miles northwest of Aiugnak Columns, cover an area approximately 1 mile by 0.5 mile. The islands are about 50 feet high, generally flat, and covered with grass. Ledges and foul area extending as much as 0.3 mile offshore surround the Islands.

(130) An extensive foul area surrounding several islets is about 4 miles north-northwest of Aiugnak Columns. An isolated rock that uncovers about 7 feet is 0.7 mile northwest of the center of this foul area.

(131) The inner part of Chiginagak Bay, about 2 miles square, is separated from the outer part by **Derickson Island**, 1.2 miles long and 0.3 mile wide, between a bold headland on the east and a low rocky point on the west. A smaller island is 1.1 miles due north from the 300-foot peak of Derickson Island. Large vessels enter the inner bay from Cape Providence, passing east of Derickson Island.

(132) In 1988, a rock covered 1¼ fathoms was reported 1.2 miles south-southwest of the south end of Derickson Island.

(133) At the head of the bay is a flat sand and gravel beach that bares 200 to 400 yards offshore at low water. A large unnavigable stream enters the head of the bay on the west side over a broad sand delta, bare at low water. Two smaller streams enter the northeast corner west of a prominent rocky headland distinguished by several small caves at the high-water line. A ledge showing considerable area at low water is just east of the delta. Several pinnacles on this ledge bare at high water.

(134) Anchorage for vessels of any size can be had in the inner bay. In moderate weather from any direction, or in heavy weather from the west, north or east, the best anchorage is 0.2 to 0.5 mile southwest of the rocky point east of the beach at the head of the bay. Depths are 8 to 11 fathoms, sand or mud bottom, good holding ground. Williwaws have been experienced in the bay on north winds. They generally blow out of the valley leading northwest to **Mount Chiginagak**. In south weather, better shelter can be found 500 yards north of Derickson Island in 13 fathoms. In moderate south weather very little swell makes into the anchorages.

(135) **Cape Kuyuyukak** (56°54.0'N., 156°50.0'W.), between Chiginagak Bay and Nakalilok Bay, is bold and prominent with high grassy hills sloping steeply to sheer cliffs at the beach. Numerous rocks and islets are close inshore south of the cape, and a chain of reefs extends 2 miles east from the cape. South of the reef, a shoal area extends for 1.3 miles with numerous kelp patches.

(136) **Radial Island**, about 5 miles south-southeast of Cape Kuyuyukak, is a bare rock about 100 feet long, 50 feet wide and 60 feet high. There are indications of shoal areas about 1 mile northwest of the island.

(137) **Ugaiushak Island**, 6 miles south of Cape Kuyuyukak, is really a double island with a narrow, low boulder ridge connecting the two parts. The west part of the island is high, with a broken skyline and very tall, steep cliffs on the west and north sides. The east half is much lower and flat on top, with sheer cliffs to the shoreline on the north and west, and a gradual slope to a low and rugged shoreline on the east. A group of buildings is at the west end of the ridge.

(138) A narrow chain of reefs about 0.5 mile long is 1.4 miles south of Ugaiushak Island. The southeast reef is marked by two pointed rocks about 60 feet high and the northwest reef by a single point about 25 feet high.

(139) **Central Island**, midway between Ugaiushak Island and Nakalilok Bay, is a small but very prominent island with a single high peak shaped like a conical beehive. A small rocky islet is 200 yards S of the larger island.

(140) The southernmost of a second group of islands is 4 miles due west from Ugaiushak Island. On the north are 3 small rocky islets; in the center is an island 1.1 miles long and 0.2 mile wide, with grassy top and steep rocky shoreline; on the south is a large, high island, 0.6 mile long and 0.1 mile wide, with very high vertical cliffs to the waterline. Depths obtained around these islands were 15 to 18 fathoms, very smooth sand bottom, but the formation of the islands suggests hidden dangers. Shoaling to 4½ fathoms exists on the southwest side of the northernmost islands.

(141) Five miles east-southeast of Cape Kunmik is **Hydra Island**, large and flat-topped, 0.5 mile long and 0.2 mile wide and with a small, rocky islet 300 yards to the north. A shoal area 2 to 3 miles to the south of Hydra Island has a least depth of 5¼ fathoms. Shoaling occurs about 0.5 mile east of the island with a least depth of 5½ fathoms. Shoaling also occurs about 4 mile southwest of Hydra Island with depths of 5¾ fathoms.

(142) **Nakalilok Bay** is divided into an east and west part by a low double-headed cape. The east part is 4 miles long, 3 miles wide at the entrance, and 1.5 miles wide at the head that terminates in a low sandy beach. The bay is generally deep except for a small shoal area marked by kelp, 1.5 miles east of the double-headed cape, and for a shoal area that extends 0.4 mile east from the same cape. The west shore is a boulder and ledge beach backed by steep cliffs. The east shore is boulder strewn near the entrance, with gravel toward the head, and is backed by very steep hills. A very prominent waterfall is 2 miles from the head of the bay on the east side. This section of the bay affords good shelter for small craft except in heavy south weather. The anchorage is in 7 to 9 fathoms, sand bottom, 600 yards offshore from the east end of the sand beach at the head of the bay. Large craft can anchor in 10 to 15 fathoms about 0.5 mile offshore.

(143) The west part of Nakalilok Bay has a long stretch of sand beach, shaped like a flat crescent, that is between the double-headed cape and the north point of Yantarni Bay. Very smooth and flat, the beach is backed by low grassy dunes on the west half. The bottom off this beach is of fine sand and is unusually smooth and flat, with no indications of submerged reefs. Depths vary from 5 fathoms 0.4 mile offshore to 18 fathoms 1.6 miles offshore.

(144) **Yantarni Bay**, on the east side of Cape Kunmik, is about 2.5 miles wide at the entrance and 4 miles long. The

east side of the bay is a low cape with a very flat top and vertical cliffs of an unusual red-yellow color dropping sheer to the high-water line. A narrow reef extends 400 yards south. The head of the bay has depths of less than 1 fathom and is not recommended for anchorage.

(145) **Cape Kunmik** (56°46.5'N., 157°10.0'W.), high and bold, is one of the most prominent capes along this section of the coast. A prominent waterfall, 40 feet high, is on the south end of the cape. The highlands are rounding in contour, covered with grass and alder patches on the lower slopes and prominently marked by deep gullies. The shoreline is formed by vertical cliffs 20 to 400 feet high and deeply indented with small bights and clefts. The beach is generally foul and boulder strewn, with submerged rocks, reefs and small rock islets extending 200 to 900 yards offshore. There are no known dangers farther offshore other than the visible islets.

(146) The southernmost tip of the cape is a small semidetached rocky island with very steep sides terminating in a wedge-shaped rock about 70 feet high. About 600 yards northeast of this point and close inshore is a detached islet of very striking appearance. As viewed from the south and east, it resembles a cathedral, with a single central spire about 200 feet high on the south face and a lower rounding dome on the north. In sunlight this formation stands out prominently against the black cliffs behind.

(147) Six hundred yards off the southeast side of the cape is a small islet, 70 feet high, with vertical black rock sides and a smooth turtleback top of grass. A low reef is 200 yards southeast, and submerged rock is 500 yards east of the islet. The area between the islet and the cape is foul and thick with kelp. A submerged rock, covered 1 foot, is about 3.8 miles south of the cape in about 56°42.6'N., 157°08.5'W.

(148) **Amber Bay**, large and open, is just west of Cape Kunmik. The outer part of the bay has moderate depths and regular bottom except for ledges and reefs alongshore, and the inner half is shallow, with numerous reefs and kelp patches. Being exposed, the bay is not recommended for anchorage, but emergency anchorage for small craft can be obtained in 3½ to 6 fathoms, sand and shell bottom, under the northeast shore just northwest of a long reef awash at high water. The reef is 3.2 miles northwest of the prominent beak-shaped cliff that marks the south tip of Cape Kunmik. The bight inshore from the reef is foul with rocks, bare at various stages of the tide. There is a reef that uncovers 1½ fathoms on the northwest shore in about 56°49.7'N., 157°26.9'W.

(149) **Eagle Island** and **Garden Island**, separating the entrances to Amber and Aniakchak Bays, are grass-covered, table-topped formations, with sheer cliffs on all sides. Eagle Island is nearly round and Garden Island is crescent-shaped. A large breaker is just southeast of the line between Eagle and Garden Islands. From the north point of Garden Island is a sand and gravel spit extending toward **Cape Ayutka**, which divides Amber and Aniakchak Bays. South and west of the cape is an extensive foul area marked by kelp. The passage between Garden Island and Cape Ayutka should be avoided until it has been surveyed. At the south end of Garden Island are two prominent pinnacles; the outermost is needle shaped. Good anchorage for small craft can be obtained close under the shore on the west side of Garden Island in 7 to 10 fathoms, sandy bottom. Shoaling to 7½ fathoms exists 4 miles southeast of Garden Island in about 56°42.2'N., 157°12.4'W. Shoaling to 1½ fathoms exists between Garden Island and Cape Ayutka in about 56°44.9'N., 157°24.0'W.

(150) **Aniakchak Bay**, wide and open, is entered between Garden Island on the north and Kumlik Island on the south. Reconnaissance examination indicated moderate and regular depths to the steep sand and gravel beach at its head. Along its north shore, for about 1.5 miles west of Cape Ayutka, foul area marked by kelp extends 200 to 800 yards offshore. Two rocks awash are southwest of Cape Ayutka, 0.8 and 1.7 miles, respectively. In the northwest corner of the bay is a small island, 82 feet high, with vertical cliffs along its east side. Immediately northwest of this island, in the restricted area between the island and the mouth of a river, cannery tenders and barges moor to piling in favorable weather, but a southeast swell piles up in this anchorage.

(151) Along the south side of the entrance to the bay, and about 1.2 miles north-northwest of Kumlik Island, is a prominent flat-topped pinnacle rock 85 feet high. Southeast of this rock 0.4 mile is a breaker marked by kelp, and about 400 yards off the north point of Kumlik Island are two small rocks, close together, 3 feet high. Between the breaker and the small rocks is a deep channel. Southwest of the pinnacle rock about 0.4 mile is another breaker, marked by kelp, and west of the pinnacle about 0.4 mile is a 3-fathom spot marked by kelp. A prominent headland, locally known as **Elephant Head Point**, is 1.3 miles northwest of the pinnacle. Rock ledges extend north and east about 400 yards from Elephant Head Point. Leading to Aniakchak Bay from the south is a channel between Kumlik Island on the east and Cape Kumlik on the west, thence between the prominent pinnacle rock on the east and Elephant Head Point on the west. This channel is used by cannery tenders operating out of Chignik, but is not recommended for general use without local knowledge.

(152) About 1.2 miles northwest of Elephant Head Point is a low rock-cliff point with a rock awash at high water about 300 yards to northeast. In the slight bight just west of Elephant Head Point temporary anchorage can be obtained in 8 fathoms.

(153) Vessels can select anchorage in 12 to 20 fathoms in the southwest, west or northwest parts of the bay about 0.6 to 1.5 miles from the sand and gravel beach. The bay is protected from the southwest through west to north. East and southeast swells pile up heavily in this bay.

(154) **Sutwik Island**, about 7 miles off the Alaska Peninsula and about 90 miles southwest from Kodiak Island, is 12 miles long and 4 miles wide. The south side

of the island, low and marshy in places, is very foul for 1 mile from the beach. The north side has steep shores and is foul along an 8-mile stretch of shore west from Foggy Cape. This stretch should be given a berth of not less than 1 mile in passing. The bottom is generally foul along this stretch.

(155) There are several deep-water channels between the northwest side of Sutwik Island and Cape Kumlik. Vessels can navigate parallel to the west side of Sutwik Island about 1 mile offshore in a northeast or southwest direction. Reported currents up to 3 knots flow along the axis of this channel and can create dangerous wave conditions when the wind is opposing the current. A wider channel is found about 4 miles off the west side of Sutwik Island, but care should be taken to avoid the dangerous rocks about 4.5 miles northwest of the northwest tip of Sutwik Island.

(156) An excellent anchorage for small and medium-sized vessels, protected from southwest to south-southeast weather, exists in the small bay 0.5 mile east of the northwest tip of Sutwik Island, about 9 miles west of Foggy Cape.

(157) Three small-vessel anchorages exist along the west shore of Sutwik Island that provide good protection from northeast to south weather. These are all in small coves centered in about 56°34.8'N., 157°15.7'W.; 56°34.5'N., 157°16.4'W.; and 56°32.4'N., 157°19.7'W., respectively.

(158) Small to medium-sized vessels can find protection from northwest to northeast weather on the south side of Sutwik Island in about 56°32.8'N., 157°04.4'W., about 3.3 miles west of Foggy Cape.

(159) **Foggy Cape**, the east end of Sutwik Island, is a prominent landmark for vessels passing along the coast. It rises to 418 feet and is first raised as a detached island because of a low neck of land that separates it from the rest of Sutwik Island. Preliminary data from surveys in 1994 indicates a ¾-fathom depth 1 mile southwest of the Cape and 5¾ fathoms 1½ miles south-southeast of the Cape. Mariners are advised to give it a wide berth. Foggy Cape and the south side of Sutwik Island are often covered with fog when the north side is clear. Blankets of fog have been observed when the entire outline of the island was indicated without any part of it being actually visible.

(160) The current velocity is about 1.5 knots off Foggy Cape.

(161)

Semidi Islands

(162) The **Semidi Islands** are about 90 miles southwest of Kodiak Island and about 23 miles southeast of Foggy Cape.

(163) **Aghiyuk Island**, the north of the group, is long and narrow and rises vertically from the shoreline in high rocky cliffs that are practically unscalable, especially along the west side of the island. In the south center of the island is a grassy plateau, with a prominent rockpile, the highest point on the island, rising to over 1,000 feet.

(164) On the east side of the island is a fair-sized bight with a sandy beach that is clear except near its north end, where kelp-marked rocks extend offshore. East of the bight, about 1 mile offshore, is small sheer-sided **Aghik Island**, 528 feet high. Scattered ledges and rocks extend about 700 yards off the southeast point of Aghik Island.

(165) Anchorage can be had 400 to 600 yards off the bight in 6 to 9 fathoms, sand bottom. It can be safely approached from the northeast, passing Aghik Island about 600 yards off or from the southeast on a midchannel course between Aghik Island and Aghiyuk Island.

(166) A small group of rocks is 600 yards west of the southwest point of Aghiyuk Island. The highest has an elevation of 20 feet.

(167) **Chowiet Island**, the south large island, is triangular in shape and has sheer cliffs alongshore, especially on its west side. It reaches a height of 810 feet near its west side, slightly north of its center. The island has alder- and grass-covered ridges with many bedrock outcrops and cairn-shaped rockpiles. Some of the latter are very large and in various odd forms.

(168) At the south end of Chowiet Island is a small bay formed by a chain of low rocks and two steep-sided islets extending southeast; **Aliksemit Island** is the largest. The south shore of Chowiet Island is a Steller sea lion rookery site. There is a 3-mile vessel exclusionary buffer zone around this rookery that encompasses most of the island and islets off shore. (See **50 CFR 224.103**, chapter 2, for limits and regulations.) In emergency situations, anchorage with about 200 yards swinging radius can be had in the north center of the bay in 20 fathoms, sand bottom. This bay is protected from southwest through west to northwest.

(169) A double bay is on the northwest side of Chowiet Island that also offers emergency anchorage in the center of the east arm in 15 fathoms, sand bottom. This anchorage is most favorable for winds from the northeast and around through east to southeast, but a southwest swell creates considerable surge. Additional and emergency anchorage can be had in the center of the west arm in 22 fathoms, sand bottom, and provides about 250 yards swinging radius, favorable for winds out of the east and around through south to southwest. This anchorage is less subject to surge with a southwest swell than in the east arm.

(170) **Kateekuk Island**, 0.6 mile northwest of Chowiet Island, is 0.8 mile long, 0.4 mile wide and 509 feet high. Between this island and Chowiet Island to the south and Aghiyuk Island to the north are strong tidal currents that cause very bad tide rips.

(171) **Anowik Island**, 591 feet high, and **Kiliktagit Island**, 404 feet high, are about 1.2 miles northeast of the north end of Chowiet Island. Between these islands and Chowiet Island are strong currents that cause moderate tide rips; a heavy southeast swell piles up excessively.

(172) **Suklik Island**, 345 feet high, is about 0.9 mile south of Kiliktagik Island and about 1.2 miles east of Chowiet

Island. A low flat rock is about 150 yards off the northwest end of the island, and numerous sheer pinnacles extend south about 0.5 mile.

(173) **South Island**, 2 miles southwest of Chowiet Island, is a huge bare rock, 260 feet high, with vertical sides. Several high, sheer rock pinnacles are just west of it. The breaker charted about 5.5 miles west-southwest of Chowiet Island is reported to be much closer to the island.

(174) Strong tidal currents and bad tide rips are found among the Semidi Islands, especially in the channels between Aghiyuk and Kateekuk and between the latter island and Chowiet.

(175) **Lighthouse Rocks** (55°47'N., 157°25'W.) are spread over an area 0.2 mile in diameter that is 27 miles southwest of Chowiet Island and 57 miles west of Chirikof Island; the largest rock is 500 feet long and 90 feet high. Deep water surrounds these barren rocks and they can be safely approached to within 0.5 mile; there are large sea lion rookeries on the rocks. A south set is generally experienced between Lighthouse Rocks and Chirikof Island.

(176)

Cape Kumlik to Katmai Reef

(177) **Cape Kumlik** (56°38'N., 157°27'W.), the promontory on the Alaska Peninsula nearest to Sutwik Island, is foul with ledges and reefs along its south shore. Near the east end of the south shore and extending 0.5 to 1 mile south is a group of rocks and islets. The south islet, narrow and about 400 yards long, is 81 feet high; it is a valuable landmark for the approach to the channel between Cape Kumlik and Kumlik Island. From the southwest point of Cape Kumlik, ledges and reefs that break in a heavy swell extend 2.8 miles southwest and obstruct the northeast side of the entrance to Kujulik Bay.

(178) **Kumlik Island**, 0.8 mile off the east end of Cape Kumlik, is 1,053 feet high. The shores are steep and rocky; reefs border its north, east and south sides. About 3 miles east of the island is a lone high water rock. Midway between Kumlik and Sutwik Islands is a rock that bares at half tide, and about 1 mile to the east are three rocks that bare 3 feet at high water. From the southeast end of Kumlik Island on a bearing of **204°** and at distances of 2 and 3 miles, respectively, are a rock awash at low water and a rock 50 feet high. The latter is particularly valuable as a landmark for the passage east of Kumlik Island.

(179) **Kujulik Bay**, entered about 14 miles west of Sutwik Island, is a large open bay that affords good shelter in northwest winds. Reefs and rocks fringe the shores of the bay and the entrance is flanked by reefs on each side. The west arm of the bay is shoal for 8 miles from the head. A dangerous 2¾-fathom shoal is near the middle of the bay in 56°36'11.3"N., 157°46'24.7"W. Shoals, rocks and broken ground are scattered throughout the bay; caution is advised. The best protection from northwest winds is in the north part of the bay.

(180) **Unavikshak Island**, off the entrance to Kujulik Bay, rises to 465 feet near its north side. Numerous rocks and reefs fringe the shores. Two rocks, 25 feet high, are 1.5 miles south of the island. The west rock is conspicuously flat-topped. A smaller island, 153 feet high, is off the northeast point of the island. Anchorage can be had on the northwest side of the island in 15 fathoms, hard rocky bottom.

(181) **Cape Kumliun**, south of Kujulik Bay, is a broad bold headland rising to a 1,671-foot peak near the southeast part of the cape. This peak is the most conspicuous object in the vicinity but is often covered by clouds. The cape is foul with reefs and rocks extending 1 mile offshore at its east point. Some of these dangers do not break even at low water and may not be marked by kelp.

(182) **Chignik Bay**, about 50 miles west of the Semidi Islands, can be entered from either north or south of Nakchamik Island. The south part of the bay is irregular but deep. Important salmon fisheries are in Chignik Bay.

(183) **Nakchamik Island** is an irregular-shaped island in midentrance to Chignik Bay. The conical peak, 1,450 feet high, in the south central part of the island is a distinctive landmark and prominent from all directions except through an arc of about 90° around the south part of the island, where other mountains obscure it.

(184) The bight on the east side can be used as an anchorage. Enter the middle of the bight and anchor in 12 fathoms, sand bottom. The north end of the island is steep-to; however, anchorage can be had off the northwest shore of the island, in 6 to 20 fathoms, providing protection from south to east winds and south ocean swells. The west point is fringed with reefs extending about 300 yards offshore. There are no off-lying dangers.

(185) **Kak Island**, 1.3 miles south of Nakchamik Island, is 400 feet high, bold, and generally reddish or grayish in color, with grassy patches on the gentler slopes. The south bluffs are of marked columnar structure. The island has deep water on all sides and can be approached close to. Ledges on the south and east shores of the island are used as haulouts by Steller sea lions. Mariners should use caution while navigating near Kak Island.

(186) **Atkulik Island**, 3 miles southeast of Nakchamik Island, is about 0.8 mile long, 0.6 mile wide and 725 feet high with precipitous shores on its south side. It has no anchorages. Two detached rocks, one about 25 feet high and the other about 35 feet high, are at the northeast and southeast ends, respectively, of Atkulik Island. A small rock awash is close off the west side, and a shoal rising to 7.5 fathoms lies 0.3 mile west of the west point of the island.

(187) **Castle Cape**, on the south side of the entrance to Chignik Bay, is narrow and precipitous; stratification is a conspicuous feature of many shades of light-colored rocks varied by bands of black. The cape has been worn into many curious castellated pinnacles and buttresses, hence its name.

(188) A pair of towering eminences near the end of Castle Cape reach 1,200 feet and form a most distinctive feature. Between the towers are needle peaks of lesser elevation.

(189) **Castle Bay** is deep, with mud or clay bottom, and presents no known outlying dangers. Small boats can anchor along the south shore of the bay about 4 miles west from Castle Cape, where the bottom and shore slope gradually to a sand and gravel beach. The remaining shore rises almost vertically from the water. Grass and some scattering alders are the only vegetation.

(190) **Anchorage Bay** is west of the fourth ridge from Castle Bay, the ridges forming a succession of headlands on the south shore of Chignik Bay. This ridge terminates in vertical bluffs about 200 feet high and rises to a rounded hill, 1,050 feet high, that is covered with grass and alders. The ridge west of Anchorage Bay is irregular in form, with bluffs at the water. Off the west point are **Eagle Rock**, a large grass-covered rock, 100 feet high, connected with the shore at low water; and a lower rock, 30 feet high, 100 yards farther out. A shingle spit extends southwest from the east shore.

(191) **Chignik Spit Light** (56°18'35"N., 158°23'01"W.), 35 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on the end of the spit.

(192) Anchorage Bay can be easily recognized by the lights of the settlement. In entering, give the spit a fair berth. In thick weather care should be taken to avoid entering Mud Bay by mistake. By following the south shore of Chignik Bay little difficulty should be experienced.

(193) Anchorage is good throughout most of Anchorage Bay, but dragging can be expected during the heavy winds and williwaws prevalent here. If the anchor is on the bottom long some difficulty may be experienced in weighing. Care should be used in anchoring at high tide, for the flats make out for a distance and drop off sharply. An anchorage for small craft is on the east side of the bay near the sandspit, with soft mud bottom. Larger vessels may find good anchorage just outside the bay, about 2 miles northeast of Eagle Rock in about 56°21'30"N. 158°21'45"W.

(194) **Chignik** is a fishing settlement at the head of Anchorage Bay. In 2002, a two-fingered pier in the southwest portion of the bay had a 200-foot face with depths of 33 feet reported alongside. The opening in the center of the pier has a 35-ton travel lift. Another pier in the southeast portion of the bay has a 160-foot face and depths of 33 feet reported to be alongside. There is a sewer outfall that extends 210 feet beyond the end of this pier, and mariners are advised not to drop anchor in the vicinity of the pier. Both piers have dolphins approximately 50 feet from the ends, along the face, to support larger vessels.

(195) North of Chignick on the east side of Anchorage Bay is a small boat harbor. In 2010, 12.2 to 19.5 feet was available in the harbor.

(196) Radiotelephone and radiotelegraph communications are maintained.

(197)

Pilotage, Chignik

(198) Pilotage, except for certain exempted vessels, is compulsory for all vessels navigating the waters of the State of Alaska.

(199) The Alaska Peninsula is served by the Alaska Marine Pilots. (See **Pilotage, General** (indexed), chapter 3, for the pilot pickup stations and other details.)

(200) **Mud Bay**, shallow and of no commercial importance, is filled with eel grass that interferes with the operation of launches. The only anchorage is in the entrance.

(201) **Negro Head**, between Mud Bay and Chignik Lagoon, is a high, round-topped vertical bluff.

(202) **Chignik Lagoon**, at the southwest end of Chignik Bay, is shallow, but a channel with depths of 7 to 42 feet follows off the east shore to an inactive cannery at **Chignik Lagoon**, 2.3 miles above the entrance sandspit.

(203) The best anchorage is off the east shore near the small boat mooring dolphins, which go dry at almost all stages of the tide. The majority of local fisherman anchor just off the edges of the main channels or on the east shore mudflats and let their vessels go high and dry. Beyond the dolphins, which are dry at low water, the lagoon shoals and only launches use the channels to the head. Chignik Lagoon has an important run of red salmon. Vessels of 10-foot draft should not enter the lagoon. Vessels of 6-foot draft should navigate with extreme caution. Eel grass is thick on all mudflats and along the entire shoreline. The mudflat northeast of Chignik Island is strewn with many rocks that bare at low water. Local knowledge is highly recommended when navigating any part of the lagoon. A frequently used portage connects Chignik Lagoon to the head of Kaiukta Bay.

(204) A reef, 3 miles 040° from Negro Head, is covered 4½ fathoms and breaks in heavy weather. This is the only outlying danger in Chignik Bay found during the survey of 1924.

(205) **Anguvik Island**, about 8 miles north-northeast of Anchorage Bay, is bordered by a reef extending about 1 mile to the east and 0.3 mile to the west that breaks at all stages of the tide. The island is flat topped, 50 feet high covered with grass and has precipitous sides. The coast northeast of the island is foul for about 0.6 mile offshore and should be avoided.

(206) **Hook Bay**, west of Cape Kumliun, is deep, except near the head where the slope of the beach is very gradual, with the 10-fathom curve 0.3 mile off the high water mark. The area behind the spit is shoal. Fair anchorage may be obtained for small craft just west of the outer end of the spit in 3 fathoms. Large vessels can find no protection from southeast weather. If anchoring near the head of the bay, avoid dragging onto the shoals that rise abruptly.

(207) **Weasel Mountain**, 2,410 feet high, is 1 mile south of Hook Bay and is the most prominent mountain in this vicinity.

(208) A group of bare rocks is about 1 mile south of the south coast of Cape Kumliun; the highest is 39 feet. They

are connected by reefs but otherwise are apparently steep-to. The rocks are grass covered and there is but little kelp bordering them. Between the rocks and the cape to the north is a clear passage but it is of no importance and is rarely used.

(209) **Katmai Reef**, 3.3 miles 009° from the north point of Nakchamik Island, is narrow and about 600 yards long in a northeast-southwest direction. A small rock on the reef bares at extreme low tide. There are usually breakers, even with a smooth sea, but the breaks may occur at long intervals. A light growth of kelp is on the reef. There is deep water between this reef and the detached rocks about 3 miles to the northeast, in the direction of Unavikshak Island, but the passage is not recommended.

(210) To enter Chignik Bay from the north, stay at least 8 miles southeast of Foggy Cape to avoid the position of the reported rock south of the cape, then change course to pass 1 mile north of Nakchamik Island and enter Anchorage Bay in midchannel. From the south, stay 1 mile outside Castle Cape and the shore to Anchorage Bay.

(211) The Alaska Peninsula coast from Castle Cape to Mitrofania Bay is characterized by steep rock-cliff shoreline, high jagged ridges, sharp peaks, steep slopes of bare rock, alder brush or grass and numerous rockslides. It has many waterfalls, striking cliffs of contrasting colors and intermittent stretches of boulder and shale beach, the latter resulting from broken cliffs and large rockslides. Close alongshore are numerous pinnacle rocks, most frequently off capes and points.

(212) The water is generally very deep in all of the bays and arms throughout this area. No known dangers are more than 500 yards offshore.

(213) **Not all of this area has been surveyed, particularly in the bays and coves. Most of the Coast Pilot notes are from preliminary information obtained by a survey party working on control in 1945.**

(214)

Chankliut Island to Necessity Cove

(215) **Chankliut Island**, as it opens out from Castle Cape, appears as three separate islands tangent to each other. The parts are connected by low necks of land; the east and central ones appear generally flat while the west part is conical. The slopes are grassy. Six pinnacle rocks are off the west point of the island and a small rock 10 feet high is 250 yards off this point.

(216) In the east cove on the north side of the island, small craft can find anchorage by steering **180°** toward the lowest part of the neck of land and anchoring in 5½ to 10 fathoms, sandy bottom. Surge from current and swell is felt in this anchorage.

(217) The channel between Chankliut Island and the mainland has been surveyed and found free from dangers except for a rock covered 9.9 fathoms in about 56°10'58"N., 158°10'08"W and about 2.3 miles north-northwest of the west end of Chankliut Island. The channel is subject to moderate tidal current rips, especially in northeast weather.

(218) **Nikolai Cove** and a small unnamed cove on the mainland 1.5 and 6 miles, respectively, southwest of Castle Cape, afford temporary restricted anchorages for small craft with winds from southwest through west to north but are subject to strong williwaws and are exposed to any swell. Necessity Cove, farther west, is considered a better anchorage.

(219) **Necessity Cove**, 9 miles southwest of Castle Cape, is reported to be a safer anchorage in northwest weather than Warner Bay or Ross Cove but is exposed to swell. The conspicuous cape on the south side of Necessity Cove has a rock-cliff shoreline and high rugged peaks. Approaching from east a prominent light-colored rock cliff is visible along the east shore of the cape. An islet is about 800 yards off the east shore of the cape and about 1 mile south of the entrance to the cove in 56°08'02"N., 158°19'42"W. Small vessels anchor in Necessity Cove close to shore in 7 fathoms; although subject to strong williwaws the cove affords good anchorage with winds from southwest through west to north.

(220)

Warner Bay

(221) **Warner Bay**, 11 miles southwest of Castle Cape, extends north for 4 miles; it is too deep for anchorage except behind the narrow shingle spit on its west shore, 2.5 miles above the entrance. The entrance to the bay is between a small, grass-topped, pinnacle-tipped islet, just off the west side of the cape separating it from Necessity Cove, and a broken rocky point on the west side that separates the entrances to Warner Bay and Ross Cove. Anchorage can be had in the center of the small cove behind the sandspit in 20 to 22 fathoms. It is protected from sea and swell, but the space is too restricted and the water too deep for safe anchorage during violent williwaws, which occur with a strong northwest wind. The anchorage in Warner Bay can be reached by steering midchannel courses.

(222) A shoal area extends about 0.7 mile south-southeast from the point that separates Warner Bay and Ross Cove to approximately 55°07'00"N., 158°24'04"W.

(223) **Ross Cove** is a small, deep, triangular-shaped bay on the west side and at the head of the short arm just west of the entrance to Warner Bay. The entrance to the cove, between the north end of a narrow shingle spit and the north shore of the short arm, is only 150 yards wide and cannot be identified until nearly at the head of the short arm. A bar at the entrance has a least known depth of 11 fathoms. The cove, which can only be used by small craft, is 21 fathoms deep at its center. Anchorage in 16 to 20 fathoms can be had close under the shore. From the head of the cove a long deep valley extends toward 3,697-foot-high **Virgin Peak**. The depth of water, restricted area and violent williwaws make it a dangerous place during northwest weather, but during southeast or southwest

winds it is very quiet. The short arm leading to the cove and entrance into the cove may be traversed by steering midchannel courses.

(224)

Devils Bay to Portage Bay

(225) **Devils Bay**, 15 miles south-southwest of Castle Cape, has a wide deep entrance about midway between Warner Bay and Seal Cape. The north side of the entrance is marked by a high, detached pinnacle rock, close to the point of a narrow peninsula that has precipitous rocky cliffs and high rugged peaks. About 1.5 miles inside the entrance, the bay divides into two main parts, one extends northwest 2 miles, with three small arms at its head, the other, in the form of a hook, extends southwest 1.5 miles, then southeast for about 1 mile.

(226) The main portion and center arm of the north part of the bay are too deep for anchoring. The northeast and west arms of the north part of the bay may be suitable for anchoring. In the hook-shaped south part of the bay is a small bight at the head of the first arm that trends south. Anchorage, with restricted swinging room, can be had 400 to 600 yards from the head of the small bight in 16 to 19 fathoms, mud bottom.

(227) During periods of southwest and northwest weather, no williwaws were experienced in this anchorage, and during fresh northeast weather only moderate williwaws were encountered. No sea or swell entered the anchorage during this storm, although the seas and swell were heavy outside. The anchorage was not tried during southeast weather.

(228) The southeast arm of the hook-shaped south part of the bay was found too deep for anchorage. At the head of this arm are large sections of flat shale spits, formed by rockslides from sheer cliffs that rise from the shoreline to a high rock-faced ridge with many towering pinnacle tips. The pinnacle tips and the sheer wall of this ridge present a very striking formation upon entering this arm of the bay.

(229) **Seal Cape** (56°00.0'N., 158°25.0'W.) and Cape Ikti are twin headlands on the Alaska Peninsula, 2.5 miles apart, each having high rugged peaks, jagged ridges, and sheer rock cliff shorelines. Seal Cape, 13 miles southwest of Chankliut Island, is the most off-lying tangent as seen from the channel between Chankliut Island and Castle Cape. From the same direction, the summit of a 2,074-foot-high narrow ridge, about 0.6 mile inside the tangent of the cape, appears as a very sharp peak. A breaker is 0.2 mile off the south end of Seal Cape.

(230) **Cape Ikti**, west of Seal Cape, marks the east side of the entrance to Kuiukta Bay. Numerous knife-edged pinnacles are very close alongshore near the end of Cape Ikti. A prominent high peak, 2,281 feet, is about 2 miles from the point of the cape.

(231) **Seal Bay**, between Seal Cape and Cape Ikti, extends north for 3 miles. The open bay is generally deep and marked by extensive kelp in its northeast portion. Anchoring depths for small craft can be found close under the shore in the northwest part of the bay, however, it is wide open to all swell and sea and not recommended.

(232) **Kuiukta Bay** extends 14 miles inland and has 11 arms or bays of various sizes and shapes, 6 on the east side and 5 on the west side. Its shores, especially for the first 9 miles, are extremely precipitous and have striking bare cliffs of great height, in contrasting shades of gray, red, brown and black. The rocks appear to be well metamorphosed. A prominent band of black rock, resembling a lava flow, is on the east shore 4.8 miles northwest from Cape Ikti, or just north from the prominent point marking the north side of the entrance to the first arm on the east side of the bay. A very prominent triangular-shaped high vertical cliff, dark brown in color, with irregular streaks of light color rock across its face, is directly ahead about 6.5 miles upon entering the bay from the southeast.

(233) Kuiukta Bay entrance, 5 miles wide, is between Cape Ikti on the east and the sharp east point of an unnamed double headland on the west. This double headland marks the north side of the entrance to Mitrofania Bay. From midchannel at the entrance, Kuiukta Bay trends north-northwest for 4.5 miles where it narrows to a width of 2 miles, thence northwest for another 4.5 miles at an average width of 2 miles, and thence northeast at an average width of 1 mile, interspersed by a few small islets, for about 5 miles to the head of the bay, where arms spread out to the east and west. The bay is a natural funnel for winds and is known as being one of the windiest bays in Alaska. The water off the entrance and in the lower part of the bay is subject to tide rips, especially during northwest weather.

(234) The water is generally deep close to shore throughout Kuiukta Bay and with few known exceptions in the arms leading from it.

(235) The entrance to **Sweater Bay**, the first arm on the east side of Kuiukta Bay, 4 miles northwest from Cape Ikti, is 1 mile wide between a rounding, undercut, dark rock cliff point on the southeast and a prominent gray cliff point with two large off-lying gray pinnacles on the northwest. About 1 mile inside the entrance, the deep channel is constricted to a width of 600 to 700 yards between the north shore and the end of a steep-to boulder-gravel spit that extends from the south shore. The average width of the bay inside the spit is 0.5 mile; and the general depths are 35 to 45 fathoms, with deep water close alongshore, which is fringed by a very narrow strip of boulder gravel or shale. The bay is landlocked and no sea or swell enters it. Anchorage for a small vessel, with restricted swinging room, may be had within 400 yards of the head of the bay in 16 to 20 fathoms, muddy bottom. This anchorage was found to be very quiet when fresh northwest winds prevailed outside in Kuiukta Bay. During a storm with fresh northeast winds, moderate williwaws were experienced, but the survey vessel did not drag anchor. An all-season stream from a low waterfall is on the south shore inside the boulder-gravel spit.

(236) The second arm on the east side of Kuiukta Bay, about 6 miles from Cape Ikti, is a small narrow finger

that extends 1.5 miles east between extremely high steep slopes. It is too narrow and the water too deep, 30 to 40 fathoms, for any suitable anchorage. A number of waterfalls enter this bay.

(237) The third arm on the east side of Kuiukta Bay, about 9 miles from Cape Ikti, has not been investigated. It is very narrow and extends southeast about 1.3 miles. On the north side of the entrance to this arm is a small bight just southeast of a small grass-topped islet. A restricted anchorage in 15 fathoms, sticky bottom, may be had for small craft at the entrance to this bight, about abeam of the southwest end of the small islet.

(238) The fourth arm on the east side of Kuiukta Bay, about 1.7 miles from the head of the bay, extends southeast about 1.5 miles. The north side of the entrance to this arm is marked by a grass-topped U-shaped island, with steep, rock-cliff shoreline. There is good moorage near the entrance to this arm south-southeast of the island in depths of 15 to 35 fathoms with good protection from the wind.

(239) The fifth arm on the east side of Kuiukta Bay, about 0.7 mile from the head of the bay, extends east about 0.9 mile between sheer rock cliffs. The bay has a silt and clay bottom and is open to west winds.

(240) The sixth arm on the east side and at the head of Kuiukta Bay extends east for about 2.3 miles. A small islet is about 1.4 miles east from the south entrance point. The arm is 30 to 40 fathoms deep then shoals to 14 fathoms with a silt bottom approximately 600 yards east of the small islet.

(241) **Herring Lagoon**, the first arm on the west side of Kuiukta Bay, indents the cape opposite the abandoned Indian village of **Mitrofania**. It is separated from the small lagoon on which the village was situated by a narrow boulder-gravel spit. The arm, 1.8 miles long, extends west between sheer rock cliffs to its head at the steep-to boulder-gravel beach. Anchorage on the centerline of the arm about 0.6 mile from its head may be had in 14 fathoms, sandy bottom, but any swell piles up in this bay, as evidenced by large amounts of driftwood high up the boulder-gravel beach; in northwest weather williwaws are very strong. Anchorage here is not recommended except in favorable weather.

(242) **Fishhook Bay**, the second arm on the west side of Kuiukta Bay, about 4.5 miles north of the point marking the west entrance to Kuiukta Bay, extends southwest about 1.5 miles and is restricted at its deep entrance to a width of 400 yards by a hook-shaped boulder-gravel spit that extends from the southeast shore of the arm. Within the hook itself the water is very shallow, and southwest of the hook for a short distance along the southeast shore the water is shallow. Otherwise the arm, including the narrow entrance, is very deep. There is no anchorage in the bay, except for very small craft on the shoal bank close to the southeast shore, just southwest but not within the boulder-gravel hook.

(243) **Foot Bay** is the third arm on the west side and about 6 miles north of the west entrance to Kuiukta Bay. Foot Bay is about 1 mile wide and extends west about 2 miles. It is deep throughout, except close up in the northwest corner where the bottom rises abruptly from 25 to 2 fathoms or less in the vicinity of the mouth of a fair-sized river entering the bay. Anchorage is available in the northwest corner of the bay, approximately 0.5 mile east of the western shore and 0.6 mile south-southwest of the mouth of the fair-sized river, in 25 to 35 fathoms. Anchorage is also available in the southwest corner of the bay, about 300 yards from the shore, in 20 fathoms, muddy bottom. This anchorage is off a small sand beach and a low valley that extends to the northeast arm of Mitrofania Bay. The anchorage is swept by strong squalls in bad weather.

(244) **Windy Bay** is the fourth arm on the west side and is about 8 miles north of the west entrance to Kuiukta Bay. The south side of the entrance to Windy Bay is marked by a sharp, dark-colored pinnacle close to a dark-colored, high rock cliff point. From the entrance, about 1.3 miles wide, the bay trends northwest for 1.5 miles, narrowing to 0.6 mile in width, where there is a small shallow bight extending 0.5 mile southwest, where the bay changes direction at a right angle to the northeast to enter the north part of the bay, through a deep passage about 600 yards wide between low steep-to gravel spits on either shore. After entering the north part of the bay it widens to about 0.8 mile and trends in a north direction for about 1 mile, thence west-northwest, in a narrowing arm for about 2 miles. A 0.2-fathom shoal is about 1.6 miles from the head of the bay in 56°09'00"N., 158°40'45"W. Anchorage, about 0.8 mile north of the gravel spit marking the west side of the entrance to the north arm, can be had about on the centerline of the bay in 15 to 20 fathoms, sticky bottom. Almost continuous fresh winds and williwaws, accompanied by fog and mist, were experienced here during a 36-hour period of west and northwest winds.

(245) The small bight on the south side of Windy Bay shoals rapidly a short distance inside its entrance. A temporary anchorage, with restricted swinging room, can be obtained at the entrance in 15 fathoms, muddy bottom.

(246) **Portage Bay** is the fifth and last arm on the west side and at the head of Kuiukta Bay extends west by north 2.8 miles from a small but high grass-covered islet to a low valley at the bay's head, where an easy portage leads to Chignik Lagoon. Good anchorage, 0.5 to 1 mile west of the small but high grass-topped islet marking the south side of the entrance to the arm, can be had in 17 to 14 fathoms, muddy bottom. This anchorage is exposed in northwest weather to winds funneling through the low valley from Chignik Lagoon.

(247)

Routes

(248) Passage into Kuiukta Bay from its entrance to Windy Bay may be made with safety by clearing either shore 0.5 mile, and the arms leading off this part of the bay may be entered safely on midchannel courses. The narrower north part of the bay should be entered on about midchannel

courses between various islands and the opposite shore as follows:

(249) From a point in about midchannel, about 1 mile 040° from the pinnacle point marking the south entrance to Windy Bay, steer **040°** with the pinnacle point astern. On this course pass west of the low grass-covered island just off the east shore opposite the north side of the entrance to Windy Bay. Thence about 2.6 miles farther pass east of the next island, which has a sugarloaf top and a shoal area midway between the sugarloaf topped island and the U-shaped island. The shoal area in 56°09'46.9"N., 158°32'52.6"W. has a least depth of 2.6 fathoms. Pending a detailed survey, caution should be used when navigating this area.

(250) Directly after passing west of the U-shaped island, round on the port hand and on midchannel courses are two closely spaced islands, the north one of which is the higher and is the last island at the head of Kuiukta Bay. Pass east of 3.6 fathom sounding in 56°10'56"N., 158°32'21"W. Portage Bay is on the west side at the head of Kuiukta Bay. Anchor in the west arm about 0.5 mile to 1 mile west of the last island in 17 to 14 fathoms, mud bottom.

(251)

Mitrufania Bay to Brothers Islands

(252) **Mitrofania Bay**, large and open, is bordered on the south by Mitrofania Island, on the west by Long Beach, and on the north by high, rugged capes of the mainland. The bay is deep and free of dangers, except for the area southwest of the Brother Islands.

(253) The east side of the entrance to Mitrofania Bay is marked by an unnamed double headland, which is connected to the mainland by a low narrow strip of gravel beach just east of the abandoned Indian village of Mitrofania. Close inshore off the south tangent of the east headland is a towering brown pinnacle rock. Between the double headlands is a small embayment with a short section of steep-to gravel beach at its head and many huge pinnacle rocks in its northwest part. The bay is exposed and not recommended for anchorage. At the east entrance to the bay is a prominent gray pinnacle rock about 200 yards off the shore.

(254) About 200 yards off the west point of the west headland is a rock that uncovers about 3 feet. Between this point and the south end of a high rugged cape 1.5 miles northwest is the entrance to **Fish Ranch Bay**, consiting of three small arms. The east arm affords an anchorage, with restricted swinging room, in its west part in 18 to 20 fathoms, muddy bottom, but the inner part entered through a very narrow passage, is a shallow lagoon. The site of the abandoned village of Mitrofania is at the northwest corner of the lagoon. This site is not visible from the anchorage in the outer portion of the arm.

(255) The northeast arm of Fish Ranch Bay affords an anchorage, with restricted swinging room, in its southeast part, just inside of a low gravel point, in 15 to 20 fathoms, muddy bottom.

(256) In the entrance to the northwest arm, about 0.8 to 1.2 miles from the head of the arm, good anchorage with 300 to 600 yards swinging radius in 15 to 20 fathoms can be obtained. The anchorage is good in all wind directions except for northwest winds greater than 25 knots. This anchorage was used by the survey vessel during a period of stormy weather, when a heavy swell was breaking high on the gravel beach at the head of Herring Lagoon, the small first arm leading off Kuiukta Bay, opposite abandoned Mitrofania village, but effects of the swell were barely noticeable in the anchorage.

(257) **Ivan Bay**, an arm leading off the northwest corner of Mitrofania Bay, is between rock-cliff shoreline and high rugged peaks on either side and has a steep-to sand beach at its head, with a low, narrow river valley extending north. There are two small lakes, one on the east side and the other on the west side of the valley, just inshore of the low gravel beach. The water in Ivan Bay is deep and there is no anchorage.

(258) **Long Beach**, about 3 miles of steep-to black sand, forms the head or west shore of Mitrofania Bay. The sand beach is flanked on the north end by a vertical cliff, 600 to 800 feet high, made conspicuous by many strata of different colored rocks, and on its south end by a precipitous double headland, covered with a dense growth of alder bushes, and terminating at the south end in a long narrow point. An isolated rock is on Long Beach, about 300 yards back from the shoreline and near the base of the higher and north mountain of the double headland. This isolated rock, nearly rectangular in shape with vertical sides, is 60 feet high, and its slightly rounded top is covered with grass, ferns and small bushes. Seen from a distance it has the appearance of a huge native sod house. Extending back from Long Beach to the foothills of **Veniaminof Crater** is a broad river valley, in which are many ponds of fresh or brackish water. A large river empties into Mitrofania Bay about through the center of Long Beach. From a distance the double headland at the south end of Long Beach appears as an island located well offshore from the mainland.

(259) **Mitrofania Island**, about 5 miles wide between its north and south tangents and about 6.5 miles wide between its east and west tangents, is somewhat crescent shaped has a cluster of four rippled gray ridges with steep jagged peaks of nearly the same height and a rock cliff shoreline. The highest peak, a little east of the center of the island, appears fan shaped from the northeast and is 2,011 feet high. The island is reported to be visible in excess of 30 miles when approached from the southwest from a point south of Kuperanof Point (55°34.0'N., 159°35.5'W.). The shoreline of Mitrofania Island is characterized by steep cliffs interspersed with cobble beaches that progress into brush during the summer. A number of waterfalls are present on the southern shore, in the northeast section of Sosbee Bay, providing a fresh-water source. Landslide areas have been noted around the island, and mariners

are urged to use caution when transiting near the shore of Mitrofania Island. New rocks and shoal areas may be deposited in short periods of time, creating unidentified dangers to navigation. Grottos and caves also dot the coastline, especially on the southwest part of the island.

(260) **Sosbee Bay**, large and open, is within the crescent on the south side of Mitrofania Island. The bay has a considerable anchorage area in depths of 15 to 20 fathoms along its northwest shore, where cliffs of white and reddish hues rise vertically to a ridge of numerous pinnacle tops. In the southwest part is a bight, formed by a sharp hook of the island to the east, with anchoring depths of 10 to 20 fathoms, sandy bottom. This bight is well protected from wind and sea from the southwest through northwest to north or northeast but is affected by any heavy swell. A small arm with very restricted anchorage in 15 to 18 fathoms, sandy bottom, extends east about 0.4 mile from the northeast part of Sosbee Bay. A cobble beach extends along the east part of this small arm that may afford protection from winds and swell for vessels less than one hundred feet in length.

(261) In 1975, the Coast Guard Cutter CONFIDENCE anchored in the northwest part of the Sosbee Bay. The ship entered from the south on a course of **000°** until midpoint between the southeast and southwest entrance points (crescent points) of the bay, then changed course to **315°** and headed directly for the cluster of four rippled gray ridges on the island until within 1,600 yards of them and anchored in about 18 fathoms, sandy bottom with good holding qualities, on the following additional ranges: snubbed peninsula on northeast side of crescent (55°50.7'N., 158°47.2'W.), 2,400 yards; and snubbed peninsula on the northwest side of crescent (55°49.8'N., 158°51.0'W.), 2,100 yards.

(262) The ship reported that the bottom contour during the entire entering transit remained flat, about 35 fathoms, then shoaled when about 3,000 yards from the cluster of four rippled ridges. The only danger noted was a rock awash about 200 to 300 yards south of the southeast crescent tip. The ship experienced strong northwest winds; however, the anchorage provided excellent protection, free of williwaws. Only slight winds, occasionally gusting to 20 knots, were encountered from a funneling wind over the lower center part of the island. Negative currents were noted in the area. The report further stated that the southeast and southwest corners of the crescent proved to be good radar targets and that perhaps this bay provides the best protected anchorage in the area south of the Alaska Peninsula from winds west-southwest through north to east-northeast. The bay is easily accessible; however, because of its wide entrance, protection is not afforded from winds from the southwest through the southeast.

(263) **Cushing Bay**, a small bay on the north side of Mitrofania Island, is open to the west and has excellent anchorage in 15 to 20 fathoms, sandy bottom. A sandy beach is at its head. The bay is well protected from weather out of all directions excluding when west winds increase to over 25 knots. Sea and swell from the southwest are reduced by the low sand and gravel spit that extends off the point about 3 miles west of the bay. General current flow of 1 knot from the southwest is steady at Cushing Bay. A rock awash is about 0.8 mile north of the bay in 55°54'02"N., 158°50'40"W.

(264) The bight on the east side of Mitrofania Island, just north of the southeastern-most hook, also affords good anchorage in west to southwest winds with depths of 25 to 30 fathoms, fine sand and mud, 0.4 mile from shore. A large rock, 0.5 mile southeast of the southeastern point of the island, is submerged at high water and poses a hazard to navigation.

(265) **Spitz Island**, 1,073 feet high and 1.2 miles south of the southwest tangent of Mitrofania Island, has sheer rock cliff sides and is conspicuous from the east and west. The island is reported to be a good radar target and that it is less prominent from the southwest than from the northeast because of its blending with the background of larger Mitrofania Island to the north. A line of rocks extends south for 0.7 mile from the island. The most south rock is long, narrow, irregular, and about 43 feet high.

(266) **Brother Islands**, two in number and about 1 mile apart, are on a north-northwest line in the west central part of Mitrofania Bay and across the north part of the opening between Mitrofania Island and the double headland at the south end of Long Beach.

(267) The east Brother Island, 1.5 miles north of the north point of Mitrofania Island, is wedge-shaped with point to south, 0.3 mile on its longer east side and 0.2 mile on its north side. The island, 395 feet high, presents a flat profile and from its summit drops sheer to the water's edge along the east side, where the high rock cliffs are undercut with caves inhabited by thousands of birds. A large rock awash is about 0.6 mile south-southwest from the south point of the island in 55°54'37.1"N., 158°49'51.4"W. The area bounded by this rock, a shoal about 1 mile to the west of this rock, and the Brothers Islands contain numerous abrupt and dangerous shoals, only some of which are marked by thick kelp. A kelp-marked shoal area, 0.3 mile long, has a least known depth of 4 fathoms and is 0.7 mile northwest of Cushing Bay headland. Between this shoal and the nearest point of Mitrofania Island is a deepwater channel that passes 300 to 500 yards offshore on a course of **234°**. When this channel is approached from the east, the end of the low grass-covered gravel spit forming the northwest point of Mitrofania Island lies dead ahead. This course is held until about 0.5 mile off the gravel spit, thence change course to 270° and round the steep-to spit about 300 to 500 yards off.

(268) The west Brother Island, about 1.5 miles east of the south shore of Long Beach, is nearly round, 3.5 miles in diameter, with flat top and sheer cliff sides. A large rock, 22 feet high, and rock that uncovers 1 foot are 0.4 mile south-southwest and 0.6 mile south, respectively, from the center of the island. Between the west Brother Island and the mainland the water is deep and clear of

any known dangers. Both Brother Islands have about the same elevation.

(269)

Coal Cape to Dent Point

(270) The character of the shoreline between Mitrofania Bay and Ivanof Bay differs from that to the east in that it has several stretches of steep-to sand beaches, interrupted by low rocky headlands or high rocky capes. Long Beach, described previously, is the first of several beaches. The second stretch of sand beach, about 2.5 miles long, marks the head of a large open bay between the sharp pointed headland at the south end of Long Beach on the east and Coal Cape on the west. The low valley north of this beach joins that extending inland from Long Beach. Just inshore from about the center of this sand beach are two detached mountains on the valley plain. These two mountains appear as islands from a distance offshore. The south one, known locally as **Red Bluff Mountain**, 1,041 feet high, has reddish jagged pinnacle tips and is very prominent.

(271) Small craft can find temporary anchorage in 2 to 10 fathoms, sand bottom, about 1.1 miles southwest of Red Bluff Mountain. Water may be obtained from a stream that empties into the northwest part of the open bay.

(272) Coal Cape and Coal Point, about 10 miles apart, are two separate and distinct features of the Alaska Peninsula. Coal Cape is about 4.5 miles northwest of Mitrofania Island, and Coal Point is about 2.5 miles north of Paul Island.

(273) **Coal Cape** (55°53.5'N., 159°00.0'W.) is a prominent rock-cliff headland that rises to 1,818 feet and whose skyline is extremely broken and serrated. About 2 miles from its south tip the cape is about 2 miles wide and from its rock-cliff shoreline, long, low, sand beaches extend to the east and west. Fair-sized rivers break through the beaches on either side and close to the base of **Coal Cape Mountain Range**. The ridge that continues inland from the cape is a spur from Veniaminof Volcano. This spur is flanked both east and west by extensive river valleys that extend inland from the long sand beaches.

(274) **Perryville**, an Indian village, about 5 miles northwest of Coal Cape, was established to provide for people who were driven away from the vicinity of Mount Katmai Volcano by the eruption of 1912. It consists of a number of wooden houses, including a small store and school, standing on the flat beach about 2.5 miles west of the foot of Coal Cape Mountain Range. There is no wharf and the water is too deep for anchoring off the steep-to beach in front of the village. Temporary anchorage for small craft can be found in 6 to 10 fathoms, 0.3 mile southeast of the west of two conspicuous rock ledges just east of the village; a 5½-fathom rock in 55°54'09"N., 159°07'13"W., and about 0.6 mile southeast of the same ledge, is the controlling depth for the area, but there are depths of 12 to 15 fathoms between this shoal and the beach.

(275) **Three Star Point**, a low alder- and grass-topped rocky headland about 1.5 miles southwest of Perryville, separates two long curving stretches of sand beaches at a point about midway between Coal Cape and Coal Point Ranges. A prominent line of pinnacle rocks extends east about 400 yards from Three Star Point, and a prominent pinnacle rock is about 200 yards south of the point. A series of low hills extending inland from Three Star Point divides the broad valley between the spurs leading to Coal Cape and Coal Point.

(276) **Chiachi Island**, the largest of the **Chiachi Islands**, lies with its most north point about 1 mile southeast of Three Star Point and its south tangent about on line with the south tangents of Coal Cape, 5 miles to the northeast, and Paul Island, 7 miles to the southwest. The island is about 3 miles in extent from its sharp north point to its rounding south side and about the same distance from its most east point to its sharp west point. It has several rugged peaks of about the same elevation. A somewhat prominent one in the southwest part of the island is 1,450 feet high. Pinusuk Island, Shapka Island and Petrel Island also comprise Chiachi Islands.

(277) **Chiachi Bay**, in the east end of Chiachi Island, is about 0.6 mile in both width and depth. Anchorage is available for small vessels in 10 to 17 fathoms, mud bottom, protected from winds out of the southwest through west to north, but any moderate swell, even from the southwest, surges into the bay.

(278) **Pinusuk Island**, 0.9 mile long east to west, is 700 yards off the point on the north side of the entrance to Chiachi Bay; a high wedge-shaped ridge, rising to about 800 feet, has its point to the east and makes the island easy to identify from that direction. A towering pinnacle rock, 79 feet high, is 400 yards off the east end of Pinusuk Island. A rock island, 0.6 mile long and about 800 feet high, has its west end 350 yards off the point on the south side of the entrance to Chiachi Bay.

(279) Two more islands are off the northeast shore of Chiachi Island. The north one, **Shapka Island**, is a sugarloaf 622 feet high, about 0.8 mile northeast of the north point of Chiachi Island; the other, **Petrel Island**, is a small flat rock mass, about 400 yards off the midpoint of the northeast shore of Chiachi Island.

(280) **Coal Point**, 5 miles southwest of Three Star Point, is broad and irregular and has rock cliffs along the shores and a high sharp ridge that extends inland; two needle-shaped rocks are on the cliff slope on the southwest point. A reef, marked by kelp at its outer end, extends 0.4 mile from the southeast point. A rock, covered 1¾ fathoms, is 0.25 mile south-southeast of the southernmost tip of the point, and a rock, covered ½ fathom, is 1.1 miles east by north of the same tip.

(281) **Humpback Bay**, west of Coal Point and between Egg Island and the mainland, has a relatively flat bottom and depths of about 21 fathoms in its central part. Anchorage can be had in 7 to 10 fathoms, sand bottom, in the northeast part of the bay, about 0.5 mile northwest of a lone grass-topped pinnacle rock 22 feet high and about

0.5 mile offshore from the sand beach marking this part of the bay. Caution is advised, however, as swells pile up in the bay through the entrance between Egg Island and Coal Point. For about 1 mile along the northwest side of the bay the shore is rocky, with several detached rocks close alongshore. In the west part of the bay about 1.5 miles northwest of Egg Island is a short stretch of sand beach from which a portage leads to Ivanof Bay.

(282) **Egg Island**, about 1 mile long and 0.5 mile wide, has vertical cliffs on its east side and steep grass-covered slopes on its west side. In the east central part of the island are several round-top summits of about equal height that rise to 500 feet.

(283) A low sandspit extends well offshore from about midway along the west shore of Egg Island, and a rock, 5 feet high, is about 125 yards off the north end. From the reef at the south end of the island a narrow underwater ridge of sand and gravel extends to the north shore of Paul Island; on a course of **233°**, with the tangent of Alexander Point ahead, the least depth is 5¾ fathoms over the ridge, which drops off abruptly both to the northeast and southwest.

(284) A deepwater passage can be made through Humpback Bay by steering midchannel courses around Egg Island, taking care to avoid the 3¾-fathom shoal northwest of the island, thence midchannel between Paul Island and the pinnacle off the jutting point on the east side of Alexander Point.

(285) **Alexander Point**, opposite the west point of Paul Island, is sheer and rocky and marks the end of the high cape bordering the east side of Ivanof Bay. The first definite peak on the cape, about 1 mile north of Alexander Point, is 1,572 feet high. On the east side of the cape, about 1 mile north of Alexander Point, is a jutting rocky point that is heavily covered with grass and alder, and just off the end of this jutting point is a large pinnacle.

(286) **Paul Island**, somewhat hook shaped and for its entire length, has high sharp ridges and peaks that reach an elevation of 1,558 feet in its north part. For a short distance along the northwest side of the island is a low grass-covered sandspit, and inside of the hook of the island, which forms the north shore of Kupreanof Harbor, the beach is low sand and gravel. In this region is a small saltwater pond at the foot of the steep grass- and alder-covered slopes.

(287) In 55°46.9'N., along the east side of Paul Island, is a semicircular 0.3-mile-wide cove that is danger free except for the rocky point and reef that form the southeast side. Small boats can anchor in 3 to 5 fathoms, sand bottom, 200 to 400 yards off the sand beach. Water can be obtained from any of the several streams in the vicinity. Along practically all the rest of the Paul Island shores are sheer rock cliffs.

(288) **Jacob Island**, shaped like a leg of mutton with its point to the south, is about 4 miles long. The highest point, about 1 mile from its north end, is 1,647 feet high. From the highest point a sharp ridge that drops almost vertically to the east shore extends south to **Noon Point**, meeting the sea in a narrow overhanging precipice. North of the highest point alder-covered slopes broaden out to form the south side of Kupreanof Harbor. The coast of Jacob Island is foul with kelp and numerous rocks.

(289) **Kupreanof Harbor**, enclosed by Paul and Jacob Islands, is circular in shape, 1.1 miles across, and free from dangers. It is sheltered from all directions and is the most accessible safe harbor in a wide region. Williwaws have been experienced here with northeast and east gales, but the muddy bottom provides good holding ground.

(290) The west entrance to Kupreanof Harbor is 0.7 mile wide and danger free. To enter, steer **090°** through the middle and change course to **058°** when the point on the north side is abeam; when the south entrance is about to open, anchor in the north central part of the harbor in 10 to 11 fathoms, mud bottom, with the tangents of the point at the south entrance in range and bearing **151°**.

(291) The curving south entrance is 0.5 mile wide and has a channel controlling depth of 4 fathoms northeast of the middle. Vessels should approach from the southwest on a course of **020°**, passing 0.75 mile northwest of the south tip of Paul Island and 0.25 mile southeast of the easternmost point of Jacob Island; when abeam of the latter, steer **000°** for 0.25 mile, thence **317°** for 1.2 miles to anchorage. The 317° course will carry a vessel in the best water northeast of midpassage and about 0.15 mile off the shore of Paul Island.

(292) The current movement within the harbor is irregular in direction and velocity. Current velocities of one knot have been observed.

(293) Fox farms and attendant buildings are on shore in Kupreanof Harbor on Paul Island and Jacob Island.

(294) **Ivanof Bay**, between Alexander Point and Kupreanof Peninsula, is from 1 to 3 miles wide and about 7 miles long in a north-south direction. Bluffs and high ridges parallel both shores from the entrance to the north part of the bay where low valleys lead off from both the east and west shores. When southwest of Alexander Point and proceeding up the bay, **Road Island**, a round-topped, steep-sided island 421 feet high, is seen in the channel 4 miles ahead. Two miles above Alexander Point a grassy headland and a grass-topped, taper-pointed islet 115 feet high are on the east shore. The west shoreline here is precipitous and rugged, the bluffs rising from 1,000 to 2,500 feet above the shoreline. West and north of Road Island is an area of sandspits, tide flats and lowland. Several steep-sided, grass-topped islets are connected to the sandspits at low water. West of northern Ivanof Bay is a large lagoon and beyond are marshy flats across which **Granville Portage** leads to Stepovak Bay. The north shore of Ivanof Bay is hilly. To the northeast of the bay a low valley and flats extend into the interior.

(295) A cannery wharf, with a least depth of 22 feet alongside, and marine ways are midway along the north shore of Ivanof Bay. The buildings of a fox farm are along the cove in the northwest shore of Road Island; a dilapidated wharf in the cove is usable only by small boats

on the higher half of the tide. Radiotelegraph service is maintained.

(296) Vessels can anchor in 15 fathoms, sticky mud bottom, 0.3 mile south-southeast of the cannery wharf. To be avoided are the mudflats that rise abruptly from depths of 10 fathoms on the east side and the ledge that makes out from the northernmost point on the same side.

(297) A ledge with places that uncover 1 to 3 feet is 0.4 mile southeast of the northeast point of Road Island; a rock that uncovers 2 feet is 0.9 mile east by north of the same island point and 0.3 mile from the east shore of the bay. A pinnacle rock, covered 1 fathom, is about 150 yards southwest of the cannery wharf.

(298) When southeast weather prevails along the coast, the wind often blows in the north part of Ivanof Bay from the northeast, coming down through the valley on that side of the bay. The north part of Ivanof Bay is well protected from south swells.

(299) Depths of 12 to 15 fathoms can be carried through the channel west of Road Island. From a position 1.4 miles west of Alexander Point, steer **337°** until the south end of Road Island is 450 yards on the starboard beam; thence **353°** for 0.9 mile to a position where the north end of the island is 600 yards on the starboard beam; and then **014°** for the cannery wharf, taking care to avoid the covered rock 150 yards off the southwest corner.

(300) The channel east of Road Island has a controlling depth of 18 fathoms but rocks off both shores make navigation dangerous for strangers; passage should be made at low tide when the rocks are bare and can be seen. From a position 1.4 miles west of Alexander Point, steer **336°** until the small grass-topped islet 2 miles northwest of Alexander Point is 0.6 mile on the starboard beam; thence **000°** until the north end of Road Island is 0.5 mile on the port beam; thence **334°** until the highest islet on the west side of the upper bay is 1 mile on the port beam; and thence **014°** for the cannery wharf.

(301)

Routes

(302) **Routes, Castle Cape to Kupreanof Point (Alongshore):** From a point 1.5 miles southeast of Castle Cape, steer **220°** for 5.4 miles. When abeam of the west end of Chankliut Island, 1 mile, steer **216°** for 12.8 miles to clear Seal Cape by 1 mile. A breaker is 0.2 mile off the south end of Seal Cape. In thick weather it is recommended that the course be shaped to pass Seal Cape 1.5 miles off.

(303) When the east tangent of Seal Cape and the point at the south entrance to Devils Bay are on range, bearing **000°**, steer **249°** for 9.1 miles with the north tangent of Mitrofania Island ahead. This course passes Cape Ikti about 1 mile off.

(304) When the prominent rocky points marking the entrance to the first arm on the west side of Kuiukta Bay close, bearing **013°**, steer **282°** for 6.9 miles with north slope of mountain on flats west of Long Beach ahead. This course passes north of the west Brother Island at a distance of 1 mile.

(305) When 0.5 mile beyond the range of the west tangents of the west Brother Island and Mitrofania Island, bearing **194°**, steer **201°** for 3 miles. This course passes about 0.6 mile off the west Brother Island and about 0.6 mile off the long pointed headland at the south end of Long Beach.

(306) When Red Bluff Mountain opens on the Long Beach headland, bearing **305°**, steer **246°** to a position 0.8 mile south of Coal Cape; thence **270°** to a position 0.3 mile south of Shapka Island; thence **292°** to a position 0.3 mile north of the north tip of Chiachi Island; and thence **240°** for 6.2 miles to a position 0.8 mile north of the most north tip of Paul Island. Then steer **233°**, with Point Alexander ahead and the prominent, low headland of Three Star Point astern, for 2.8 miles, using the marked passage described earlier between Egg Island and Paul Island.

(307) When the west tangent of Paul Island comes on range, bearing **165°** with the highest point of Jacob Island, steer **201°** for 16 miles with the center of Egg Island astern. This course passes about midway between Paul Island and the jutting point on the east side of Alexander Point, about 0.8 mile off the west coast of Jacob Island, midway between Noon Point and Leader Island, 1.8 miles east of Fox Cape and 2 miles east of Kupreanof Point.

(308) The east shore of **Kupreanof Peninsula** from Ivanof Bay to Kupreanof Point is bold and precipitous, broken only by a broad sand beach, 1.5 miles long, 9 miles north of Kupreanof Point, and by a small sandy cove 4.5 miles north of Kupreanof Point.

(309) **Leader Island**, between Kupreanof Peninsula and Jacob Island, is a turtleback-shaped, rocky islet 131 feet high. It may be passed in depths of 23 to 37 fathoms on the west side and 32 to more than 50 fathoms on the east side. A 17-fathom bank is 1 mile north of the island.

(310) **Hag Peak**, a black dome-shaped mountain, the seaward face of which consists of rows of tilted basalt columns, is at the south side of the entrance to the long sandy beach cove and 3 miles west-southwest of Leader Island. The peak is a distinctive landmark.

(311) **Fox Cape**, 4 miles south-southwest of Leader Island, appears as a pyramidal-shaped headland with several off-lying islets. The largest of these islets has a sloping flat top and sides with a number of deeply carved caves.

(312) South of Fox Cape the shoreline is bold and reef fringed. A group of three pinnacles, 25 feet high, are 1.5 miles south of the cape.

(313) **Kupreanof Point** (55°34.0'N., 159°35.5'W.), the southeast end of Kupreanof Peninsula, appears as a row of rugged monoliths, graduated downward from the high point of the 862-foot cape. Several reefs fringe the base of the cliffs at the southeast end of the point. A reef that breaks in a moderate-to-heavy swell is 700 yards northeast by north of the outer end of Kupreanof Point.

(314) The south shore of Kupreanof Peninsula between Kupreanof Point and Bluff Point is bold and rugged, broken only by a sand beach-bordered cove about midway between the points.

(315) **Stepovak Bay**, northeast of the Shumagin Islands, is large and open with numerous small bays and coves indenting the east and west shore. They are between steep ridges on both sides. At the heads of each of these smaller bays are stretches of sand beach behind which are lagoons and grassy flatlands.

(316) Kupreanof Peninsula on the east side of the bay is mountainous. The higher peaks are rocky, barren and scarred from erosion. The lower slopes are grass covered with patches of alder. The draws and lines of drainage on the lower slopes have dense growths of alder.

(317) The north shore of Stepovak Bay is a long stretch of wide sandy beach, behind which are grass-covered sand dunes. Beyond the dunes a belt of flat tundra extends into Ivanof Bay.

(318) The west shore of Stepovak Bay is mountainous on a more rugged and massive scale than is the terrain of Kupreanof Peninsula. Snow and ice fields fill the upper plateaus. A small volcanic vent in the high country above Ramsey Bay often sends out a cloud of vapor. The steep terrain surrounding the fluted shafts of Mount Stepo (55°43.0'N., 160°11.0'W.) is rich in beauty and grandeur.

(319) Stepovak Bay is much traveled by fishing craft during the salmon season, and gill nets are laid out from many of the rocky points. Brown bear, wolverines and foxes track the shores, and there are trappers' cabins in several of the tributary bays.

(320) In the central part of Stepovak Bay, the bottom is regular, with depths ranging from 40 fathoms in the north part to 90 fathoms in the south part. Near the east shore the depths vary from 20 to 40 fathoms. North of Pad Island the bottom is rough, and there are several submerged pinnacles. On the west side of the bay, reefs and submerged shelves make off from many of the headlands. Some of these reefs bare for a few hundred yards offshore, then continue as submerged shelves with depths of 10 to 20 fathoms extending several miles off these points.

(321) The bottom in most of the bays is a sticky dark-green mud, in depths of 15 to 20 fathoms.

(322) Kupreanof Peninsula partly protects this bay from the southeast swell common along this coast during the summer. The bays and coves on the west side of Stepovak Bay are more exposed to the southeast swell. These bays are also subject to violent winds and downdrafts during northwest weather. For this reason the bays on the east shore offer more protected anchorages than do those on the west shore.

(323) **Bluff Point**, the southernmost feature on the east shore of Stepovak Bay, is a sharp narrow promontory about 700 feet high. It bristles with a descending series of projecting nobs and points.

(324)

Anchorages

(325) **Boulder Bay**, north of Bluff Point, the southernmost bay on the east side of Stepovak Bay, offers good anchorage but is somewhat exposed to south swells. The bottom is very even, sloping gradually from 20 fathoms at the entrance to 15 fathoms near the anchorage. The bottom is a black gritty mud. The anchoring depth and swinging room make Boulder Bay suitable for medium-draft vessels.

(326) **Cub Point**, on the north side of Boulder Bay, is a broad-topped, rounding headland about 900 feet high. It has almost perpendicular faces that are strongly marked with inclined bands of light and dark stratified rock. A patch of white rock halfway up the outer face of Cub Point makes an identifying landmark.

(327) **Fox Bay**, on the north side of Cub Point, is the largest tributary on the east side of Stepovak Bay. Vessels of any size can find protected anchorage in Fox Bay except during very strong west winds. An islet, 88 feet high, in the southeast part of the bay is a good leading mark for vessels entering. The entering course is **090°** for the islet; when 1 mile from the islet, and with a low gravel point that begins near the inner end of a grass-topped bluff abeam to starboard, change course to **065°** and proceed to anchorage in 15 to 18 fathoms, or less if desired, in the large cove at the head of the bay.

(328) The cove on the southeast side of Fox Bay is the most protected anchorage for small craft in Stepovak Bay. Enter Fox Bay as in the preceding paragraph and when 1 mile from the islet change course from **090°** and steer **108°** for 0.9 mile to a position where the islet is 0.3 mile on the port beam; thence **135°** for 0.6 mile to anchorage in 8 to 9 fathoms, sticky mud bottom. Water can be obtained from a waterfall on the southeast side of the cove.

(329) The north part of Fox Bay should be avoided by strangers. A reef, 750 yards long, 300 yards wide and awash at lower low water, is 1 mile south-southeast of the headland on the north side of the entrance.

(330) **Dome Point**, the north entrance headland of Fox Bay, is precipitous with a somewhat level grass top. A large yellow scar on the eroded face identifies this headland.

(331) **Island Bay**, north of Fox Bay, is large and open. Its shores are indented by several coves. An islet, 26 feet high, is in the inner part of the bay and makes a good leading mark for vessels entering the bay. In entering Island Bay vessels should keep at least 0.5 mile offshore. An extensive submerged ledge makes off from the cove 0.8 mile west-southwest of the islet. This must be avoided when approaching the anchorage.

(332) Anchorage west-southwest of the 32-foot islet is in 17 to 20 fathoms, mud bottom. Fishing craft sometimes anchor east of the islet in 3 to 6 fathoms, blue mud bottom. A submerged ledge makes off from the east end of the islet, and a shoal, covered 4 feet, is near the bay's north shore northwest of the islet.

(333) **Stonehouse Cove** is a small cove 1 mile inside the north entrance point of Island Bay. A long reef extending halfway across the entrance breaks the sea in this cove, which has a very smooth, white sand bottom that bares at extreme low tides. The cove is used by fishermen to careen their craft.

(334) **Pad Island**, off the north approach to Island Bay, is low, flat, grass covered and about 0.5 mile long and 0.2 mile wide. A narrow channel separates the island from the main shore. Kelp patches and foul ground extend north from Pad Island. A pinnacle, covered ¾ fathom, is 0.9 mile south of the island and another pinnacle, covered 1½ fathoms, is 0.4 mile north-northeast of the island. A large shoal with a least depth of 4¾ fathoms is 1.3 miles north of Pad Island.

(335) The shore from Pad Island north consists of rugged cliffs. Two striking rock formations are 1.5 miles north of Pad Island. One is a chimney-like column, 120 feet high, projecting from the cliff slopes. The other is a spike-like rock, 400 feet high, projecting above the cliff line. This spike is noticeable from a distance.

(336) The small cove in the northeast corner of Stepovak Bay is rimmed with rocks and reefs except at its head where there is a sandspit and a lagoon. Depths are 4 to 8 fathoms, mud bottom at the entrance and decrease gradually toward the head.

(337) Along the north shore of Stepovak Bay is **Stepanof Flats**, a 5-mile stretch of broad sand beach. Behind the beach are grass-covered sand dunes and beyond are extensive flats of tundra. Two streams flow out of these flats, often bringing silt that discolors the sea for large areas around their mouths.

(338) **Gull Rock**, just offshore from Stepanof Flats and about midway along the north shore of Stepovak Bay, are two bare rocks joined by reefs; the south rock is about 19 feet high and the north one about 4 feet high. From south they appear light colored against the dark background of the hills. The water is shallow between the rocks and the shore.

(339) **Louies Corner** is at the west end of Stepanof Flats. Hills and a rocky headland are west of Louies Corner. Behind Louies Corner is a detached cone-shaped hill, 746 feet high, that shows distinctly from the south end of the bay. An anchorage with 17 to 20 fathoms, mud bottom, and exposed to south weather is 1.3 miles west of Gull Rock.

(340) **Ramsey Bay**, at the north end of the west shore of Stepovak Bay, is fairly open and exposed, and in the central part of the bay the depths are too great for anchoring. A broad sand beach stretches for several miles around the north and northwest shores of Ramsey Bay. At the east end of this beach is **Bales Landing**. Small vessels can anchor in 5 to 10 fathoms, green mud bottom, 0.3 mile south of the landing; the anchorage is exposed to south weather.

(341) West of Bales Landing two streams form deltas off the sand beach. On these deltas, sandbars and sandflats bare at low water for more than 0.5 mile offshore from the high-water line.

(342) From Ramsey Bay south to Dent Point, the shore is steep and rocky. At the Ramsey Bay end of this stretch is a rocky headland; reef and rocks that uncover 1 to 4 feet extend 0.2 mile southeast from the headland.

(343) **Dent Point**, between Ramsey Bay and Grub Gulch, is broad and rounding, backed by steep cliffs and fringed with reefs. Two conspicuous rocks, 19 and 36 feet high, are joined at low water with the southernmost tip of the point. A rock, covered 2 feet, is 0.3 mile offshore, 1.1 miles northeast of the same tip. Vessels should keep at least 0.5 mile off this shore.

(344)

Grub Gulch to Cape Aliaksin

(345) **Grub Gulch** (55°48'N., 159°57'W.) is marked by two grass-covered islets and several low, bare rocks and reefs. The bottom near the entrance is very broken, but a channel with 12 fathoms or more can be carried to the head of the bay by favoring the west shore well away from the vicinity of the islets. The anchorage at the head of Grub Gulch is deep, 20 to 23 fathoms, mud bottom; swinging room is limited. At the northeast end of the beach at the head of the bay, the mouth of a stream is surrounded by sandflats that bare at low tide. A vessel should favor the southwest end of the beach when anchoring.

(346) The outer part of Grub Gulch is not suitable for anchorage because the average depth is about 45 fathoms and there is little or no swinging room in the shoaler depths near shore.

(347) **Red Hill**, a sharp, steep red-hued mountain, 2,343 feet high, is on the point between Grub Gulch and Clark Bay. A reef extends 0.3 mile south-southeast from the outer end of the point to a conspicuous pinnacle rock 20 feet high.

(348) **Clark Bay** is a large open bight backed by two valleys. A grass-covered islet is near the east shore of the bay. It is reported that small fishing craft anchor northwest of this islet in 6 or 7 fathoms, finding some lee from southeast storms.

(349) Near the west end of the east bight of Clark Bay are two pinnacle rocks. The bottom is foul between these pinnacles and the west shore. The west bight of Clark Bay is called **Little Norway**. Anchorage off the sand beach is in 15 fathoms, mud bottom. During northeast storms the winds draw down across this bight with terrific force.

(350) The west shore of Clark Bay consists of a rocky bluff line. A conspicuous waterfall is about 1 mile north of the entrance to the bay. An odd-shaped, slender pinnacle rock is about 0.2 mile south of the waterfall.

(351) **Waterfall Point** is a broad, rounding headland and ridge separating Clark Bay and Orzinski Bay. A waterfall, visible for many miles, marks the south tip of this point. This waterfall, viewed in profile, appears to spout its stream clear of the bluff line. Reefs and rock ledges make off Waterfall Point for 0.5 mile, and a 3¾-fathom shoal area is 1 mile east of the point; clear the point by at least 1.5 miles.

(352) **Orzinski Bay** has steep slopes along most of its shores, but there are grassflats and a lagoon at the head. It is shoaler than the adjacent bays but seems to have better protection at times from northwest storms. A shoal

with depths of 7 feet or less extends 0.5 mile off the north shore. The bay must be navigated with caution; the best water is found by favoring the north side of the entrance, then heading for the middle of the bight in the south shore and strongly favoring the south shore to the head. The bottom rises rather abruptly but anchorage is possible in 10 to 20 fathoms, mud bottom, about 0.2 mile from the head; the anchorage has good holding ground but is exposed to southeast weather.

(353) An alternate anchorage that offers some protection from southeast weather is found off the midbight in the south shore, 0.8 mile west-northwest of the east end of Elephant Point. Anchor in 13 fathoms, mud bottom. Two abandoned buildings are at the head of Orzinski Bay. One is near the mouth of the stream and the other is farther upstream at the base of a hillside.

(354) **Elephant Point**, on the south side of the entrance to Orzinski Bay, is a sharp-ridged promontory, 655 feet high, bound by sheer cliffs having striking bands of stratified rock. The cliffs at the outer extremity of Elephant Point are deeply undercut. A ledge that uncovers extends for 0.5 mile east-northeast to southeast from the point. Shoal indications extend 1.5 miles east-southeast of the point; vessels should clear the point by at least 1.5 miles.

(355) **American Bay** is open and exposed in its outer part but narrows into a long fiord that is fairly well protected from the outside swell. This inner bay is surrounded by tremendously high peaks of a striking and rugged appearance. In the outer bay a pinnacle, covered 4¼ fathoms, is 0.6 mile southwest of Elephant Point, and another pinnacle, covered 4¾ fathoms, is 0.3 mile southwest of the rocky point 2 miles along the north shore from Elephant Point. A sandspit projects from the northeast shore and a gravel spit from the southwest shore 2.5 and 3.5 miles from the entrance.

(356) The valley at the head of American Bay shows considerable evidence of glacial deposit. There are shoals and low-water sandflats off the mouth of the stream that flows from the valley. Depths in the inner bay are 12 to 30 fathoms, and the bottom rises steeply except off the flats at the head. Anchorage is possible for small craft in 8 to 10 fathoms, mud bottom, near the head of the bay; other anchorage is not recommended because of the depths and limited swinging room.

(357) **Blunt Point**, on the south side of the entrance to American Bay, is a broad cape with grass-covered slopes above a shoreline of eroded bluffs. Reefs make off Blunt Point and vessels should stay well clear of it.

(358) **Wind Bound Bay** is a small cove 1 mile west of Blunt Point. Inside the cove is a small valley surrounded by high mountains. It is reported that small fishing craft anchor off the mouth of the creek in 3 fathoms.

(359) **Chichagof Bay** (55°39'N., 160°14'W.), 3 miles west of Blunt Point, is used as an anchorage by small fishing craft. A reef extends off the north side of the bay and a 2¾-fathom shoal is 0.3 mile off the north entrance point. A reef fringes the bold headland separating Chichagof Bay and West Cove to the south. A shoal area with depths increasing to 4½ fathoms extends 0.5 mile southeast from the headland; the outer extremity is marked by kelp. Depths decrease from 10 fathoms at the entrance to 5 fathoms 0.4 mile from the beach at the head of the bay. The anchorage in the upper part of the bay is sheltered except from the southeast; the bottom is hard sand.

(360) **West Cove** is small and fringed on both sides with covered rock ledges. A ledge extending almost 0.5 mile southeast from the southwest point of the cove has pinnacles that bare at various stages of the tide; a 3¾ fathom shoal is 0.7 mile southeast of the point.

(361) **Dorenoi Bay**, 7.5 miles southwest of Blunt Point, is open and exposed to the east and southeast and subject to strong winds through low ground to the northwest. Both sides of the bay are mountainous, and rock ledges border the shores. At the head of the bay is a long stretch of sand beach. The bottom near the entrance is extremely broken; depths vary from 20 to over 70 fathoms. Approaching in midchannel, a good anchorage in 30 to 10 fathoms, good holding ground, is at the head of the bay.

(362) **Renshaw Point**, at the base of a rugged mountain, marks the south entrance of Dorenoi Bay. The deeply eroded cliffs are conspicuous for many miles. Black rocks and reefs make off the point.

(363) **San Diego Bay**, the open bight north of a string of islets and rocks between Guillemot Island and the mainland, is marked on its north side by several low cliffs. San Diego Bay is used extensively during the salmon fishing season as an anchorage and fish transfer point. When salmon fishing is underway, set-nets project a considerable distance offshore and have extents that are not always clearly marked. Small surface buoys used for crab fishing are also in the area. Both can impede navigation when underway; mariners are urged to use caution in the area, especially in the northwest part of the bay. The approach north of Guillemot Island is deep and clear. Smaller vessels may carry 4 fathoms through the passage between the west end of the island and a conspicuous pinnacle rock that is midway of the distance to the mainland shore.

(364) **Guillemot Island**, about 1.6 miles long, 0.3 mile wide and 623 feet high, has bold precipitous cliffs on the north side and low bluffs on the south side. Above the low bluffs the grass-covered ground slopes evenly upward to the top of the cliffs on the north side. A neck of land extends off the south side of the island to a rocky, round and steep-sided headland. On the east shore, between this round headland and the cliffs to the north, is a bight with a sandy beach.

(365) Off the southwest end of the island is a flat and sandspit. Smaller craft often anchor on the south side of the island in the bight east of the sandspit, in 1 to 5 fathoms. Northwest and northeast weather causes strong winds to sweep down the grassy slopes, so this anchorage should be used with caution.

(366) The water is fairly deep off the north and south sides of the island, but a ledge covered 6½ fathoms is 1.1 miles east of its east end.

(367) South of Guillemot Island the coast is bold and precipitous, except for two stretches of low sand beach bordering valleys that break through from the interior. Rocks and reefs fringe the bases of the cliffs. A pinnacle, 40 feet high, is off a point 3 miles southwest of Guillemot Island.

(368) **Lumber Bay**, known locally as **Rough Beach**, is on the east face of Swedania Point, 2 miles northeast of its southwest end, and consists of a shallow bight at the entrance of a valley; the beach is a dike of cobbles thrown up by the sea, and is capped by a great windrow of driftwood.

(369) **Swedania Point** is the seaward end of a ridge 1,309 feet high; at the extremity are rugged cliffs, and on the southwest side is a gravel spit at the foot of the cliffs. The profile and end slope are striking and unusual, resembling in magnified outline the end of an artificial earthwork or bunker, back of which the mountain rises steeply. Strong williwaws blow on the lee side off the east face. One mile east of Swedania Point a group of rocks, bare at low water, extend south.

(370) **Balboa Bay**, known locally as **Portage Bay**, offers good shelter on the east side about 5 miles from Swedania Point in a small bight with a low gravel point south of it at the mouth of a large ravine containing a stream. The midchannel into the north arm is deep. When the coal mine at Herendeen Bay, on the other side of the Alaska Peninsula, was in operation, supplies were landed here and carried across the trail by pack train, a distance of about 15 miles. The highest point on the trail, less than 600 feet, is near the south side of the peninsula. This portage is still used frequently.

(371) On the west shore of Balboa Bay, a reef extends 600 yards off the entrance point and then fringes the shore to the north at a distance of 200 to 600 yards offshore. Outside the reef the water deepens rapidly to the middle of the bay.

(372) **Albatross Anchorage**, near the head of the north arm of Balboa Bay, is a secure harbor with depths of 8 to 2 fathoms. During strong north winds, Albatross Anchorage is subject to strong wind-funneling from the mountain passes. During this period Lefthand Bay is the preferred anchorage. **Reef Point** is on the east side of the entrance to the harbor; a reef extends almost 0.1 mile off the point. The best anchorage is in midchannel, 0.6 mile north of Reef Point, and west of **Ballast Island**, in 5 to 8 fathoms. Small craft may anchor in the bight on the west side opposite Ballast Island in 8 to 12 feet and secure better protection; avoid a ledge that uncovers about 4 feet in the north part of the bight.

(373) **Lefthand Bay**, known locally as **Left Arm**, on the west side of Balboa Bay, is protected to some degree from south winds. However, the winds tend to funnel into the entrance of the bay. The bottom varies from mud to shale and does not provide good holding ground in strong winds. Shoals extend about 500 yards off the north and south shores at the entrance and about 200 to 300 yards off the shores inside the bay. Midchannel depths are 25 fathoms at the entrance, shoaling gradually toward the sand beach at the head of the bay. **Kagayan Flats**, between Lefthand Bay and Beaver Bay, are low and marshy. Several buoys which mark crab fishing activities are at the head of the bay.

(374) **Cape Aliaksin** separates Balboa Bay and Beaver Bay and has no distinctive form; it is of a rounded outline and a low rounded profile. Lowland extends for some distance from the shore all around the cape. The summit, 2,073 feet high, is broad and flat. There is shoal water near shore all around and a rock awash about 0.3 mile off the southwest side. A reef extends southeast 600 yards off the cape. The cape is difficult to identify from west.

(375)

Shumagin Islands

(376) **Shumagin Islands**, comprising 15 sizable islands and many islets and rocks, extend for a distance of 60 miles from the coast of the Alaska Peninsula from which the group is separated by Unga Strait.

(377) The inside passage along the Alaska Peninsula in the vicinity of the Shumagin Islands is through Gorman, Korovin, and Unga Straits and north of Jude Island.

(378) In general, the Shumagin Islands are bold and mountainous, and the shores are broken in many places by inlets that afford good anchorages. The shores are rockbound close-to. Fishing stations and camps are scattered throughout the group, and good fishing banks are off the islands. Fox and cattle raising are carried on to some extent.

(379)

Caution

(380) Many areas adjacent to the Shumagin Islands are unsurveyed and may present unknown hazards to navigation.

(381)

Weather, Shumagin Islands

(382) Weather in the Shumagin Islands can be harsh and forbidding. In the winter, strong gales frequently affect the islands. Wind funnels through valleys and passes in the island chain during these storms and a low layer of clouds and mist form, shrouding most areas. In the summer, violent williwaws from the northwest can sometimes occur on sunny days. Localized to areas near the Alaska Peninsula, the wind can blow over 30 knots for many hours, creating a steep chop in open areas with significant wave fetch. These williwaws generally affect the Northern Shumagin Islands, but the effects can be felt throughout the chain. During these events, the wind funnel through Popof and Korovin Straits as well as through harbors open to the northwest such as Mist Harbor, Larsen Bay and other inlets on Nagai and Big Koniuji Islands.

(383) The prevailing ocean swell in summer is from the southwest. The swell is moderate on average. While this condition prevails on the southwest side of the group, it is generally clear on the opposite side, with light breezes,

smooth sea and no swell. A landfall for the Shumagins, in summer, should therefore be made to northeast, and the most unmistakable point is Castle Rock.

(384)

Unga Strait

(385) **Unga Strait** separates the Shumagin Islands from the Alaska Peninsula and has a narrowest width of 2.9 miles between the north end of Unga Island and Cape Aliaksin and depths of 16 fathoms or more. Either shore of the strait should be cleared by at least 1 mile. The current generally sets west. See the Tidal Current prediction service at *tidesandcurrents.noaa.gov* for specific information about times, directions, and velocities of the current at numerous locations throughout the area. Links to a user guide for this service can be found in chapter 1 of this book.

(386)

Simeonof Island to Koniuji Strait

(387) **Simeonof Island**, the most east of the Shumagin Islands, is about 6 miles long and 4 miles wide. It is composed of two clusters of hills, the southeast and higher ones being about 1,436 feet. These hills are separated by a low plateau that is nearly cut in two by a very irregularly shaped inlet known as Simeonof Harbor.

(388) The coast of the island is fringed with reefs, shoals and kelp. Those on the south side are variously reported to extend from 3 to 7 miles offshore; those on the east and southeast sides, 3 miles; and those off the other shores, 0.5 mile. A rock, on which the sea breaks at low water, has been reported halfway between Simeonof and Chernabura Islands.

(389) **Simeonof Harbor** makes in from the west side of the island. A reef extends about 0.5 mile west from the north point of the entrance to the harbor. Off the south point of the entrance is a low, flat, rocky island chain fringed with reefs. Thick kelp beds are parallel to the reefs on either side of the harbor entrance. The harbor is protected from all winds; the entrance is tortuous, with reefs on either side; and the shores are rocky and the water very shoal. The inner anchorage is in 2½ fathoms, with not over 2 fathoms at the lowest tide; the bottom is smooth gravel. Anchorage, exposed to west winds, may be had in the outer part of the harbor in about 4 fathoms, about 0.5 mile inside the entrance.

(390) **Twelve Fathom Strait** separates Simeonof and Little Koniuji Islands, is 2.2 miles wide and has depths of 8 to 20 fathoms except for various shallow areas to 4½ fathoms near the middle. Rocky outcroppings from 2 to 6 fathoms are along the entire length of the northern half of the strait, off the southern side of Little Koniuji Island. There are shallow areas along the southern part of the strait, but these are behind the 10 fathom depth curve. It is recommended that vessels use the southern half of Twelve Fathom Strait during transit. However, the rocky bottom may pose a risk to fishing and anchoring gear. The prudent mariner should notice fast (3 to 5 knots) currents, rocky shoreline and large masses of kelp indicative of potentially hazardous areas inside the strait. Kelp lines both sides of the strait and varies in extent and density depending on the time of year.

(391) **Little Koniuji Island** is very irregular in shape, consisting of three parts, 1,200 to over 1,600 feet high, connected by raised sand beaches. The south end terminates in a high rocky pointed cape, with a reef marked by a breaker extending about 0.3 mile southwest from it. The east coast is indented by two coves, and there is a large harbor on the west side.

(392) **Sandy Cove**, on the east side of Little Koniuji Island, is about 1 mile wide at the entrance and 1.5 miles long. On its west shore are prominent granite cliffs. The cove affords good anchorage in its south bight in about 10 fathoms, sheltered from all but southeast weather. Excellent anchorage was reported 1.1 miles 155° from **Entrance Point** in sand bottom; this anchorage affords good protection against weather from the southwest.

(393) **Atkins Island**, about 1.5 miles long and about 0.6 mile wide, is connected to the northeast headland of Little Koniuji Island by a shoal. The island rises to 800 feet at its southeast end.

(394) Atkins Island is a Steller sea lion rookery site. There is a 3-mile vessel exclusionary buffer zone around the entire island. (See **50 CFR 224.103**, chapter 2, for limits and regulations.)

(395) **Northwest Harbor**, a bight in the north side of Little Koniuji Island, south of Herendeen Island, is best entered from the west due to a reported shoal off the southeast side of Herendeen Island. It affords fair anchorage and protection from all but the northeast winds in 5 to 10 fathoms. The harbor is about 0.5 mile wide.

(396) **Herendeen Island** is triangular shaped, about 0.9 mile long and 0.5 mile wide. An islet is off the west end.

(397) **Northeast Harbor**, the large bay in the west side of Little Koniuji Island, has two bights and is about 4.5 miles long. The entrance to the bay is deep, but rocky outcroppings exist on both sides. Vessels are advised to stay in the center half of either bight while transiting or fishing as the shoreline of the entire harbor is marked by rocky outcroppings. The southeast bight of the harbor is somewhat open to west winds and the holding ground is not ideal but can be used in normal conditions. The extreme southeast end of the harbor is more protected and is a favorite refuge for fishermen, though the bottom, being alternate patches of rock and sand, is also not ideal but can be used in normal conditions.

(398) **Chernabura Island**, the most south of the Shumagins, is high and mountainous and has few breaks in its profile, the highest part being at the east end. A rocky islet, apparently connected with the main island by a bar, is off its north end. On the east side are three small bays; the middle one is reported to afford anchorage in west winds.

(399) The south shore of Chernabura Island is a Steller sea lion rookery site. There is a 3-mile vessel exclusionary

buffer zone around this rookery that encompasses all but the northwest portion of the island. (See **50 CFR 224.103**, chapter 2, for limits and regulations.)

(400) **Bird Island**, about 4 miles west of Chernabura Island, is more irregular than that island, but several of its peaks are nearly as high. Passing well south, Bird Island appears as four principal peaks connected by low valleys. Almost its entire southeast side is a series of cliffs. A rock is a short distance off its south end.

(401) An anchorage is reported in the bight on the east side of Bird Island, just inside **Point Welcome**, in 5 to 12 fathoms. The wreck of a schooner is at the head of the bight. Temporary anchorage, exposed to all but southeast winds, may be had in the bight in the northwest side of the island (54°49'30"., 159°46'30"W.) in about 12 fathoms, sand bottom. A reef makes off the west point of the island in a northwest direction; a rock covered 2¼-fathoms is at the outer end.

(402) **Otter Strait**, between Bird and Chernabura Islands, is said to have depths between 20 to 35 fathoms, sandy bottom.

(403) **Big Koniuji Island**, the north and largest of the east group of the Shumagin Islands, is about 13 miles long and about 7.5 miles wide at its widest or south end. The island is rugged and very mountainous, with a well-defined central ridge and spurs projecting toward the points. The coast is broken by many inlets and the points are rockbound close inshore. The highest peaks are frequently mist covered. **Cape Thompson**, its north point, is comparatively low, and its southwest end terminates in a long narrow point with a high connecting ridge that resembles an island from some points of view.

(404) **Flying Eagle Harbor**, on the east side of the island, 6 miles south of Cape Thompson, offers well-protected anchorage for small vessels, especially in south gales, in 7 to 10 fathoms. Larger vessels can find shelter from west or south weather with 6 to 15 fathoms in the next large bight to the north.

(405) **Hall Island**, about 0.9 mile long and 0.2 mile wide, is about 1 mile off the east shore of Big Koniuji Island. Two bare rocks are close to the southeast face of the east end of the island, and a reef extends about 0.3 mile southwest from the southwest point.

(406) **Murre Rocks** are a group of three islets about 0.6 mile northwest from Hall Island. A rocky ledge extends about 0.3 mile southwest from the south islet.

(407) **Yukon Harbor** is southwest of Hall Island. A rocky ledge covered with kelp is close around the east entrance point, and rocks are close to the west point. Anchorage, protected from west weather, may be had in the center of the harbor in about 7 fathoms, but the holding ground is poor.

(408) **Koniuji Strait**, between Big and Little Koniuji Islands, is about 1.5 miles wide and has reported depths of 20 to 28 fathoms. Strong currents can affect the strait and whirlpools are common.

(409)

Castle Rock to Near Island

(410) Four prominent bights are on the west side of Big Koniuji Island. They are open and easy of access and their shores are clear, except for kelp beds. Anchorage in 22 to 26 fathoms, mud bottom, may be had near the head of the bight 146° from Peninsula Island, which is 3.5 miles north-northeast from Spectacle Island. In approaching the anchorage it is necessary to keep north of midchannel to avoid a 6-fathom shoal extending 300 yards off the south shore about 0.5 mile from the head of the bight. Anchorage may also be had in the bight to the east of Peninsula Island in 20 to 24 fathoms, mud and sand bottom.

(411) Anchorage for very small craft may be found in any of these bights, close inshore, and in the numerous indentations and small coves. The winds draw through the divides into the bights, and the williwaws are very strong.

(412) Two bays indent the south coast of big Koniuji Island. The smaller westerly bay offers minimal protection with hard bottom near the mouth. Small vessels may find 5 to 10 fathoms, mud bottom, close to the northwest shore, but care should be taken to avoid the rocky, dense kelp shoreline. In the easterly large bay, vessels have anchored in 10 to 20 fathoms, sand bottom, with protection from north and west winds.

(413) An 8-fathom rock off the southwest end of Big Koniuji Island marks the outermost extent of a rocky ledge.

(414) **Castle Rock**, about 1.5 miles north-northeast of Cape Thompson, the north point of Big Koniuji Island, is rugged and serrated, and its highest peak is 825 feet. It makes an excellent landmark. A 3-fathom shoal extends about 0.8 mile off its south end.

(415) The bottom between Big Koniuji Island and Castle Rock is said to be even, averaging 28 fathoms.

(416) **East Nagai Strait** separates Nagai Island and Big Koniuji Island of the Shumagin group and has an average width of 6 miles and a minimum width of 1.6 miles. Peninsula, Spectacle, Bendel and Turner Islands are in a general north-northeast to south-southwest direction in this passage and the waters between this chain of islands and Nagai Island on one side and Big Koniuji Island on the other are deep and clear, and midchannel courses may be safely steered.

(417) **Peninsula Island**, 3.5 miles north-northeast from Spectacle Island and the most north island in East Nagai Strait, is 1.5 miles long and 0.8 mile wide. It has a central peak 1,145 feet high. The shore is rugged, steep and rockbound with extensive kelp beds. A long cobble sand spit extends off the southeast end. The northeast end should not be approached closer than 0.3 mile and the southeast end no closer than 0.5 mile. Exposed anchorage may be found on the tail of the shoal extending off the

southeast point in 5 to 8 fathoms, 0.4 mile from the narrow spit.

(418) **Spectacle Island**, 2.5 miles long and 1.5 miles wide at its south part, is rockbound and has steep cliffs on the north, east and south sides. The north part is distinguished by two peaks over 900 feet high and the south part reaches 1,252 feet. In general, the island may be approached within 0.2 mile.

(419) Anchorages, under favorable conditions, for small craft are in the large bight on the east side of Spectacle Island in 6 to 9 fathoms, in the bight on the west side in 4 to 5 fathoms and in the small cove in the south side in 3 fathoms. The bights on the east and west sides are open and easy of access. The entrance to the small cove on the south side is about 70 yards across with foul ground on either side to a point about 0.1 mile inside the entrance.

(420) The passage between Peninsula and Spectacle Islands is about 3.5 miles wide and is deep and free from dangers.

(421) **Bendel Island**, southwest of Spectacle Island, is separated from it by a passage 0.6 mile wide. It is about 2 miles in diameter and 1,250 feet high. The east end terminates in a narrow neck. There are high bluffs on the south side and sloping valleys on the others. The coastline is rocky, with kelp, and the depths around the island are irregular. A flat extends off the southwest side for about 1 mile with depths of 4¼ to 10 fathoms and with several shoaler spots. Depths of 7 to 8 fathoms are also found off the northwest and southeast sides. Exposed anchorages for small boats may be found in the bights and on the flats.

(422) The passage between Spectacle and Bendel Islands is 0.6 mile wide, and a midchannel course leads through 21 to 11 fathoms.

(423) **Turner Island**, 1,207 feet high, is separated from Bendel Island by a passage from 0.8 to 1.5 miles wide. The island is 2.8 miles long and about 0.9 mile wide. Its shore is rockbound and the southeast coast is very foul for about 0.5 mile offshore. There is a low flat on the northwest end with a 400-foot knoll on the point. The bluffs on the north, southeast and south sides are 400 to 800 feet high.

(424) The passage between Bendel and Turner Islands is deep at both entrances and shoals gradually to 4¼ fathoms in its narrowest part, about midchannel off the southwest point of Bendel Island. Dense kelp grows on this shoal and small craft find difficulty in passing through. This passage is not recommended for large vessels.

(425) The **Twins**, about 4 miles south of Turner Island, consist of three small islands with precipitous and bare sides; the highest, 410 feet, is also the largest of the group. Three small islets and another small islet are off the southwest side and southeast end, respectively, of the largest island, and a small islet and a larger islet are off the southeast side and southwest side, respectively, of the most south island. Several rocks awash extend southeast from near the northwest end of the most west island to near the northwest end of the south island.

(426) **Near Island**, in the south approach to East Nagai Strait near Nagai Island, is about 1.4 miles long and 1,289 feet high, with precipitous, rocky sides. The island is easily recognized by a regular serration that cuts its crest into five little peaks. There are rocks close to the shore.

(427)

Nagai Island to Northeast Bight

(428) **Nagai Island**, in the center of the Shumagin group, is about 29 miles long and 9 miles wide and near the center reaches an elevation of 1,837 feet in a group of confused ridges. Its coast is irregular and indented by numerous inlets, several of which extend nearly through the island and have low, narrow isthmuses at the head. The island is mountainous and its shores are rockbound.

(429) **Cape Wedge**, the north end of the island, is a pointed headland with a rounded, sloping hill, 762 feet high. The north end of the cape terminates in a double point, 262 and 316 feet high, and a rocky bluff 150 feet high between. Its shores are rocky and forbidding, and dangers are within 0.3 mile of the shore. Clear the cape by at least 1 mile.

(430) **Mountain Point**, the south end of Nagai Island, is narrow, about 500 feet high, and surrounded by rocks at a distance of about 0.5 mile. A covered rock is about 1 mile south-southwest off the point.

(431) **Pirate Shake** is a local name for the low, 65-yard-wide neck of Nagai Island, 4 miles south-southwest of Cape Wedge. The cove on the east side of the neck is a good anchorage but is exposed to winds from about east-northeast to east-southeast. The outer points at the entrance are surrounded by reefs, and a rock, 8 feet high, is in the middle of the entrance. The better entrance is north of the rock, heading for an islet, 40 feet high, on the north side of the cove, on a **286°** course. Pass 300 to 500 yards south of the islet and anchor in the middle of the cove west-southwest of the islet in about 7 fathoms, soft bottom in places. Anchorage can also be selected in the entrance of the cove just northeast of the islet in 7 to 8 fathoms, bottom generally rocky, taking care, however, to avoid the reef that extends about 0.2 mile from the northeast shore of the cove. The flat islet, 40 feet high on the north side of the cove, and a rock, 25 feet high, off the outer point on the south side of the cove, are good marks for the entrance.

(432) **Northeast Bight**, on the east side of Nagai Island, about 6 miles south of Cape Wedge, is 1.3 miles wide, open, deep and free from dangers except close to shore. The main body of the bight is too deep for anchorage, but a vessel may anchor in the two coves at the head in about 20 fathoms.

(433)

Mist Harbor to Saddlers Mistake

(434) **Mist Harbor**, a landlocked basin about 1 mile long and 0.4 mile wide, is on the east side of Nagai Island, 10 miles south of Cape Wedge, and northwest from Bendel Island. The depths in the middle of the basin are 27 to 31

fathoms, but small craft can find secure anchorage in the cove on the south side of the west end of the harbor, in 6 to 7 fathoms. The south side of the harbor is formed by a long spit; the 200-yard-wide entrance is around the west end of the spit and necessitates a sharp turn in entering. A midchannel course should be followed through the entrance and also when entering the cove at the west end of the harbor to the anchorage. A flat fills the east end of the harbor; otherwise there are no dangers away from the shores.

(435) A fishing camp is usually on the cove at the west end of Mist Harbor and small temporary wharves may be found. Water may be had from small streams on the northeast side of the harbor. Strong williwaws draw down from the high mountains at times. A low neck of land, about 150 yards wide, separates the west end of the harbor from the head of Northeast Bight.

(436) **East Bight** on the east coast of Nagai Island, 3 miles southwest of the entrance to Mist Harbor, is about 3.2 miles long and 2 miles wide. It is deep and open to the southeast and the shores are clear except close-to. Anchorage for moderate-sized vessels may be found on the shelf on the northeast side in 15 to 20 fathoms, about 1 mile inside the north entrance point and about 0.4 mile offshore.

(437) The two west arms do not afford good anchorage because of the depth, about 29 fathoms. A 7-fathom spot, surrounded by deep water, is in the north of the two arms, 650 yards off the west shore and about 0.9 mile from the head of the arm.

(438) The entrance to the more south of the west arms is restricted to about 450 yards by a shoal that extends 900 yards north off its south entrance point. In entering, favor the north shore at a distance of 0.1 to 0.2 mile. Small boats may find protected anchorage behind the hook at the south entrance point in 9 to 15 fathoms. After passing well through the entrance to the arm, head **180°**to pass about 100 yards west of the west end of the hook spit. When abreast of the end of the hook, round into the cove and select anchorage in about its center.

(439) **Larsen Bay**, on the east side of Nagai Island opposite Turner Island, affords good anchorage in 4 to 10 fathoms, sandy bottom. The bight is open and easy of access but is exposed to east winds. The west shore is low and is distinguished by white sand dunes. A bold headland, about 100 feet high, projects from the south side. There are several open bights on the east coast of the island between Larsen Bay and Mountain Point.

(440) **John Island**, off the west side of Nagai Island about 7 miles north of Mountain Point, is 580 feet high. South of John Island, Nagai Island consists of two clusters of rocky hills, 1,611 and 1,130 feet high, joined by a low isthmus.

(441) The isthmus is called **Saddlers Mistake** because of a vessel attempting at night to pass between the adjacent high parts of the island.

(442)

Falmouth Harbor to Humboldt Harbor

(443) **Falmouth Harbor**, on the west side of Nagai Island, about 6 miles north of John Island, affords a secure, though limited, anchorage for a small vessel in the basin behind the spit at its head in 7 to 8 fathoms, sandy bottom. The entrance to the basin is not over 300 yards wide, has a depth of 6 fathoms, and has no known dangers. The basin is 0.3 mile wide, and its north side is a broad sandflat that drops suddenly to 4 fathoms.

(444) A reef extends 0.3 mile southwest from the south entrance point of Falmouth Harbor and a rock, bare at low water and marked by a breaker and kelp, is 0.8 mile from that point in the same direction.

(445) The south shore of the harbor is low, rising steeply to the interior hills. **Cape Horn**, a low point, with a rock close off it, is about halfway up the bay on this shore.

(446) The north entrance point rises some 500 feet in a perpendicular cliff. The shore is rocky and bold. A rock, 5 feet high, is 0.3 mile offshore and 1.2 miles northwest from this point.

(447) **Wooly Head**, on the west side of Nagai Island between Falmouth and Eagle Harbors, is a promontory, 1,200 feet high; there are rocks 0.2 mile from shore all around its face, some of them awash and others forming towers and pinnacles 50 feet high. A vessel may pass 0.4 mile off in 20 fathoms. Violent williwaws are frequent here.

(448) **Eagle Harbor**, 13.5 miles south-southwest of Cape Wedge, about 1.2 to 1.5 miles wide, has depths of 15 to 23 fathoms, with no outlying dangers except near the spits that are 1.5 miles from the head of the harbor. In passing between the spits, favor the one on the southwest shore. Good anchorage is anywhere in the head of the harbor above the spits in 14 to 18 fathoms, soft bottom. Small craft can anchor in the lagoon behind the north spit in 6 fathoms.

(449) A fishing station with a large warehouse and boat wharf is on the south side of Eagle Harbor 1.3 miles inside the entrance, and a small abandoned fish station and boat wharf are on the north shore 1.8 miles inside the entrance.

(450) **Sanborn Harbor** is on the west side of Nagai Island about 10 miles from Cape Wedge. The pinnacle rock 103 feet high off **East Head**, the north entrance point, and two waterfalls on the west face of the south entrance point, are conspicuous landmarks. The harbor is south miles long and has good anchorage at its head. To secure good shelter, a vessel should pass between **Macks Head** and **Granite Point** and then anchor as desired, avoiding only the shoal upper half of the northeast arm. There are no outlying dangers in Sanborn Harbor.

(451) A fishing station is in a small exposed bay on the north side of Sanborn Harbor, 2.3 miles southeast of East Head; it has a warehouse and a boat-wharf, dry at low water.

(452) **Caton Cove** is on the north side of Sanborn Harbor, 3.5 miles southeast of East Head; there is shelter in **The Kitchen** for light craft back of the sandspit. The channel, close to the spit, until through the narrowest part of the entrance, has a least width of 100 feet and a least depth of 10 feet.

(453) **Porpoise Harbor**, about 3 miles northeast of Sanborn Harbor, affords no useful anchorage because of its great depth.

(454) The bight about 2.5 miles northeast of Porpoise Harbor has temporary anchorage in 8 to 15 fathoms, giving the shore a berth of over 300 yards. **Porpoise Rocks** are a small cluster 10 feet high, with deep water close-to, 0.8 mile from the north shore in the approach to the bay.

(455) The narrow bight west of Pirate Shake, described previously, affords anchorage for small craft about 0.3 mile inside the entrance and about on the middle line of the cove in 4 to 6 fathoms, rocky bottom. The bight is exposed to west winds and its east half is foul and shoal to the head.

(456) **West Nagai Strait**, between Nagai and Andronica Islands of the Shumagin group, is 3.3 miles wide at its narrowest point between Porpoise Rocks and The Haystacks, with depths from 25 to 50 fathoms and no outlying dangers. A vessel should pass east and south of The Haystacks and on these sides may approach as close as 0.3 mile in 25 fathoms.

(457) The currents in West Nagai Strait set with the wind and reach a velocity of 1.5 to 2 knots in strong winds. Under ordinary conditions the prevailing set of the current is said to be southwest in this vicinity.

(458) **The Haystacks** are a formidable appearing group of four islets 265 to 293 feet high, with a broken chain of rocks running through them. Broken ground, on which the least depth found is 7¼ fathoms in 55°16'02"N., 160°03'50"W., is about 0.65 mile west-northwest of the southern tip of the southernmost islet. A rock called **The Whaleback**, 1 mile west of The Haystacks, is 22 feet high, and 300 yards south-southwest of it is a covered rock. Temporary anchorage in 20 fathoms or less can be had in the bight E of The Haystacks. A landing can be made on the boulder beach.

(459) The soundings indicate clear passage between Andronica and The Haystacks, between The Whaleback and The Haystacks, and between the north Haystack and the rest of the group, but none of these passages are recommended.

(460) **Andronica Island**, one of the Shumagin group, is west from the north end of Nagai Island. The island, 2 miles wide, 3 miles long, and 1,175 feet high, is bordered by rocks to a distance of 0.2 mile from the shore; vessels should give the shore of the island a berth of 0.5 mile. A flat islet, 22 feet high, extends 0.4 mile off the southeast point toward The Haystacks.

(461) **Andronica Island Light** (55°20'45"N., 160°03'40"W.), 115 feet above the water, is shown from a square frame on the northeast point of the island. East of the point is a prominent, conical-shaped rock, 280 feet high, that is useful during low visibility in identifying the north point of the island to ensure passage through the desired strait. The light is obscured by the rock.

(462) A rock that uncovers 5 feet, 0.4 mile west of the north point and 0.4 mile offshore, is the farthest outlying danger in the approach to Gorman Strait.

(463) A bare rock, 5 feet high, is 0.2 mile off the west point of Andronica Island.

(464) Temporary anchorage may be found 0.5 mile from shore in the bight on the northeast side of Andronica, off the sand beach near the north point, in 20 fathoms. Small vessels can anchor closer to shore in this bight and also in the bight on the southwest side of the island; landing can usually be made in one of these bights.

(465) **Gorman Strait** between Andronica and Korovin Islands, is clear if the shores are given a berth of 0.5 mile. Deepest draft vessels should also use caution passing the 7¼-fathom shoal 0.9 mile southeast of Cape Devine.

(466) The currents in Gorman Strait set with the wind and reach a velocity of 1.5 to 2 knots in strong winds. Under ordinary conditions the prevailing set of the current is said to be southwest in this vicinity.

(467) **Korovin Island** in the north-central part of the Shumagin group has two summits separated by low land and marsh extending from Korovin Bay to Grosvold Bay. The east part of this island rises to 1,209 feet and the west part to 1,808 feet near its south end.

(468) **Cape Devine**, marking the northwest side of Gorman Strait, is a gray headland, 885 feet high, joined to the remainder of Korovin Island by a low neck. The shore is fringed with rocks, and a rock awash at low water is 400 yards off the south side of the cape. A pinnacle rock, 65 feet high, is 1.5 miles north of Cape Devine, and a 5¼-fathom shoal is 0.4 mile northeast of the pinnacle, off the east side of Korovin Island. A 10-fathom bank extends 0.8 mile south from the cape.

(469) **Korovin Bay**, the west bight on the south side of Korovin Island, affords fair shelter in north weather, but the holding ground is poor. Anchorage may also be had for smaller vessels in the east bight. Both bights are free of danger except for numerous reefs near shore.

(470) **Scotland Point**, the northeast end of Korovin Island, is distinguished by the large pyramid-shaped rock 100 yards off the point. A 9½-fathom shoal is 1.7 miles northwest of the point.

(471) **Grosvold Bay**, 2 miles west of Scotland Point, may be used as an anchorage for small craft. The entrance is foul on both sides but safe in the middle; inside the bay, foul ground is along the shores. The 623-foot peak of the bold rocky headland on the west side of the entrance to the bay and a waterfall west of the headland are prominent.

(472) The bay between Scotland Point and Grosvold Bay is not recommended for anchorage.

(473) **Henderson Island**, 0.2 mile off the west end of Korovin Island, is small and 58 feet high. From west it is hard to distinguish from Korovin Island until close-to. Rocks extend 0.1 mile off the west end of Henderson

Island and shoals, covered 8 fathoms and less, extend up to 1 mile around the island, except on the east side where a reef extends to Korovin Island.

(474) **Korovin Strait**, between Korovin and Popof Islands, has a least width of 2 miles and is free of dangers. The bottom is rough with depths of 25 to over 100 fathoms.

(475) **Karpa Island**, 4 miles northeast from Korovin Island, is 0.7 mile wide, 1.3 miles long, and 1,373 feet high. The island is grass covered with a smooth profile; a remarkable landslide, 900 feet high, is at the northeast point. The island may be ascended only from the southwest point; 70 yards off this point is a pinnacle rock, 50 feet high. A ledge extends 250 yards off the southeast point and a narrow kelp field is along the south and southeast sides of the island; otherwise there are no outlying dangers.

(476) **Popof Island**, close east of Unga Island in the Shumagin group, is irregular and rough in shape, with many hills over 1,000 feet high. The highest point, 1,520 feet, is a short distance northeast of the center of the island. The shores are generally rocky and steep and have many ledges, covered with kelp, extending 200 to 300 yards offshore.

(477) The north and east shores of Popof Island have no outlying dangers, but the shore should be given a berth of about 0.5 mile. The water is deep and clear between Androncia and Popof Islands except two shoals. In 2004, a depth of 6½ fathoms was about 1 mile east of Popof Island in 55°19'16.6"N., 160°17'34.1"W. and a depth of 7 fathoms was in 55°19'01.2"N., 160°17'53.6"W. Temporary anchorage may be found 0.3 mile off the north shore of Popof Island anywhere west of Pirate Cove in 10 to 20 fathoms.

(478) **Pirate Cove**, 4.5 miles east-northeast of East Head, was formerly an important codfishing station but has been abandoned for many years.

(479) **High Island**, 0.4 mile off the northeast part of Popof Island, is 0.2 mile in extent and 310 feet high, with its greatest height near its north end. It is grass covered but has reddish cliffs showing west and grassy slopes on the other side. There are 30 fathoms and more 200 yards from it all around, and the passage between it and Popof Island is clear. The island can be passed fairly close-to and is a useful mark for making Gorman Strait in thick weather.

(480) **Fox Hole**, on the east side of the north end of Popof Island, is about 1.2 miles long in a south-southwest direction. It affords well-sheltered anchorage for small vessels in all weather except east and northeast. Depths range from 15 fathoms at the entrance to 5¼ fathoms near the edge of the flat, which extends 0.3 mile from the head. The harbor has a clear width of about 400 yards; foul ground extends over 100 yards in places from the shores, and a reef extends about 250 yards north from the point on the south side of the entrance of the narrow part of the harbor. The north point of the entrance is a sheer cliff about 150 feet high. The only directions necessary are to keep in midharbor.

(481) **Popof Head**, 970 feet high and connected to the southeast part of Popof Island by an isthmus, is a high precipitous headland with a steep talus. Vessels should give this headland a berth of 0.5 mile, although in fog it might be approached more closely.

(482) Two large bights, with sand beaches, the west one known as **Red Cove** and the east as **Simeon Bight**, are on the south side of Popof Island. Both of the bights furnish anchorage in north weather, in 8 to 10 fathoms, sandy bottom. Landing with keel boats is difficult because of considerable surf and shoal water near the shore. The point separating the bights is a narrow, rocky projection, fringed with foul ground for 300 yards; rocks awash at low water are 600 yards from shore and 0.4 and 0.7 mile west of the point. A rock covered 1½ fathoms is in Simeon Bight at 55°16'33.0"N., 160°23'46.9"W.

(483) **Popof Strait**, between Popof and Unga Islands of the Shumagin group, is constricted in the north part by rocky ledges but fans out in the south part into a deep and wide passage.

(484) **Egg Island**, in the middle of the south part of Popof Strait, is small, 165 feet high and grassy on top. **Little Egg Island**, close west, is 25 feet high and grass topped. There are some detached rocks about the islands; vessels should not approach closer than 0.3 mile.

(485) **Sand Point**, at the west end of Popof Island, is a flat 0.4-mile-long sandspit that marks a turning point to the narrow north part of Popof Strait. Its south shore is fringed close-to by rocky ledges and its north shore has sandy bottom. A shoal shelves off about 150 yards west from the point and then drops off abruptly to deep water; clear the point by 0.3 mile.

(486) **Range Island**, in the north part of Popof Strait, is small and 30 feet high. Foul ground surrounds the island; vessels should not pass between it and Popof Island. **Popof Strait Entrance Light 1** (55°21'18"N., 160°30'18"W.), 50 feet above the water, is shown from a skeleton tower with a square green daymark on the north end of Range Island.

(487) **East Head**, on the east side of the north entrance to Popof Strait, has foul ground and kelp for 0.3 mile off its west side extending southwest to Range Island. The radio towers 0.3 mile south of the point are prominent from east.

(488) **West Head**, a projecting point of Unga Island on the west side of the north entrance to Popof Strait, is a 40-foot-high black cliff; 0.5 mile south of it are cliffs 300 feet high. The land west of the head is higher but is broken by numerous valleys. A depth of 10 fathoms is 300 yards off West Head, but as Popof Strait is approached a rocky shoal is 0.4 mile offshore with a least depth of 2¾ fathoms in about 55°21'37"N., 160°30'37"W.

(489) A depth of 6 fathoms can be taken through the narrow channel, marked by lights and buoys, in the north part of Popof Strait, thence depths of 20 to over 80 fathoms through the open passage east of Egg Island in the south part.

(493)



(490) In addition to the dangerous reefs in the north part of Popof Strait, marked by buoys, the following dangers must be avoided: a rock covered 3¾ fathoms 4 miles south-southeast of Egg Island and 0.5 mile off the Unga Island shore in about 55°13'01"N., 160°28'47"W.; a ½-fathom rock 3 miles southeast of Egg Island in about 55°15'50"N., 160°26'02"W.; a 5½-fathom spot in about 55°19'39"N., 160°31'33"W., and 0.5 mile 013° from Sand Point; **Caton Shoal**, 0.6 mile north of Sand Point, with a 3-fathom spot; **Unga Reef**, 0.8 mile north of Sand Point; and reefs covered 2¾ fathoms on both sides of the north entrance to Popof Strait.

(491) The current velocity is about 0.5 knot in the north part of Popof Strait and sets north on the flood and south on the ebb. See the Tidal Current prediction service at *tidesandcurrents.noaa.gov* for specific information about times, directions, and velocities of the current at numerous locations throughout the area. Links to a user guide for this service can be found in chapter 1 of this book.

(492) **Humboldt Harbor**, on the east side of Popof Strait 1.3 miles northeast of Sand Point, is an excellent shelter with good holding ground. Sometimes a second anchor is needed to prevent dragging during strong southwest winds. Vessels can anchor in 10 fathoms 0.3 mile offshore with Humboldt Harbor Breakwater Light 2 bearing **105°** and Popof Strait Entrance Light 1 bearing **005°**.

(494) A small-boat basin, protected by breakwaters, is in Humboldt Harbor. The south breakwater is marked by two lights; the north breakwater is marked at the south end by a light. The basin provides moorage for 148 craft. The **harbormaster** assigns berths. The harbormaster's office monitors VHF-FM channel 6.

(495) A small boat basin, protected by jetties, is just south of Humboldt Harbor. In 2010, depths in the basin were 16.5 to 18.5 feet.

(496) **Sand Point**, on the north side of Humboldt Harbor, is a fishing port. The westernmost wharf at the village has a 300-foot face with 24 feet alongside. A machine shop at the plant can make minor repairs to vessels. The oil wharf, the easternmost and smaller of the two, has a 60-foot face with 15 feet alongside.

(497) The freight dock, known locally as the ferry dock, is located at the end of the south breakwater of the small boat basin and has a 200-foot face with 30 feet alongside. Dolphins lie 80 feet off each end for mooring large vessels. This pier is used by the Alaska State Ferry and is operated by the Harbormaster, who can be reached via VHF-FM radio or phone at 907-383-2331.

(498)

Quarantine, customs, immigration and agricultural quarantine

(499) (See chapter 3, Vessel Arrival Inspections, and Appendix A for addresses.)

(500) **Quarantine** is enforced in accordance with regulations of the U.S. Public Health Service. (See Public Health Service, chapter 1.)

(501) Gasoline, diesel, water and maritime supplies are readily available. A travel-lift is available in the small boat basin.

(502) The Alaska State Ferry System has monthly service available during the summer months. Air service is available 6 times weekly to Anchorage. The municipal airport and two wharves are located on the north side of the spit at Sand Point.

(503) The easternmost pier has a 200-foot face with 20 feet alongside. The western pier is in poor condition and inaccessible to vehicles.

(504)

Pilotage, Humboldt Harbor

(505) Pilotage, except for certain exempted vessels, is compulsory for all vessels navigating the waters of the State of Alaska.

(506) The Alaska Peninsula is served by the Alaska Marine Pilots. (See **Pilotage, General** (indexed), chapter 3, for the pilot pickup stations and other details.)

(507)

Unga Island to Coal Harbor

(508) **Unga Island**, the largest and most important of the Shumagin group, has several large indentations, among which are Baralof Bay and Delarof Harbor on the east side and Zachary Bay on the north. It is quite mountainous, especially the east half. The west half is comparatively low, that part west of Zachary Bay having somewhat rolling topography. The highest mountains are just southeast of Zachary Bay, a 2,270-foot peak being the highest. In general, the shoreline is rocky and precipitous. The south and west coasts are particularly foul. Near the west end of the north shore is a 3-mile-long sand beach with sand dunes immediately behind.

(509) The east coast of Unga Island should be cleared by 1 mile to avoid the several offshore dangers, particularly the 4-fathom shoal 0.5 mile offshore and the ½-fathom rock 0.3 mile offshore between Baralof Bay and Delarof Harbor.

(510) North of Baralof Bay the shore is mostly foul. A few settlers live along the coast. A fishing station is in the bight west of **Hardscratch Point**, 3.3 miles south of Sand Point.

(511) **Baralof Bay**, 5 miles south of Sand Point, is a good anchorage except in heavy east weather. **Baralof Bay Light** (55°14'20"N., 160°32'09"W.), 60 feet (18.3 m) above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on the north entrance point.

(512) Favor the north side in entering Baralof Bay and anchor in the middle in 16 to 18 fathoms, sticky bottom. Small vessels can anchor nearer the head in not less than 6 fathoms, fair holding ground. A small rocky area, covered 2½ fathoms and surrounded by sandy bottom, is in the middle 0.5 mile from the head of the bay in about 55°14'09"N., 160°33'25"W. A sandy shoal extends 0.3 mile off the S side of the bay entrance.

(513) An abandoned cannery is on the north side of Baralof Bay, about 0.5 mile inside the entrance. The cannery does not open up until nearly abreast of it. The cannery wharf has a 190-foot face with 27 feet alongside. A caretaker maintains the site year-round and a processing vessel is sometimes found at the wharf.

(514) Water is sometimes available during the summer months. Radiotelephone service is maintained.

(515) A trail leads overland to Unga from across the bay.

(516) **Kelly Rock**, 3 miles southeast of Baralof Bay, is a small, flat-topped, grassy islet 65 feet high 200 yards offshore; kelp grows between the rock and the shore.

(517) **Delarof Harbor**, 9 miles south of Sand Point, is only sheltered during northwest weather, and the holding ground is poor. The harbor is not recommended as an anchorage. Depths decrease from 15 fathoms in the entrance to 5 fathoms about 300 yards from the inner harbor entrance; it is not safe to anchor in less than about 6 fathoms.

(518) Rocks and islets obstruct the entrance to Delarof Harbor. **Halfway Rock**, 0.2 mile offshore on the north side, is 70 feet high. **Cross Island**, 0.8 mile west of Halfway Rock, is 265 feet high. A 1-fathom shoal extends over 100 yards south-southeast of the island. **Elephant Rock**, the south entrance point, is a narrow projecting rocky mass 155 feet high. The base of the rock has been hollowed out by sea action and from north resembles an elephant. A reef extends north for 300 yards from the point to a rock, 41 feet high. Dangerous **Blind Breaker**, 0.4 mile northeast of Elephant Rock and in about 55°10'09"N., 160°29'08"W., uncovers at extreme low water; depths of 7 to 13 fathoms surround the rock. The west part of the outer harbor has depths of 3¼ fathoms and less.

(519) A 2½-fathom, narrow, constricted passage leads from the outer harbor to the shoal inner harbor that has depths of less than 1 fathom. A large reef on the south side of the entrance to the inner harbor uncovers at extreme low water. **Flagstaff Hill**, on the north side of the narrow passage, is a rounded 81-foot-high point surmounted by a flagpole. A 33-foot high island, close southwest of the point, is connected at mean lower low water.

(520) **Unga**, back of Flagstaff Hill, consists of a fishing station, several stores, a school, a church and several houses. It is the center of a codfishing industry. The anchorage off Unga is not recommended except under most favorable weather conditions.

(521) The wharf at Unga is suitable only for small craft at high tide; cargo is lightered ashore from the outer harbor. A ledge that uncovers extends 400 yards south from the wharf.

(522) The south coast of Unga Island should be approached with caution. There is no shelter or protection, and often a southeast storm comes on suddenly, making it a bad lee shore. It is a poor landfall when approaching from seaward in unfavorable weather, and the currents cannot

be foretold. Dangers along the south coast are within 0.5 mile of the shore.

(523) **Unga Cape**, the southeast point of Unga Island, is a bare, gray, rugged cliff 855 feet high. A wall-like slab of rock 500 feet high, connected to the cape by a narrow bar, is just south of the cliff and perpendicular to it. At the foot of the cliff are ledges. A vessel may pass 0.5 mile off in 25 fathoms.

(524) **Sealion Rocks**, 3 miles south-southeast of Unga Cape, are 0.2 mile in extent, 130 feet high, flat topped and grassy. A breaker extends 0.4 mile northeast of them. A vessel may pass 0.5 mile off in 26 to 32 fathoms but should give them a greater berth. Between Sealion Rocks and Unga Cape is a clear width of 2.5 miles, with depths from 13 to 30 fathoms and no outlying dangers.

(525) **Acheredin Bay**, a large open bight in the south shore of Unga Island, is 3 miles across and 2 miles in depth. Its shore is a sand and pebble beach, behind which is a lake 7 feet above high water. A vessel may approach to 0.6 mile off the sand beach in 8 fathoms. Anchorage is satisfactory only in north weather.

(526) **Acheredin Point**, the southwest end of Unga Island, is a black mountain 1,402 feet high with an exceedingly rough surface and serrated profile. At the end of the point is a separate hill 500 feet high. The 20-fathom curve is within 0.3 mile of the south end of the point. There are numerous rocks and pinnacles around the point, particularly along the southeast and east shores; the most prominent is 50 feet high and about 0.7 mile east of the point. A sharp pinnacle also forms the south tip of the point.

(527) **Sombrero Point** is the first prominent headland 5.5 miles north of Acheredin Point. The 1,071-foot peak on the headland resembles a sombrero from most directions to seaward. The waters fringing the point are mostly foul for 600 yards offshore.

(528) **Bay Point**, 12.2 miles north of Acheredin Point, is a rounded rocky headland 315 feet high; it is a good landmark all around and shows over the land in Unga Strait. The low sandy neck that joins the point to the mainland encloses a shallow lagoon that can be entered from north. The sea bottom is steep-to west of Bay Point; the 10-fathom curve is less than 200 yards from shore. Anchorage, with satisfactory protection from east weather, is available in 7 to 19 fathoms north and northwest of Bay Point and 10 to 15 fathoms in the large open bight south of the point. Foul areas extend 0.5 to 0.8 mile off the west shore of Unga Island north of Bay Point.

(529) The 16-mile-wide area between Unga Island and Wosnesenski Island is full of broken ground and islets. **Kennoys Island**, 10 miles west by north of Acheredin Point, consists of several small islets. **Jude Island**, 13 miles northwest of Acheredin Point, is 150 feet high and less than 0.3 mile across. It is rounded, grassy on top, and rocky at the shore. **Omega Island**, 5 miles west by south of Jude Island, is 90 feet high.

(530) Pinnacle rocks, covered 3 to 8 fathoms, extend as much as 3.5 miles off Sombrero Point. A rock, covered 2 feet that breaks in moderate swell, is 2.3 miles east-northeast of Jude Island; a ridge with several 3- to 10-fathom spots extends about 2 miles north-northeast and south-southwest of the rock. The area west of a line between Kennoys Island and Jude Island to Wosnesenski Island has many rocks covered 1 to 10 fathoms. A rock awash is 1.4 miles west of Omega Island.

(531) **Unga Spit Light** (55°24'23"N., 160°43'51"W.), 40 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark at the north end of Unga Island. Depths of 10 fathoms or more are 0.3 mile north of the spit, but depths of less than 10 fathoms extend over 1.5 miles east and west of the spit. Temporary anchorage can be had west of Unga Spit during favorable weather.

(532) **Gull Island**, 3 miles east of Unga Spit, is a flat-topped, grassy islet 37 feet high and 80 yards across with deep water within 200 yards.

(533) **Zachary Bay**, on the north side of Unga Island, is open and easily entered. Anchorage is available in the outer part of the bay in 10 to 20 fathoms, sticky bottom, but the area is exposed to north and northeast winds.

(534) Dangers extend off both shores at the entrance to Zachary Bay. A kelp-marked ledge that uncovers extends 0.6 mile northeast from the west side. **Weedy Shoals**, two small reefs 0.2 mile off the east shore halfway from the entrance to **North Head**, show well at low water. The lower part of the bay is constricted by shoals extending from both sides; the head of the bay is shoal.

(535) A better anchorage in Zachary Bay is 0.5 to 1 mile southwest of **Round Island** in 6 to 12 fathoms, sticky bottom. The narrow channel to the anchorage passes 500 yards west of North Head and 200 yards west of Round Island.

(536) **Coal Harbor** indents the east shore of Zachary Bay and is the best anchorage for small vessels. Anchor in about 6 fathoms 0.5 mile southeast of Round Island, sticky bottom. Enter in midchannel north of Round Island, then follow the shore at a distance of 300 yards. Avoid the sandspit, covered 1 foot, that extends 0.3 mile southeast from Round Island. The head of the harbor is shoal.

(537)

Beaver Bay to Canoe Bay

(538) **Beaver Bay**, across Unga Strait from Unga Island and west of Cape Aliaksin, is open to the south but is free of offshore dangers. An exposed anchorage is in the upper part of the bay in 5 to 25 fathoms; there is little protection from the north winds that tend to draw down over the mountains and through the valleys into the bay with intensified force. Dangers are within 0.4 mile of the east shore and 1 mile of the west shore of the bay; the head of the bay shoals gradually. Several buoys used for crab fishing can make navigation difficult in the upper part of the bay during summer months.

(539) Foul ground with considerable kelp is within the 10-fathom curve that extends from 0.4 to 2.5 miles offshore between Beaver Bay and Pavlof Bay; relatively shallow water is along the shore. A 7-fathom shoal spot is 2.5 miles southeast by south of Seal Cape Light.

(540) **Seal Cape Light** (55°20'56"N., 161°15'16"W.), 75 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on a small island 3 miles east of **Seal Cape**. A hog-backed mountain is 0.8 mile northeast of the light. A rock, covered 1½ fathoms, is 0.6 mile offshore 0.8 mile east of the light.

(541) **Seal Cape** has a flat-topped mound 100 feet high at the outer end and is joined to the mainland by a low neck of land; it is difficult to recognize. **Moses Rocks**, 3 miles west of Seal Cape Light, are two breakers 0.3 mile apart. The area in the vicinity of Seal Cape is frequented in the summer by salmon fishing vessels.

(542) **Coal Bay**, west of Seal Cape, is a good shelter for small vessels in northeast weather. No offshore dangers exist within the bay, though dangers extend up to 0.4 miles off its western side. The seafloor grades gently from sandy bottom at the entrance to the bay to shoal, rocky bottom in the north and west. Depths range from about 15 fathoms at the bay's southern approaches to 8 fathoms in the middle. During salmon fishing season, fishing tender vessels often anchor in the east part of the bay, north of Seal Cape.

(543) **Cape Tolstoi**, 8 miles west of Seal Cape Light at the east entrance to Pavlof Bay, is high and bold with eroded bluffs from 200 to 600 feet high. The cape is marked by two peaks that are separated by a deep, narrow valley. Two prominent pinnacle rocks abut the west face of the cape. The shore around the cape is foul, but depths of 10 fathoms or more are within 0.5 mile of the cape. A small, flat, 20-foot-high, rocky island along the outside coast, 1 mile east of the cape, connects with the mainland at low water by a reef awash.

(544) **Pavlof Bay**, on the southeast coast of the Alaska Peninsula 25 miles west of Unga Island, is open but leads to Canoe Bay, a landlocked arm. Several cabins along the shores are occupied by fur trappers during the winter.

(545) Dangerous rocks and small islands are in the entrance to Pavlof Bay. The east shore is bold and strewn with rocks and reefs; the interior is mountainous. The north shore consists of reddish eroded bluffs 30 to 70 feet high giving way to a sand and ash beach near the entrance to Canoe Bay. The west shore is comparatively low with rolling grassland in the interior.

(546) Northwest winds sweep out of Pavlof Bay with great force in the early spring and fall. The prevailing winds in summer are southeast to southwest, and they draw up the bay with considerable force causing at times a heavy sea in the upper part of the bay. Fog is more prevalent in the entrance than in the upper part of the bay.

(547) In north weather, anchorage may be selected at any place in the north part of Pavlof Bay. The bottom consists of mud and ashes and has good holding qualities. In southeast weather, good protection may be had just northwest of Cape Tolstoi in 15 fathoms, sticky mud bottom. In west weather, anchorage may be found near the west shore about 2 miles south of Ivan Island.

(548) **Flat Island**, in midentrance to Pavlof Bay, is 62 feet high, flat topped, and has precipitous shores. A detached reef that uncovers extends 0.5 mile south of the island. Detached reefs extend 0.3 mile north and 0.2 mile west of it, but the east side is clear with deep water 0.3 mile off the island. Irregular bottom, covered 11 to over 20 fathoms, extends 3 miles south from Flat Island. Although volcanic ash bottom is indicated, the banks are probably of rock structure and may have less water over them; vessels are cautioned to avoid the area.

(549) **Black Rock**, 1.3 miles off the west entrance shore 4 miles southwest of Flat Island, is 15 feet high and surrounded by deep water.

(550) **Lump Island**, 1 mile north-northwest of Flat Island, is 45 feet high, small, and rocky. A 20-foot-high detached rock is connected to the south side of the island by a reef that uncovers. A rock that uncovers is 300 yards north of Lump Island.

(551) A dangerous shoal, covered 7 feet, is 0.7 mile east of Lump Island. Kelp marking the shoal may be drawn under by strong tidal currents.

(552) **Black Point**, forming the west entrance to Pavlof Bay west of Lump Island, is low and indefinite; it is composed of black cinders and ashes.

(553) **Settlement Point**, 7.5 miles north of Cape Tolstoi, is a low narrow tableland. The 208-foot-high hill just back of the point is prominent. Shelter for small craft may be had on either side of the point in all except southwest winds. A dangerous reef that uncovers about 4 feet is 0.2 mile south of the point. A 2¾-fathom patch is 1.2 miles north of the point.

(554) **Gull Island**, 4.5 miles west of Settlement Point, is a bird rookery; a reef extends 0.2 mile west of the island.

(555) A bank between Settlement Point and Gull Island has a least surveyed depth of 12 fathoms; because of the irregular bottom, there may be lesser depths.

(556) **Ivan Island**, 1.5 miles northwest of Gull Island, is the largest in Pavlof Bay. It is 200 feet high and flat topped with vertical cliffs rising abruptly from the water. On the east side is a shallow basin for launches; about 6 feet can be carried through the two entrances at high water. Shoal water with scattered kelp is between Ivan Island and the mainland.

(557) **Round Island**, over 2 miles northeast of Ivan Island, is 90 feet high, small, and round topped. Two 25-foot-high rocky islets are northeast of the island.

(558) There is considerable foul ground with depths less than 1 fathom extending as much as 2 miles from the west shore of Pavlof Bay from Gull Island to and including the north side.

(559) **Canoe Bay** joins Pavlof Bay at the northeast end by a 175-yard-wide channel between 50-foot-high rocky entrance points. The controlling depth is 23 feet between deep water in both bays, but care is necessary to avoid several shoal spots of less than 3 fathoms and a 1¼-fathom

rock 0.7 mile east of the south entrance point. The current velocity is estimated at 5 to 7 knots in the entrance; slack water occurs at about the time of high and low water in Canoe Bay.

(560) A mountainous ridge that culminates in a remarkable volcano with an extinct circular-shaped crater borders the north side of Canoe Bay. **Cone Peak**, on the south side of Canoe Bay, is 1,280 feet high and prominent from Pavlof Bay.

(561) Northwest winds do not blow strongly in Canoe Bay, but it is reported that northeast winds of winter sweep down the bay with great violence.

(562) Anchorage in Canoe Bay may be selected just inside the entrance in 4 to 10 fathoms, hard bottom, or in the east part in 23 fathoms, sticky bottom.

(563)

Arch Point to Bear Bay

(564) On the south side of Alaska Peninsula from Pavlof Bay to Arch Point is a long, low, sandy beach. The ground back of the beach rises gradually to the three peaks of Pavlof Volcano.

(565) **Arch Point**, at the north entrance to Volcano Bay, is moderately low with cliffs about 100 feet high; it is joined by a low neck to the high land farther back. The cliffs are undercut in several places forming caves and arches. The rock is black near the water, changing to light brown above with grassy land back of it. Deep water extends to the south side of the point.

(566) A flat-bottom area makes out from the shore about 6 miles northeast from Arch Point, affording good anchorage in 14 to 15 fathoms on the outer part of the flat area. The anchorage is useful for vessels waiting for the weather to clear before attempting the passage among the islands.

(567) **Arch Point Light 2** (55°12'19"N., 161°54'20"W.), 78 feet above the water, is shown from a skeleton tower with a red triangular daymark on the southeast part of the point.

(568) An area of broken ground is between Arch Point and Dolgoi Island. A 1¾-fathom rock, 1.5 miles southeast of the light, is marked by a lighted buoy. A 5¾-fathom spot is 0.8 mile northwest of the rock and broken ground with a least found depth of 3¾ fathoms extends 0.5 mile east-southwest from the rock, a 7-fathom shoal is 0.7 mile southwest of the rock in 55°11'02.4"N., 161°53'26.9"W.

(569)

Local magnetic disturbance

(570) Differences of as much as 10° from normal variation have been observed near Arch Point.

(571) **Volcano Bay** is free from rocks and shoals, except near the shores, which should be given a berth of 0.4 mile. The shoaling is abrupt from about 30 fathoms to the flats at the north side of the bay. Good anchorage and shelter from all except southeast winds may be had near its head in 10 fathoms, sticky bottom. Shelter for small craft from southeast wind may be had in 2 fathoms behind the sandspit that makes out from the south side of the northwest part of the bay. Rocks and ledges extend 500 to 700 yards offshore between this spit and Bear Bay.

(572) **Bear Bay** is a small inlet that affords fair anchorage in 10 fathoms to the east of the spit of land extending from the south shore at the entrance to the bay. A shoal extends across the approach to the bay 0.3 mile to the east of the spit with a least depth of 4 fathoms before deepening to 10 fathoms between the shoal and the land spit. Care should be taken to avoid shoal ground extending out 0.2 mile from the north shore. The inner part of the bay can be entered only by small craft and attempted only with local knowledge.

(573)

Pavlof Islands to Sarana Island

(574) **Pavlof Islands**, consisting of seven islands, extend over 15 miles from the Alaska Peninsula coast south of Pavlof Bay. The area inside the outer perimeter of Wosnesenski, Ukolnoi, Poperechnoi and Dolgoi Islands should be avoided except by those with significant local knowledge until surveyed. Many isolated covered and uncovered rocks and reefs are in the area, often rising abruptly in otherwise deep water.

(575) **Wosnesenski Island**, the easternmost of the Pavlof group, has a 1,200-foot, rocky, flat-topped peak near the east side. Most of the shore around the island is foul with kelp. Small vessels can anchor in the small bay with sand bottom on the northeast side of the island. The bight on the north shore of Wosnesenski Island just west of Egg Island provides a suitable anchorage in 6 to 10 fathoms for larger vessels with good protection from south winds and seas with flat bottom composed of fine sand. This anchorage should be approached from the north-northwest being careful to avoid the charted shoals and anchoring inside of the 10 fathom curve. Anchoring south of the island is inadvisable due to the seafloor's rocky nature. Dangerous rocks, covered less than 10 fathoms and surrounded with kelp, extend 3 miles north of the island. A submerged rock, covered ¾-fathom, is 1.2 miles north of the northeast end of the island. The area between Wosnesenski and Ukolnoi Islands has an average depth range between 10 to 15 fathoms, gradually shoaling near shore with numerous submerged rocks with a least depth of about 2 fathoms.

(576) **Ukolnoi Island**, 5 miles west of Wosnesenski Island, is high and mountainous; it is steep and bold at the northwest point. **Ukolnoi Island Light** (55°14'35"N., 161°39'52"W.), 35 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on the northwest point of the island. The north shore of the island should be cleared by more than 1 mile in order to remain in waters deeper than 20 fathoms. The north shore gradually shoals towards shore with isolated shoal grounds to 3 fathoms in about 55°15'47"N., 161°35'11"W. to the north of the highest point of the island and near the charted islets in about 55°15'35"N.,

161°33'29"W. Vessels can anchor in the bight on the southwest shore of the island in 5 to 10 fathoms with good holding ground on flat bottom composed of mud and broken shells. Anchorage should be approached from the south, anchoring at least 0.3 mile from shore; care should be taken to avoid the dangerous submerged rock in about 55°11'25"N., 161°39'23"W. This anchorage provides some protection from north winds, but in extreme north winds, which are common in the area, Ukolnoi Island provides only minimal wind break. The south shore of Ukolnoi Island is foul with extensive kelp growth in the summer months.

(577) **Poperechnoi Island**, 8 miles southwest of Wosnesenski Island, has rugged cliffs 1,200 feet high along its northeast shore and a 1,800-foot peak in the north part. Foul ground surrounds the island. A sand spit extends from the north point of the island towards Dolgoi Island; passage between the spit and Dolgoi Island is restricted by a minimum depth of 4 fathoms and should be attempted only with local knowledge. The bay between Poperechnoi and Dolgoi Islands is generally over 20 fathoms and is unsuitable for anchorage due to exposure to south seas and swell. The south shore of Poperechnoi Island is foul with extensive kelp growth in the summer months.

(578) **Dolgoi Island**, 9.7 miles across and grass covered, is divided into two mountain masses by Dolgoi Harbor and the lowland at its head. The greatest height at the east and west ends of the island are 1,450 and 1,510 feet, respectively. The shore is generally abrupt and high. The north point of the island is an overhanging cliff. The south part of the island is particularly bold, the cliffs being several hundred feet high. At the middle of the southeast side is a headland with a cliff over 900 feet high. Protected anchorage for weather from all directions, except east, can be found for small vessels in the small bay along the northeast shore of Dolgoi Island just to the east of the low headland. The bay has a flat, sandy bottom with depths ranging between 1 and 4 fathoms. Anchorage for larger vessels can be found to the east of the bay along the shore of Dolgoi Island. Good holding ground with a sticky mud bottom can be found about 1 mile southeast of the 177-foot islet about 0.2 mile off the shore.

(579) **Dolgoi Cape**, the south point of Dolgoi Island, is marked by several large detached rocks a few yards off the shoreline.

(580) The area from 5 miles southeast of Poperechnoi Island to 5 miles southwest of Dolgoi Cape is full of dangerous rocks and islets; extreme caution is necessary.

(581) **Dolgoi Harbor** is well protected and provides excellent shelter from violent williwaws; however, the bottom is volcanic ash with poor holding ground. Two islets are on the west side of the entrance and two larger islands are inside the harbor.

(582) To enter Dolgoi Harbor, steer **020°** for the highest point (500 feet) of the ridge at the head of the harbor showing west of the two islands in the harbor, and pass 200 yards or more east of the outer one of the two islets on the west side of the entrance. Pass west of the first island within the harbor, favoring the side nearest this small island to avoid a rock, covered 1 fathom, in about 55°06'14"N., 161°48'38"W. and about 600 yards west of the small island.

(583) The deeper passage then leads between the two islands in Dolgoi Harbor, taking care to give the north end of the south island a berth of over 150 yards, and the southeast end of the north island a berth of over 300 yards; the best course through is about **109°**. Or, vessels can take the passage west of the upper island, which has a depth of about 4 fathoms, by keeping the island at a distance of about 200 yards. This channel obviates the turn between the two islands, which is somewhat difficult for long ships, especially during southeast winds.

(584) Anchorage in Dolgoi Harbor can be selected anywhere above the islands in 7 to 10 fathoms, mud bottom. The best anchorage is reported to be 1.5 miles north-northeast of the north of the two large islands inside the harbor. A submerged rock, covered 4½ fathoms, lies about 500 yards southeast of the south end of the north island in about 55°06'53"N., 161°47'15"W.

(585) Dolgoi Harbor is easily approached with the aid of the chart, passing on either side of Goloi Island. The principal outlying dangers in the approach are a rock covered 1 foot, marked by kelp, with a 5¼ fathom area nearby, 1 mile west of **Entrance Island**, and a cluster of rocks about 1.5 miles south-southeast of Entrance Island with a least depth of 1 foot.

(586) **Bluff Point** is a rocky headland forming the northwest end of Dolgoi Island. It rises abruptly to 50 feet, with a gently grassy slope to the east. Vessels can anchor in the bight east of Bluff Point in 10 to 15 fathoms with broken shell and stone bottom for good protection from the south.

(587) **Goloi Island**, within the west limit of the Pavlof group, is 970 feet high, and the sides are generally abrupt except at the two sandspits, one at the west end and the other at the middle of the northeast side of the island. **Goloi Sandspit Light 3** (55°06'36"N., 161°55'29"W.), 17 feet above the water, is shown from a skeleton tower with a green square-shaped daymark on the point of the spit.

(588) A sandspit extends from **Moss Cape** 1 mile northwest of Goloi Sandspit Light 3; a lighted buoy marks the outer limit of the shoal extending southeast from the cape. When on south courses approaching the passage between Moss Cape and Goloi Island, use care not to mistake a pinnacle rock, midway of the east shore of Inner Iliasik Island and skylined in the low center of the island, for the light on Goloi Island. Also, use care in passage to avoid foul ground extending from either side.

(589) **Iliasik Islands**, each about 2.7 miles long and 0.7 mile wide, are both high and have cliffs at the water. Viewed from west, they appear as three islands, as **Inner Iliasik Island** is nearly divided by a low neck of land into parts about 800 feet high. The high north end of **Outer Iliasik Island** is also separated by low ground

from the rest of the island. Ledges and kelp extend about 200 yards from the east side and about 0.3 mile from the west side and southeast end of Inner Iliasik. Outer Iliasik is surrounded by ledges and kelp to a distance of 0.3 mile in places; bare rocks and foul ground extend 0.5 mile west-southwest from the west end of the island.

(590) **Iliasik Islands Light** (55°02'15"N., 161°56'22"W.), 95 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on the south end of Inner Iliasik Island. A lighted buoy is 0.3 mile off the northwest extremity of Outer Iliasik Island.

(591) Caution should be used in making the passage between the Iliasik Islands because of reefs that extend from each island, constricting the navigable channel to a width of 0.6 mile. Seasonal kelp growth has been observed during the summer months.

(592) From the north point of Inner Iliasik Island a reef extends to the mainland. Just east of the mainland end of the reef and close to the shore is a large boulder that is easily recognized. There is little depth on the reef near the island, and about 8 feet on the greater part of it. Near the mainland a depth of 11 to 12 feet can be taken across the reef by passing 100 to 300 yards off the large boulder on a course parallel to the shore. The passage is used by local fishing vessels of about 6 feet or less draft and is not recommended for any but light-draft vessels; the tendency is to cross too far from the large boulder.

(593) **Sarana Island**, 270 feet high, is a rocky island off the south point of Outer Iliasik Island. The island is fringed with reefs and should be avoided. The passage between it and the Outer Iliasik is foul. A reef, bare at low water, is 1 mile east of Sarana Island, and an extensive reef with occasional bare rocky islets extends to the south from the south point of Outer Iliasik Island. Thick patches of kelp are found on the eastern side of Sarana Island, extending 0.75 mile along the reefs and shoal areas.

(594) A rock, covered ¼ fathom, is about midway between the south end of Outer Iliasik Island and Deer Island. Vessels should keep well to the north of this rock, as the area to the south is foul.

(595)

Belkofski Point to Cold Bay

(596) **Belkofski Point** is the first point on the Alaska Peninsula west of the Iliasik Islands. A reef extends 600 yards southwest from the point, and the shore for 0.5 mile on either side is fringed by a reef that extends from 100 to 200 yards offshore. Because of the broken and uneven bottom here, the cape should be rounded not less than 0.8 mile.

(597) **Belkofski** is an abandoned native settlement on the east side of Belkofski Point. A once prominent Russian church is in ruins.

(598) Much of **Belkofski Bay** is deep and free from hidden dangers. A rocky ridge, with a least depth of 7½ fathoms, is in the entrance, midway between **Belkofski Point** and **Slavna Point**. Reefs and ledges fringe the shore of the bay.

(599)

Local Magnetic Disturbance

(600) Differences of as much as 5° from the normal variation have been observed on the east coast of Belkofski Bay.

(601) **Kitchen Anchorage**, on the east side of Belkofski Bay, is easy to reach and affords good shelter in all except northwest winds. In strong south weather, the williwaws become frequent and violent. The bottom is soft volcanic mud and its holding quality is good. A large stream flows into the head of the harbor. From the north entrance point of Kitchen Anchorage, for 1 mile to the entrance to the outer portion of Captain Harbor, the shore is a steep-to cliff, and may be approached within 200 yards.

(602) **Captain Harbor** is at the extreme northeast end of Belkofski Bay. The harbor extends northeast for about 2 miles with an average width of 0.4 mile, and is divided into an outer and inner anchorage by a shingle spit that extends from the west shore. The outer anchorage has a depth of 10 fathoms, with the east end of the shingle spit bearing **033°** distant 600 yards. The holding ground is poor, of soft volcanic ash over a hard substratum. The north shore of the outer anchorage is a low cliff, with shoal water extending 300 yards offshore in places.

(603) The outer part of the harbor has general depths of 8 to 12 fathoms; 10 fathoms can be carried into it. At the entrance, a slight bar extends off the north side with a shoalest sounding of 7½ fathoms near the middle of the entrance. Depths of 4 to 7 fathoms prevail over most of the inner anchorage and the 3-fathom curve carries practically to the head of the bay, affording good shelter for small vessels.

(604) The west entrance is formed by two low sand-and-gravel islets, with flats extending 250 yards to the east and similar flats extending 400 to 600 yards off the 2-mile stretch of beach to the west.

(605) The entrance to the inner basin is about 350 yards wide, with 9 fathoms in midchannel. The inner anchorage is a secure anchorage for small-craft in 7 fathoms, mud bottom, with the end of the shingle spit bearing **185°** distant about 600 yards. This is the best small-craft harbor along this section.

(606) To enter Captain Harbor, round the prominent point at the south entrance to Kitchen Anchorage at a distance of 0.5 mile and steer **030°** to a point 250 yards off the southeast entrance to Captain Harbor. Then steer **054°** and anchor. To enter the inner harbor, continue on the **054°** course until midway between the end of the shingle spit and the opposite shore; round the spit and steer **003°** for a small stream. Anchor as indicated in previous paragraphs.

(607) **Indian Head** is a very noticeable promontory about 200 feet high, projecting 0.5 mile into Belkofski Bay on its west shore. It is distinguished by several pinnacles near the outer end; a reef extends 250 yards off the point.

(608) The bight north of Indian Head has even bottom, with the 3-fathom curve about 600 yards offshore. Vessels of any size will find excellent shelter from all except south winds in this bight. Anchorage can be had in 10 to 20 fathoms, sticky bottom. In severe north winds, anchorage can usually be found in some section free from the wind. The survey ship found this anchorage to be suitable for all conditions except for south weather, and the Fox Island Anchorage, described later in this chapter, the best for south winds.

(609) **Slavna Point** is the high rocky point on the west side of the entrance to Belkofski Bay, 1.6 miles south of Indian Head. It is steep-to, with depths of 8 fathoms 200 yards off the point.

(610) **Bold Cape** (55°01.1'N., 162°15.4'W.), on the Alaska Peninsula opposite Deer Island, is a rugged headland faced with vertical cliffs, above which the mountain rises in steep rock-strewn slopes. Several prominent boulders stand a few yards offshore.

(611) **King Cove**, west of Bold Cape, reaches inland between high ridges that rise from the shore on either side of the cove. The outer bay is deep and free from dangers except those close to shore. Vessels may anchor in 16 fathoms 0.5 mile off the wharf and about midway between two shores. The anchorage is subject to violent williwaws that are apt to sweep across the bay from all points of the compass, but the holding ground is excellent.

(612) **Morgan Point Light** (55°02'24"N., 162°20'11"W.), 120 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on the west side of the entrance to King Cove. The shoal areas extending east from Morgan Point and from the west shore inside the cove are rocky and marked by kelp. The bar across the mouth of the cove, 0.5 mile inside Morgan Point, has depths of 8 and 12 fathoms, with sand bottom overlaying a harder stratum.

(613) Anchorage in the outer part of King Cove is in 10 to 15 fathoms, very good holding ground. Anchorage in the deeper upper part is in 16 to 21 fathoms, mud bottom mixed with volcanic ash.

(614) **King Cove** has a wharf and salmon cannery and a deep-water pier. Water, fuel and marine supplies are readily available. Air service to Anchorage is available and The Alaska State Ferry System provides weekly service during the summer months.

(615) To enter King Cove, steer for the wharf on a midchannel course. On the ebb, a strong current parallel with the shore sets east along the face of the wharf. This current is caused by the discharge of water from the lagoon.

(616) The deep-water pier is located on the end of a 660-foot causeway between two harbor basins, Babe Newman Harbor on the south and King Cove Harbor on the north. Both basin entrances are marked by lights. The pier has a 150-foot face with a depth alongside of 30 feet. Dolphins off each end of the pier extend the length to 330 feet for mooring larger vessels; the dolphins are marked by private lights.

(617)

Pilotage, King Cove

(618) Pilotage, except for certain exempted vessels, is compulsory for all vessels navigating the waters of the State of Alaska.

(619) The Alaska Peninsula is served by the Alaska Marine Pilots. (See **Pilotage, General** (indexed), chapter 3, for the pilot pickup stations and other details.)

(620) **King Cove Harbor**, the north of two dredged basins, is formed by a rounding spit and a dike that extends from the west side at the head of King Cove. The harbor is entered through a dredged channel, marked by lights. The **harbormaster** controls the use of the grid and assigns berths. The harbormaster's office monitors VHF-FM channel 6 and 16. A 150-ton travel-lift is available. Another basin, Babe Newman Harbor, just south of King Cove Harbor is protected by a breakwater on the south and east sides, and by the causeway on the north; the entrance is marked by lights.

(621) **King Cove Lagoon** is back of the long spit on which the cannery is located. It is entered through a narrow channel between this spit and King Cove Harbor. The lagoon extends north-northeast for about 2 miles with depths of 5 to 8 fathoms over most of the area. However, an extensive shoal separates the deep water in the north section from the entrance channel. A fixed bridge with a vertical clearance of 7 feet and a horizontal clearance of 15 feet crosses the entrance channel to the lagoon about 0.2 mile from the east end. The pilings of the bridge are protected by a stone riprap that extends across the channel and uncovers 2½ feet. It has been reported that only skiffs and very small boats pass under the bridge into the lagoon.

(622) Small craft can be beached on the sandspit that forms the north shore of the entrance to the lagoon. The beach slopes evenly and is smooth.

(623) Because of the extensive flats that block the entrance to the upper basin of the lagoon, the plane of low water in that part of the lagoon is about 2 feet higher than the corresponding plane in the cove, and there is a considerable lag in the times of high and low water.

(624) **Deer Island**, near the coast of the Alaska Peninsula west of the Pavlof Islands, is separated from the peninsula by Deer Passage. The passage is a part of the inside route along the Alaska Peninsula. The island has many high conical peaks of about the same height, making it difficult to identify most of them.

(625) **Stag Point**, at the north end of Deer Island, is a short sandspit, except for which the shore is rocky and steep. **Stag Point Light** (54°59'08"N., 162°18'03"W.), 23 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on the point. Back of the point is a high sugarloaf peak. The point may be recognized by a steep, high, triangular-shaped bluff at the end of a shoulder on the high sugarloaf peak. **West Cape** is a ridge of bare rock that ends in sheer faces at the west extremity and at the two sides. **Fawn Point** is the south cape.

(626) A rock, covered 3 fathoms and marked by a buoy, is 1 mile west of West Cape. The southwest side of Deer Island is very foul.

(627) East of Deer Island, the flood current sets north and the ebb south. North of Fox Island, the flood current sets northeast and the ebb southwest. The tidal currents here are somewhat weak.

(628) Approaching Deer Island from west, Fox Island shows up low and irregular and is not very distinct until some time after passing Umga Island, distant 14 miles, unless the weather is exceptionally clear. West Cape off Deer Island shows as a flat-topped sugarloaf, appearing as a detached island, but later is recognized as a part of Deer Island, while at the same time Stag Point shows as a high sugarloaf beyond West Cape. South of West Cape are two barren craterlike peaks that form an excellent landmark.

(629) **Fox Island Light** (54°57'18"N., 162°26'01"W.), 40 feet above the water, is shown from a square frame with a red and white diamond-shaped daymark on the northwest point of **Fox Island**. Just back of the light is a prominent knob that is separated from the rest of the island by a low neck of land. The southeast part of the island is high and nearly flat topped.

(630) Fox Island Anchorage, on the east side of Fox Island, offers good anchorage in 10 to 16 fathoms, soft bottom, well sheltered from the wind and sea from east to southwest.

(631) The passage between Fox Island and Deer Island is clear except for a rock, covered 3 fathoms, about midway between Fox Island and West Cape. In leaving the anchorage through this passage, round the south end of Fox Island at a distance of 400 yards and lay a course west until the lighted whistle buoy about 2.5 miles south of Thin Point bears about **228°** and Fox Island Light about **068°**.

(632) **Deer Passage**, between Deer Island and Alaska Peninsula, is well marked, and a depth of 9 fathoms can be carried through by following the inside route described in chapter 3. Exercise caution to avoid the dangers on both sides of the passage.

(633) **Cold Bay**, indenting the Alaska Peninsula north of Deer Island, is large and can be entered by deep draft vessels. An aerolight is on the west side of the bay.

(634) Mariners should exercise extreme caution when transiting this area in winter as heavy icing may cause floating aids to lie on their sides, submerge or be extinguished or off station. Also, vessels entering on the flood tide can be expected to set towards Kaslokan Point.

(635) The village of Cold Bay is on the west side of the bay and is one of the larger communities along the Alaska Peninsula.

(636)

Pilotage, Cold Bay

(637) Pilotage, except for certain exempted vessels, is compulsory for all vessels navigating the waters of the State of Alaska.

(638) The Alaska Peninsula is served by the Alaska Marine Pilots. (See **Pilotage, General** (indexed), chapter 3, for the pilot pickup stations and other details.)

(639) **Vodapoini Point**, at the east entrance to Cold Bay, is low and flat topped with high mountains behind it extending to Lenard Harbor; the shore to Cold Bay is rocky and bold. In 2017, NOAA Ship RAINIER found the anchorage between Vodapoini Point and Morgan Point to be ideal in north weather.

(640)

Local Magnetic Disturbance

(641) Difference of as much as 14° from the normal variation has been observed near Vodapoini Point.

(642) Prominent **Bear Rock**, 300 yards offshore and 2 miles northwest from Vodapoini Point, is 25 feet high, black, and jagged.

(643) **Kaslokan Point Light 2** (55°06'15"N., 162°31'32"W.), 15 feet above the water, is shown from a square frame with a red triangular daymark on Kaslokan Point on the east side of Cold Bay. **Kelp Point**, 0.7 mile north of the light, is low and rocky.

(644) A reef marked by heavy kelp extends almost across the entrance to Cold Bay near Kaslokan Point. A buoyed 10-fathom natural channel passes through this area near the east shore to deeper water in the bay. The foul area with depths of 2 to 5 fathoms west of the buoyed channel should be avoided. During large tides, the current velocity in the channel may reach 4 knots; with an adverse wind, tide rips make it dangerous for small boats.

(645) The north shore of Cold Bay has many boulders. The west shore consists of low bluffs and sand beaches strewn with boulders, backed by rolling tundra.

(646) **Lenard Harbor**, a small harbor formed by an arm of Cold Bay, has anchorage in 16 to 22 fathoms, protected from all seas. The holding bottom is good, but during stormy weather the harbor is subject to the usual williwaws common in this section, and during southeast weather the wind may funnel through with terrific force. An extensive reef, awash at ordinary high water, is 0.3 mile off the south shore of Lenard Harbor. This reef constricts the anchorage near its head to an effective width of about 0.4 mile. The water shoals abruptly to the mud flats at its head and to the reef. A fine stream of water flows into Lenard Harbor from its north shore.

(647) **Kinzarof Lagoon**, at the head of Cold Bay, is large and irregular in shape. Although it consists mostly of mudflats, it may be entered at high tide by small launches; with local knowledge such boats may be taken to the cabin on the north shore of the lagoon. Just inside the west entrance is a cabin and a small area of deep water.

(648) **Delta Point Light** (55°11'30"N., 162°38'41"W.), 48 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on the spit on the west shore of Cold Bay. In north weather, comfortable anchorage may be selected any place in the upper bay with mud bottom and good holding ground.

(649)

Weather, Cold Bay

(650) The climate at Cold Bay is basically maritime because of its nearness to extensive open ocean areas, and temperature extremes, both seasonal and diurnal, are generally confined to fairly narrow limits. Differences between maximum and minimum temperatures for all individual months average less than 10°F (6°C). Although it is practically impossible for cold, continental air masses to reach the Cold Bay area by moving overland along the somewhat narrow Alaskan Peninsula, air overlying the frozen ocean surface of the Bering Sea may take on continental characteristics and bring rather cold temperatures to the Cold Bay area. Although below-zero (<-18°C) readings have been recorded from December to March, inclusive, below-zero readings (<-18°C) are extremely rare.

(651) Winds reaching the station from the southwest or east are quite light, rarely exceeding 13 knots. The open bay area to the south-southeast provides not only direct access to winds from that specific direction, but tends to provide, also, a funneling effect upon all winds of consequence approaching the Cold Bay area from the southwest to the southeast to produce strong south-southeast winds. From west-northwest to the northeast, the land is relatively flat with considerable swamp and numerous small lakes. Winds from northerly directions are little influenced by this relatively flat terrain.

(652) The high frequency of cyclonic storms crossing the Northern Pacific and the Bering Sea are the dominant factors in the weather at Cold Bay. These storms account for the high winds and the frequent occurrences of low ceilings and low visibilities encountered at this station. Average wind speeds of 17 knots for 24-hour periods are very common, and frequently speeds averaging 26 knots for a 24-hour period are observed. Average monthly wind speeds of 17 knots or more are recorded at Cold Bay. These winds generally result from the strong pressure gradient developing between the Pacific High and the cyclonic storms in the Northern Pacific and Bering Sea.

(653) Because of the moderating effects of the large nearby ocean areas, it is difficult to define the seasonal periods at Cold Bay. The beginning of spring is late; the vegetation does not begin to grow until late May or early June. August is regarded as the midsummer period and autumn arrives in early October. The greatest frequency of fog usually comes in the summer, with the foggy period extending from the middle of July to the middle of September. During the winter months visibilities are frequently restricted because of the blowing snow.

(654) The shortest day of the year at Cold Bay has 7 hours and 7 minutes of possible sunshine; the longest day has 17 hours and 27 minutes of possible sunshine. The abundant cloudiness realized in the area greatly restricts the amount of sunshine actually received. Cloudiness averages about nine-tenths sky cover the year around. Precipitation is frequent, but not abundant. Measurable precipitation is realized on more than 320 days per year, on the average. Annual mean precipitation is slightly over 36 inches (914 mm) with September through November being the wettest months when, on average, monthly precipitation is greater than four inches (102 mm). With an average of around two inches (51 mm), March and April are the driest months. Annual precipitation extremes include 23.41 inches (595 mm) in 1961 and 53.15 inches (1350 mm) in 1978. Snowfall is moderate. Annual average snowfall is about 62 inches (1575 mm) with the snowiest month being February. Snow has fallen in all months except July and August.

(655) A T-head pier with a 360-foot face and 460 feet of total berthing space, 2 miles northwest of Delta Point Light, has depths of 35 feet alongside. The pier is marked by private lights at its northwest and southeast ends and is used for ferry service and the receipt of cargo and petroleum products.

(656) An airstrip at the abandoned airbase at Cold Bay is used by commercial aircraft; an aerolight is at the airstrip. Radiotelegraph and radiotelephone communications are maintained.

(657)

Thin Point to Cape Aksit

(658) **Thin Point** (54°57.4'N., 162°33.2'W.), forming the west entrance to Cold Bay, is a low, grassy, gently rolling point. The extremity is a yellow eroded bluff with reefs, bare at low water, extending from its southwest and southeast points. Shoal water, marked by a lighted whistle buoy at the outer end, extends 1.3 miles south from the point.

(659) **Telegraph Hill**, 370 feet high, is about 2.5 miles northwest from Thin Point. It is a grassy, symmetrical, dome-shaped hill that stands out conspicuously as the only high ground near the point. It is a valuable landmark, for it is often visible when the higher hills are cloud covered.

(660) **Frosty Peak** is the sharp rocky summit of a snow- and ice-covered mountainous mass between Cold Bay and Morzhovoi Bay. It is 5,784 feet high and prominent from seaward, although its snow capped summit is seldom visible through the low-hanging clouds.

(661) **Walrus Peaks**, the south of two, 10 miles west of Thin Point, is a ragged 2,927-foot summit that is prominent when clear. Other peaks blend into the general mountain mass.

(662) **Thinpoint Cove** is just west of Thin Point. The east part of the cove is foul and should be avoided. Numerous kelp-marked reefs extend into the cove for 2.3 miles west from Thin Point. The west half of the cove is clear except for reefs fringing the shore. At the head of the cove is a series of shallow lagoons that extend north for several miles and are connected with Thinpoint Cove by a small stream. The lagoons can be entered by small launches at high tide. The cove affords excellent shelter for small craft in north weather, but care should be exercised in

entering to avoid the reefs to the south and west of Thin Point.

(663) The coast from Thinpoint Cove to Morzhovoi Bay is rather rocky, with an occasional sand beach and grassy bluffs rising from the water. The shore is fairly steep-to, and the shore reef that extends 200 to 500 yards offshore is heavily marked by kelp.

(664) **Sandy Cove** is a small bay 8 miles west of Thin Point and 2.3 miles east of Cape Tachilni. The head of the cove, which is at the foot of a deep valley making through the mountains, is clear. The east entrance point is steep-to. A reef extends south about 0.5 mile from the west entrance point. Good shelter in north weather is afforded small craft.

(665) **Sozavarika Island**, low and grassy, is 6 miles south from Thin Point and 3.5 miles southwest from Deer Island. The island is composed of shells deposited on rock. Between this island and Deer Island are many rocks and reefs. A stranded wreck is clearly visible on the northwest shore of the island.

(666) **Umga Island**, about midway between Deer Island and Cape Pankof, is a small, grass-covered, rocky island about 250 feet high. It is surrounded by deep water. The route from Deer Passage to Cape Pankof passes north of Sozavarika and Umga Islands.

(667) **Rush Rock**, covered 6 feet, is 1.5 miles east-northeast from Umga Island and nearly on range with the south side of Umga Island and Cape Pankof. This reef is of small extent and breaks only with a heavy swell.

(668) **Amagat Island**, off the entrance to Morzhovoi Bay, is high and bold and shows as two parts; the southeast part is 1,065 feet high and has a dome-shaped peak, while the other part is 660 feet high, broader and flat topped. The island is the nesting place for many birds. A fair anchorage may be had in 16 fathoms just northeast of the island. A deepwater passage is between the island and Cape Tachilni.

(669) A shoal spot of small extent and covered 5¼ fathoms is 1.7 miles south-southwest from Amagat Island. Deep-draft vessels should avoid this spot.

(670) **Kenmore Head**, forming the west entrance to Morzhovoi Bay, shows prominently from the usual coasting track. There is a small summit just west of the point that drops off with a vertical cliff to the water.

(671) **Cape Tachilni**, forming the east side of the entrance to Morzhovoi Bay, is an indefinite rounding point with grassy bluffs.

(672) **Egg Island**, 325 feet high, is a rocky precipitous island with a fairly definite summit. Shoal water, covered with kelp, extends from the island to the mainland. The south side of the island affords temporary anchorage for small vessels while waiting for the northwest winds to moderate before crossing Morzhovoi Bay.

(673) **Morzhovoi Bay**, the last bay indenting the coast of the Alaska Peninsula, is about 15 miles east of Isanotski Strait. The broad, deep entrance has no known dangers except a rock with 12 feet over it, 400 yards east of Kenmore Head. The land bordering the entrance is very mountainous, giving way to rolling tundra at the head of the bay. The bay forms a natural draw for the wind that sweeps in and out with great violence.

(674) **Littlejohn Lagoon**, north of **Reynolds Head**, is marked by a grassy islet off its entrance. The lagoon offers excellent protection in all weather but can be entered only by small craft. About 5 feet can be carried through the crooked channel leading through the entrance, but once inside, there are depths of 4 fathoms, sticky mud bottom. Mooring dolphins may be near the entrance. Littlejohn Lagoon is occasionally used as a refuge for piledrivers and tenders.

(675) **Big Lagoon**, the large irregular lagoon at the head of the bay, has no entrance channel and is full of mudflats.

(676) **Middle Lagoon** leads to a large lake that is a spawning place for a large run of salmon. A cabin is at the east entrance point. The lagoon has no channel, and with a south wind, breakers extend across the entrance. During the autumn, great flocks of wild geese frequent the lagoon. From Middle Lagoon it is about 7 miles by the easiest route to the Bering Sea shore.

(677) **Boiler Point**, on the southwest side of Morzhovoi Bay, marks the end of the mountain ridge extending from the entrance. A good anchorage, protected from all except northeast winds, mud bottom, is in the cove just northwest of the point.

(678) In north weather good anchorage with mud bottom may be had at any place along the north shores. In southwest weather the cove near Boiler Point offers good protection, while in east weather fair anchorage may be had off Littlejohn Lagoon. Indifferent anchorage may be had in the cove just northwest of Kenmore Head.

(679) The shores from Kenmore Head to Kabuch Point are bold and mountainous, with deep water extending close-to. Ikatan Bay and Isanotski Strait separate Unimak Island from the Alaska Peninsula. Isanotski Strait, known locally as False Pass, is in general used for fishing boats and other craft of less than 10-foot draft when bound for Bering Sea points. Vessels up to 419 feet in length have entered the strait and docked at the False Pass cannery, which is on the Unimak side, 3.5 miles within the entrance. The region is approached by steamers from the inside route along the Alaska Peninsula through Deer Passage, from seaward through the passage between Sanak Island and Hague Rock, and from the west through the passage between Cape Pankof and Sanak Island.

(680)

Pilotage, Isanotski Strait

(681) Pilotage, except for certain exempted vessels, is compulsory for all vessels navigating the inside waters of the State of Alaska.

(682) The Alaska Peninsula is served by the Alaska Marine Pilots. (See Pilotage, General (indexed), chapter 3, for the pilot pickup stations and other details.)

(683) **Ikatan Bay**, on the north side of the Ikatan Peninsula, is deep and free from dangers except for the area north of Sankin Island.

(689)



(684) **Ikatan Point**, the north end of Ikatan Peninsula, is bold and rocky. There is indifferent anchorage just west of the point, but vessels are apt to drag off into deep water.

(685) **Ikatan Point Light** (54°46'34"N., 163°11'13"W.), 81 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on the north tip of Ikatan Point.

(686) **Sankin Island**, about 1 mile from the north shore of Ikatan Bay, is high and rocky. In the passage between the island and the mainland is a reef awash at low water. For several years, during the early part of the fishing season, two or three floating salmon canneries have operated from the anchorage just west of Sankin Island. After the middle of July, they usually move to the Bristol Bay region.

(687) The southwest side of Ikatan Bay is separated from Otter Cove by a sandy isthmus 20 to 30 feet high; a shifting river enters the bay at the middle of this lowland and the flat off its mouth drops off abruptly to deep water. Several abandoned fish traps are along this shore. In 1980, it was reported that the fish traps along the south and southwest shores of Ikatan Bay had been removed but stumps may remain; caution is advised.

(688) **Isanotski Strait (False Pass)**, between the end of the Alaskan Peninsula and Unimak Island, has its south entrance at the northwest end of Ikatan Bay.

(690) **Isanotski Strait Light 2** (54°48'55"N., 163°21'46"W.), 17 feet above the water, is shown from a skeleton tower with a red triangular daymark on the spit off high and rocky **Kabuch Point** at the east entrance to Isanotski Strait. A reef that uncovers makes off a short distance from the point. The west side of the entrance is a low sand beach.

(691) **Whirl Point**, on the Unimak side about 1 mile within the south entrance to Isanotski Strait, is bold and marked by a light. A reef that uncovers makes off a short distance from the point, then drops abruptly to deep water. At high water the end of this reef is made evident by the swirls of the current.

(692) A private wharf owned by a fish processing company is on the Unimak Island side at **False Pass**, 3.5 miles north of the south entrance to Isanotski Strait.

(693) A public dock is about 0.5 mile northwest of the fish processing wharf and has a reported 175-foot face with 28 feet reported alongside. It is a scheduled stop on the Alaska Marine Highway System and water and electricity are available.

(694) **False Pass Boat Harbor,** about 0.25 mile northeast of the public dock, has berths for about 88 boats 30 to 100 feet in length, with power and water available. The southwest side of the harbor has a sheet-pile dock that can be used for unloading cargo. Contact the City of False Pass 907-548-2214 for more information and to schedule moorage.

(695) **Isanotski Strait Light 6** (54°51'23"N., 163°23'30"W.), 21 feet above the water, is shown from a skeleton tower with a red triangular daymark on Island Rock just off Nichols Point.

(696)

Routes

(697) **Ikatan Bay to False Pass:** In entering Isanotski Strait from Ikatan Bay the Unimak side should be favored to avoid the reef off Kabuch Point. Follow the Unimak shore until almost up to Whirl Point; this shore drops off abruptly and can be passed close-to. Off Whirl Point, the tidal current may attain a strength of 7 knots when a tidal current of 4 knots is predicted off the wharf of the fish processing company at False Pass. The reef making off Whirl Point, when covered, is generally made evident by swirls of current. During the ebb current this reef deflects a violent current directly against the axis of the pass, tending to turn a northbound vessel toward the east shore of the strait. Careful steering is required to offset the effect of this current.

(698) After rounding the reef at Whirl Point stand directly for the fish processing wharf, taking care to avoid being set too near either shore; avoid the 3-foot ledge that extends southwest from the point 0.4 mile south of **Nichols Point** and **Island Rock** 0.2 mile west-southwest of Nichols Point. A range consisting of the end of the wharf and some mark on shore back of the wharf would be helpful along the reach from the turn at Whirl Point direct to the wharf. If unable to go alongside, a temporary anchorage may be had in the cove just north of the wharf.

(699) A vessel must be able to make 11 knots to be able to stem the maximum current. Large vessels should enter only at slack water.

(700)

Currents

(701) See the Tidal Current prediction service at *tidesandcurrents.noaa.gov* for specific information about times, directions, and velocities of the current at numerous locations throughout the area, including Isanotski Strait. Links to a user guide for this service can be found in chapter 1 of this book.

(702)

Routes

(703) **False Pass to Bering Sea:** A route, partially marked by buoys, can be taken from the food processing company wharf at False Pass through Bechevin Bay to the Bering Sea. From abreast the wharf, steer a course to the upper end of the buoyed channel through Bechevin Bay about 1.1 miles west-southwest of the north extremity of Traders Head, thence follow the buoyed channel through the bay and across the entrance bar to the Bering Sea.

(704) Mariners are advised that the approach to Bechevin Bay from the Bering Sea is marked by buoys but is very changeable. Vessels passing north through Isanotski Strait should call at the food processing company office at False Pass to obtain information concerning the Bering Sea approach to Bechevin Bay.

(705) Transiting in either direction requires extreme caution because of the presence of shoal bars at the edge of deep water between Chunak Point and Bechevin Bay Entrance Buoy BB. The bars shift frequently. The passage requires local knowledge. Vessels with a draft greater than 14 feet should not attempt passage; vessels with a lesser draft should try to time transit at or near low water slack current. The safety factor represented by a rising tide is a requirement in this area.

(706)

Ice

(707) The strait is normally open to navigation throughout the winter except under extreme ice conditions.

(708) **Traders Cove** on the east side of Isanotski Strait is a good anchorage.

(709) It has been reported that during northeast gales, the wind in the locality of Traders Cove is deflected to such an extent as to blow in an opposite direction.

(710) **Bechevin Bay**, which is an enlargement of the north end of Isanotski Strait, is shoal and full of sand and mudflats. The bay enters the Bering Sea between **Chunak Point** on the west and **Cape Krenitzin** on the east. **Cape Krenitzin Light 7** (55°03'47"N., 163°25'18"W.), 30 feet above the water, is shown from a skeleton tower with a square green daymark on the west side of the cape. The approach to Bechevin Bay from the Bering Sea is marked by buoys; local knowledge is advised because of the constantly shifting shoals in this entrance and along several areas of the channel throughout the bay.

(711) **Hotsprings Bay**, a large bight in the southeast corner of Bechevin Bay, is a fair anchorage sometimes used by fishermen. A small reef, awash, is in the entrance, about 0.4 mile northeast of the north end of Traders Head, but good water lies on either side of the reef. The bottom is generally black mud and moss.

(712) **St. Catherine Cove** is the west bight in the north end of the strait. In former years there was a channel leading into the cove affording anchorage for small schooners, but it has shoaled and the cove is nearly bare at low water.

(713) **Rocky Point**, about 4 miles southeast of St. Catherine Cove, is marked by a light.

(714) About 2.7 miles northwest from Rocky Point and 0.5 mile offshore is a reef bare at extreme low water. Several local boats have struck this reef.

(715) **Ikatan Peninsula**, the southeast extremity of Unimak Island and south of the end of the Alaska Peninsula, is about 10 miles long and is composed of several mountain masses separated by low depressions. The wind blows through the low depressions of the land with great force. The south shore of the peninsula has rocks and breakers.

(716) **Cape Pankof**, the east end of Ikatan Peninsula, is a sheer rocky headland consisting of a single 1,243-foot peak dropping immediately to a bluff that forms the southeast side of the cape.

(717) The slope of the top of the bluff descends gradually from the peak to the north, whereas to the south the

descent is broken in the form of vast steps. From the south, the peak has a sharp outline and an abrupt rise from the sea.

(718) Another prominent headland, 1,070 feet high, rises precipitously from the bluffs on the south shore of Ikatan Peninsula, 1.5 miles west of the south extremity of Cape Pankof. The mountain masses of the two headlands are separated by a low depression 0.8 mile west of the cape. The bluffs are rust and gray in color. The slopes are grass covered in the summer with frequent bare spots. On the higher bluffs is evidence of small rockslides.

(719) A shoal with a least depth of 7.5 fathoms is about 10 miles southwest of Cape Pankof at about 54°31.5'N., 163°14'W. The shoal, about 350 yards across, rises from a depths of 27 to 32 fathoms.

(720) A submerged rock that breaks with a light swell during low stages of the tide is about 1 mile west from the southernmost bluff of Cape Pankof and about 300 yards offshore. Another offshore danger is off the east point of the entrance to West Anchor Cove.

(721) **Pankof Breaker**, a sharp pinnacle rock with ¾ fathom over it, is a little over 2 miles **053°** from the southeast point of the entrance to East Anchor Cove. During the summer the rock seldom breaks. Depths of 12 to 14 fathoms are close to the rock. A buoy is 400 yards east of the breaker.

(722) A rock, covered 2 ¾ fathoms is between Pankof Braker and the southeast point of the entrance to East Anchor Cove at 54°42'04"N, 163°02'01"W.

(723) **East Anchor Cove**, on the north side of Cape Pankof, is a good anchorage except for winds from the north to southeast, through east. The cove is large and easily entered. An abandoned fishtrap is just inside the southeast entrance point. Anchorage may be selected as desired in 7 to 10 fathoms.

(724) **Westdahl Rock**, covered 3 fathoms, is 7.9 miles 104° from Cape Pankof. It is a rocky patch of small extent.

(725) **Bird Island**, about 0.5 mile in extent, is the most prominent landmark between Capes Pankof and Aksit. From the south, the island appears as a single elevated rocky mass, rounded but somewhat ragged in outline; the highest point, 775 feet, is a knob readily identified. Steep sides, fringing rocks and breakers make a landing very difficult. The only practical landing place is on the north tip, which has a steep beach of rather coarse gravel.

(726) A bar, consisting of a submerged reef, connects Bird Island with the west point of the entrance to Dora Harbor. The greatest depth is 5¼ fathoms, and passage is not recommended. This bar depth is on the line passing through the 1,760-foot peak 1.6 miles north of Cape Aksit and the summit on the west point of the entrance to West Anchor Cove. The line crosses the bar a little more than halfway from the point, on the north, to Bird Island. A submerged rock on the bar is a little less than halfway from the point to the island. The rock does not break in ordinary weather.

(727) **West Anchor Cove**, the largest indentation on the south side of Ikatan Peninsula, affords indifferent anchorage. Anchorage in East Anchor Cove is preferable. The anchorage for all but small craft is confined to the open part of West Anchor Cove, which is exposed to south and southwest weather, often accompanied by heavy ocean swells. The bottom in West Anchor Cove is fine, dark, gray sand, which is good holding ground. The entrance is wide and clear, but rocky reefs extend from the points on either side. A narrow shelf of rocks extends along the shore at the east point of the entrance, the outer edge of which shows at half tide and probably breaks all the time. A rock covered 2½ fathoms is off this ledge, 0.5 mile southwest from the point. This is the outermost danger in the approach from the east. Dense kelp beds line much of the north part of the cove, extending 500 yards offshore in places.

(728) A prominent flat rock, 4 feet high, is 0.5 mile off the round point on the east side of West Anchor Cove and about the same distance inside the entrance. This feature marks the west limit of the dangers on the east side of the cove and has been found useful for making the anchorage in thick weather. A detached shoal of 2¾ fathoms is in the middle of the inner part of the cove about 1.2 miles from the head. The shoal marks the upper limit of anchorage for all but small craft. Rocky ledges extend from the north and south shores but not over 300 yards. A prominent rock, 46 feet high, is close off the east shore, about 1.2 miles northeast of the east entrance point.

(729) The bight between West Anchor Cove and Dora Harbor is small and exposed. Rocky reefs extend about 400 yards from the shore off the entrance points. A prominent rock, 32 feet high, is 330 yards off the west side of the headland at the east end of the bight. A prominent rounded rocky hill, 788 feet high, dominates the headland.

(730) **Dora Harbor**, on the south side of Ikatan Peninsula, provides the only good anchorage with protection from all winds and sea on the south side of Unimak Island, but the harbor is limited to small vessels. The entire shore is fringed with ledges, partly bare at low water, to a distance of about 300 yards. The reef extending 0.3 mile west from the east point of the entrance and the bar from the west point toward Bird Island afford protection from ordinary south and west swells at the outer anchorage, but a heavy swell from south is uncomfortable. The outer anchorage, however, is seldom used.

(731) Low tableland terminates in bluffs at the shores on both the east side of Dora Harbor and the middle point of the west side.

(732) The inner harbor of Dora Harbor is a slight expansion at the head with depths of 9 to 12 feet in the middle. A heavy swell from the south will cause this anchorage also to be uncomfortable.

(733) In entering Dora Harbor care should be taken to avoid a rock that uncovers about 0.3 mile **220°** from the east point at the entrance. The rock is detached and 200 yards from the edge of the shore reef. In calm weather, when the rock is covered, a light swell may not cause a

breaker. Favor the west side in the entrance to avoid the reef extending about 0.3 mile west from the point on the east side of the entrance, and then steer midharbor courses to the inner harbor, where anchorage with somewhat restricted swinging room is afforded vessels of 7 feet or less draft. Care must be taken to hold the midharbor course in entering the inner harbor in order to avoid reefs that make out 325 yards from the points on each side.

(734) **Otter Cove** is an open bight between Ikatan Peninsula and Cape Aksit. The shores on both sides are characterized by high bare rocky cliffs. The sand beach forming the head is bordered by a series of grass-covered dunes. Other dunes in the form of ridges are farther inland.

(735) Otter Cove is exposed to south winds and ocean swells and often has a heavy surf. north winds blow with great violence over the low isthmus separating it from Ikatan Bay. The only safe boat landing is in the northeast corner of the cove. Two rocks, close together that uncover 1 foot, are over 0.5 mile from the shore of Ikatan Peninsula and 3.5 miles northeast from Bird Island.

(736) The story has been handed down among the natives that a channel once existed between Otter Cove and Ikatan Bay and that Russian vessels once sailed through.

(737) **Cape Aksit**, the west point of Otter Cove, is bold and rugged.

(738) Cape Lazaref and the south coast of Unimak Island are described in chapter 7.

(739)

Sanak Islands to Telemitz Island

(740) **Sanak Islands**, the southwesternmost group of islands along the Alaska Peninsula, cover an area 20 miles long and 10 miles wide. The group consists of two large islands, Sanak and Caton, and numerous small islands and rocks, all of which are bare of trees.

(741) **Sanak Peak**, part of the mountain mass at the northwest end of Sanak Island, is 1,740 feet high and a prominent landfall. A 787-foot peak, 1.5 miles to the northwest, is often visible when Sanak Peak is obscured by clouds. A ridge rises to more than 200 feet on the east side of the mountain mass, but most of the remaining land area in the group is low in comparison, being over 100 feet high on the north side, decreasing to less than 40 feet high among the south islands and rocks.

(742)

Anchorages

(743) Anchorage at Sanak Islands is suitable for small or moderate-sized vessels. Caton Harbor affords the only shelter from all winds.

(744)

Dangers

(745) Dangers along the north side of Sanak Islands are within 0.5 mile of the shore, except **Crowley Rock**, 1.5 miles offshore **348°** from Sanak Peak. This rock has several small pinnacles with a least depth of ½ fathom over them. The rock, not always marked by kelp, only breaks in a disturbed sea and occasionally shows a prominent slick.

(746) Foul ground of numerous reefs, islands, islets, shoals and covered and uncovered rocks extends almost 6 miles south and over 12 miles west of Sanak Islands; heavy breakers extend a considerable distance offshore. **Aleks Rock**, 16.7 miles **241°** from Sanak Peak, is covered 1½ fathoms and is the farthest outlying known rock southwest of Sanak Islands. A 7½-fathom pinnacle is 4 miles north of the rock.

(747) The harbors on the south side of the Sanak Islands, except possibly Peterson Bay, should not be approached without local knowledge.

(748) **Caton Island**, at the east end of the Sanak group, is rolling and grass covered. Most of the beaches are composed of rocky ledges or boulders and gravel. Steep and prominent bluffs are on the northwest point. The low east side and the south side of the island are fringed with rocky ledges up to 1 mile offshore.

(749) **Whale Bay**, on the northeast side of Caton Island, is extremely shoal.

(750) Temporary anchorage in south winds can be had west of Caton Island and south of **Lida Island**. Approaching the anchorage from east, stand in near the visible rocks off the east end of Lida Island, taking care to avoid the partially covered reef, nearly 0.5 mile east of Lida Island, that extends north from Caton Island. Anchor about 0.4 mile from Caton Island and 0.3 to 0.5 mile south of Lida Island, in 6 to 7 fathoms, sandy bottom. Care should be taken not to approach the south side of the anchorage.

(751) If the anchorage south of Lida Island is approached from west, steer for the southwest side of Caton Island on **144°**, passing about 0.5 mile south of Lida Island and leaving a rock that uncovers 0.5 mile north from Wanda Island about 0.4 mile on the starboard hand; anchor as directed above. The west end of Lida Island should not be approached closer than 0.5 mile.

(752) **Caton Harbor**, between Sanak Island on the east and Caton Island on the west, is large and affords anchorage in 2 to 3 fathoms, sandy bottom; it is protected on the south by **Elma Island** and on the north by the islands and reefs between Caton Island and Sanak Island. The harbor is protected from all swells, and schooners of considerable size have wintered here. These waters provide the best all-weather anchorage for small vessels in the Sanak Islands. Water in small quantities may be obtained.

(753) **Princess Rock**, off the west end of the islet in the center of Caton Harbor, is the most prominent feature in the vicinity. It is high and grassy on top; extensive reefs surround the rock.

(754) The best entrance to Caton Harbor is from the north through a narrow channel close to the west end of Caton Island. Proceed as directed for entering the anchorage south of Lida Island from west, and when well past the rock that uncovers 0.5 mile north of **Wanda Island**, bring the south side of the rock that uncovers in range with Northeast Point astern and stand in, keeping the range astern, course **125°**, until close to Caton Island. Then keep

the bare rocks and kelp projecting from Caton Island close aboard on the port hand, but do not approach the kelp on the starboard hand; the least depth in the narrowest part of the passage is 3½ fathoms, shoaling inside to 3 fathoms. When past the rocks on the port hand, steer **193°** for about 0.5 mile and anchor in about 3 fathoms with Princess Rock in line with Sanak Mountain, bearing **294°**. This anchorage is about 0.5 mile from Caton Island and the same distance from the nearest reef on the west side. Anchorage, with probably better shelter from northeast gales, can be made off the sand beach on Caton Island, just inside the narrow entrance.

(755) To enter Caton Harbor from the south through **Devils Pass**, west from Elma Island, or through **Southeast Pass**, east of Elma Island, requires local knowledge to avoid the reefs and breakers. These passes should not be attempted by a stranger. Surveys indicate a controlling depth of 1¼ fathoms in the approach to Devils Pass with deeper water through the narrow part of the pass. Tide rips in Devils Pass are at times dangerous to small craft.

(756) **Sanak Island**, largest of the Sanak group, has rocks and reefs along its shores and is indented by several harbors that can be used by small vessels. The westernmost breakers of the rocks, which form a continuous barrier from the west side of the island, are 2 miles offshore, or 1 mile west from the northwesternmost bare rocks of the barrier. Cattle are raised on the island.

(757) **Finneys Bay**, at the northeast end of Sanak Island, is obstructed by rocks; steep and prominent rocky bluffs are northwest of the bay.

(758) **Northeast Harbor**, on the northeast side of Sanak Island, affords temporary anchorage about 0.2 mile south-southeast from 100-foot-high **Northeast Point**, in 13 fathoms. **Eagle Rock**, near the middle of the harbor, is 58 feet high and surrounded by a ledge that uncovers and a reef that connects it with the head of the harbor. A reef that uncovers extends along the north side of the harbor; a 24-foot-high rock is 0.4 mile west of Northeast Point. Small vessels may anchor between Northeast Point and Eagle Rock, with Cherni Island, 13 miles northeast, just open of Northeast Point, in 6 to 9 fathoms, sandy bottom. The harbor is exposed to east winds. Water can be obtained.

(759) **Johnson Bay**, 1.5 miles west of Northeast Point, has an inner harbor for small craft, where there is a fishing station. Vessels may anchor just inside the entrance to the bay, favoring the east side, in 9 fathoms, with protection from south and west winds. Rocks are close to the west entrance point.

(760) **Unimak Cove**, 2.5 miles west of Northeast Point, is an unimportant open bight.

(761) **Pavlof Harbor**, 4 miles west of Northeast Point, is reported to be a good shelter for small craft, but local knowledge is required to enter because of reefs at the entrance. Pavlof Harbor is a village at the head of Pavlof Harbor.

(762) **Murphys Cove**, 7 miles west of Northeast Point, is protected by a reef and affords shelter for boats of local fishermen.

(763) **Sanak Harbor**, at the northwest end of Sanak Island, affords restricted anchorage for small vessels with protection from south and west weather but is exposed to winds from northwest to east, and a swell makes in with strong west winds. Temporary anchorage may be had about 0.2 mile northeast of **Point Petrof**, in 10 fathoms.

(764) Approaching Sanak Harbor from north, steer for the 787-foot peak of Sanak Mountain on any course between **140° and 176°**, taking care to avoid Westdahl Rock. When off the entrance, steer **193°** for the middle of the entrance and anchor in midchannel in 3 to 4 fathoms. The covered rocks off the entrance points are marked by kelp. Take care to avoid the 2¾-fathom spot, 0.2 mile north of the east entrance point, and a rock, covered 7 feet, 200 yards off the east shore 300 yards inside the entrance.

(765) A bight on the east side of **Clifford Island** (54°23.0'N., 162°47.0'W.), on the south side of Sanak Island, affords anchorage for small craft in 2½ fathoms, rocky bottom. Local knowledge is necessary to reach the anchorage because of the numerous rocks and reefs on the south side of Sanak Island.

(766) **Peterson Bay**, on the southeast side of Sanak Island, is well protected from all but southeast winds, especially for small vessels of 12 feet or less draft that can anchor well inside the bay. It is reported that during northeast winter gales a heavy swell makes into the bay. In the widest part of the bay near the head are depths of 2 to 2¼ fathoms. A 1¼-fathom spot is in midchannel about 0.5 mile inside the south entrance point. Another shoal of 1¾ fathoms, marked by heavy kelp, is about 350 yards off the south shore and about 0.2 mile inside the south entrance point.

(767) In approaching Peterson Bay from east, give the east and southeast sides of Caton Island a berth of about 2 miles to clear the reefs and the breakers that extend more than 1 mile offshore, and steer **262°**, passing 1 mile south of **Umia Island** and **Telemitz Island**. When Telemitz Island is abeam, bring the tangent of the north side of Peterson Bay in line with the slight saddle between Sanak Peak and the east shoulder of Sanak Mountain, and run in on this range, course **318°**. When the south point of the bay is about 0.7 mile distant, haul north a little so as to bring the north side of the bay in line with the extreme southwest tangent of Sanak Mountain, and run in on this range, course **311°**, until the south point at the entrance bears **177°**. Then steer **294°** for the middle of the bay but avoid the 1¼-fathom spot south of the course and select anchorage according to draft.

(768)

Sandman Reefs to Cherni Island

(769) **Sandman Reefs**, a large area of foul ground with numerous islands, islets and rocks, extend from the Pavlof Islands and Deer Island on the north almost to the

Sanak Islands on the southwest. This area has not been completely surveyed and should be avoided.

(770) **Pinnacle Rock** and **Clubbing Rocks**, on the east and west side of Sandman Reefs, respectively, are Steller sea lion rookery sites. There is a 3-mile vessel exclusionary buffer zone surrounding these rocks. (See **50 CFR 224.103**, chapter 2, for limits and regulations.)

(771) **Hague Rock**, at the south end of Sandman Reefs, is 47 feet high, rocky and grass covered, with deep water close to the south side. A reef extends over 1 mile northwest from the rock. **Hague Rock Light** (54°33'01"N., 162°24'05"W.), 60 feet above the water, is shown from a square frame with a red and white diamond-shaped daymark.

(772) The wide and clear passage between Hague Rock and Sanak Islands is used by large vessels going between the Pacific Ocean and Ikatan Bay.

(773) **Cherni Island**, 5 miles north of Hague Rock Light, is grass covered and shows as rolling land in the north part gradually rising to two prominent 162-foot sharp hills near the south end. The southwest side of the island is a bare rock cliff, rising to 90 feet. There is a good small boat anchorage at the north end of the island; strong north winds here only cause small swells at high tide. The anchorage can be approached only from the north with local knowledge. Cattle are reported on the island.

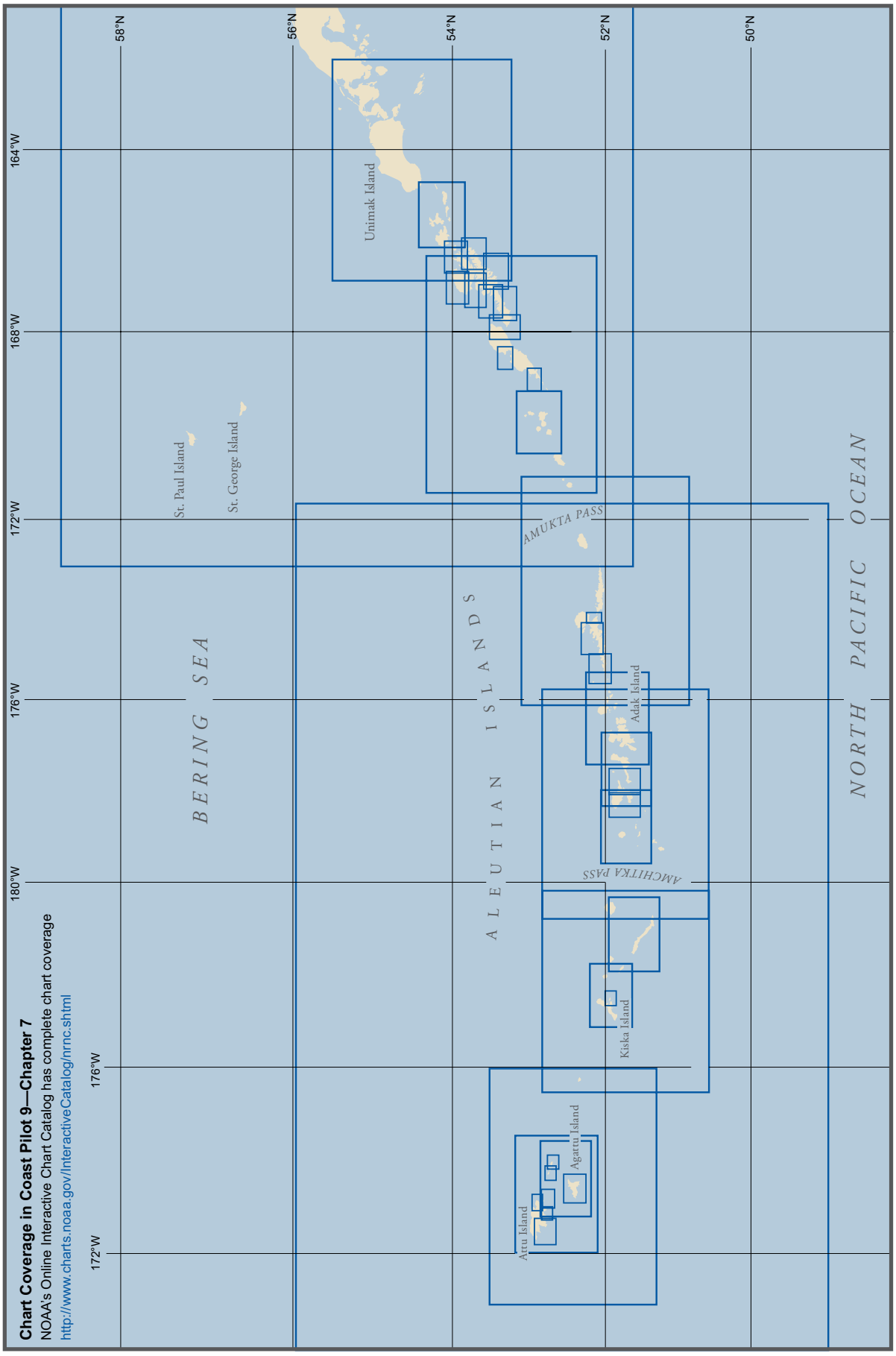


Chart Coverage in Coast Pilot 9—Chapter 7
NOAA's Online Interactive Chart Catalog has complete chart coverage
http://www.charts.noaa.gov/InteractiveCatalog/nrnc.shtml
58°N
56°N
54°N
52°N
50°N
164°W
168°W
172°W
176°W
180°W
176°W
172°W
BERING SEA
ALEUTIAN ISLANDS
NORTH PACIFIC OCEAN
Unimak Island
St. Paul Island
St. George Island
AMUKTA PASS
AMCHITKA PASS
Adak Island
Kiska Island
Agattu Island
Attu Island

Aleutian Islands

(1) This chapter describes the Aleutian Islands and the many passes leading from the Pacific Ocean into the Bering Sea. Also described are the harbors of Dutch Harbor on Unalaska Island; Kuluk Bay on Adak Island; Massacre Bay on Attu Island; and many other smaller harbors in the Aleutian Islands.

(2)

Caution

(3) Certain areas of the marine environment in the Aleutian Islands may contain munitions and explosives of concern (unexploded ordnance). Specifically, these are along the north and northeast end of Unalaska Island (including Unalga Island and part of Akutan Island), the southwest end of Unalaska Island, the northeast end of Umnak Island and the northwest and southeast sides of Kiska Island. These aremarked as **Caution Areas** in regions of Unalaska Island and Kiska Island. Mariners are cautioned against anchoring, dredging, or trawling within these areas.

(4) If unexploded ordnance is encountered, retreat and immediately make all reports to the U.S. Coast Guard (Unalaska Island) or to the U.S. Coast Guard Arctic Command Center via phone at 1-866-396-1361 (Kiska Island). For additional information about unexploded ordnance, visit the U.S. Army Technical Center for Explosives Safety at *https://www.denix.osd.mil/uxo/* .

(5)

Area to be Avoided, Aleutian Islands

(6) The International Maritime Organization (IMO) has adopted the waters surrounding the Aleutian Islands as areas to be avoided (See IMO SN.1/Circ. 331). In the region of the Aleutian Island Archipelago, all ships 400 gross tonnage and upwards solely in transit should avoid the areas to be avoided bounded by lines connecting the following geographical positions:

(7)

East Area to be Avoided			
1	54°07.94'N., 162°19.48'W.	**7**	56°19.83'N., 161°04.29'W.
2	54°22.14'N., 164°59.57'W.	**8**	56°04.91'N., 160°29.04'W.
3	54°43.51'N., 165°09.77'W.	**9**	55°40.94'N., 159°32.43'W.
4	54°59.45'N., 165°14.74'W.	**10**	55°22.58'N., 158°49.19'W.
5	55°43.20'N., 163°38.05'W.	**11**	54°41.38'N., 158°31.66'W.
6	56°08.30'N., 162°22.14'W.	**12**	54°21.99'N., 159°11.54'W.
Unalaska Area to be Avoided			
13	51°41.19'N., 170°52.93'W.	**19**	54°21.96'N., 165°43.77'W.
14	51°53.22'N., 171°32.60'W.	**20**	54°11.15'N., 163°41.63'W.
15	52°41.95'N., 171°50.08'W.	**21**	53°40.84'N., 163°41.67'W.
16	53°17.64'N., 171°50.31'W.	**22**	53°24.39'N., 164°07.37'W.
17	54°09.49'N., 169°23.53'W.	**23**	52°46.62'N., 165°56.33'W.
18	54°17.62'N., 168°11.32'W.	**24**	51°57.40'N., 168°57.60'W.
Atka Area to be Avoided			
25	50°38.55'N., 180°00.00'W.	**30**	52°41.07'N., 171°56.15'W.
26	51°11.83'N., 179°50.46'W.	**31**	51°37.86'N., 171°34.53'W.
27	52°39.35'N., 178°39.78'W.	**32**	51°15.27'N., 172°36.40'W.
28	53°13.18'N., 173°49.18'W.	**33**	50°21.63'N., 179°24.20'W.
29	53°02.71'N., 172°51.16'W.		
Amchitka Area to be Avoided			
34	51°51.50'N., 174°47.54'E.	**39**	52°36.31'N., 179°22.09'W.
35	52°15.54'N., 174°53.24'E.	**40**	51°32.27'N., 179°41.19'W.
36	52°46.63'N., 176°15.15'E.	**41**	50°33.65'N., 179°33.12'E.
37	52°57.86'N., 177°37.91'E.	**42**	50°44.11'N., 178°10.33'E.
38	52°48.39'N., 180°00.00'W.	**43**	51°21.00'N., 175°59.57'E.
West Area to be Avoided			
44	53°40.90'N., 171°50.53'E.	**50**	52°08.23'N., 174°21.75'E.
45	53°49.20'N., 172°29.47'E.	**51**	51°40.59'N., 172°45.27'E.
46	53°47.85'N., 173°25.48'E.	**52**	52°20.90'N., 171°29.34'E.
47	53°24.41'N., 174°54.79'E.	**53**	52°40.53'N., 171°10.34'E.
48	53°07.49'N., 175°18.74'E.	**54**	53°00.92'N., 171°06.20'E.
49	52°19.54'N., 174°51.62'E.	**55**	53°23.69'N., 171°19.71'E.
Coordinates are North American 1983 Datum (NAD 83)			

(8)

Aleutian Islands

(9) **Aleutian Islands**, extending in a 900-mile arc from Unimak Island to Attu Island, are a westward continuation of the Alaska Peninsula and form the southern limit of the Bering Sea. The most important groups of islands in the chain are Fox Islands, Islands of the Four Mountains, Andreanof Islands, Rat Islands and Near Islands.

(10) Most of the islands are mountainous; the coasts are bluff and exposed; the shores are bold, with many off-lying islets, rocks and reefs; the beaches are rocky and narrow; and the water is usually deep close to shore. As a rule, seabottom features are similar to those of the adjacent land.

(11)

Anchorages

(12) Most of the larger islands in the Aleutians provide some sheltered anchorages as mentioned in the text for the individual places. The better known harbors are Akutan Harbor on Akutan Island, Dutch Harbor on Unalaska Island, Nazan Bay on Atka Island, Kuluk Bay on Adak

Island, Constantine Harbor on Amchitka Island, Kiska Harbor on Kiska Island and Massacre Bay on Attu Island.

(13)

Dangers

(14) Nearly all beaches in the Aleutian Islands present natural obstacles to landing. The shores are generally precipitous; the breakers are heavy, and in many cases the approaches are filled with jagged rocks and kelp beds that are unusually abundant in the Aleutians. In winter, the kelp disappears entirely. Sand beaches are rare; usually being found only at the heads of bays, and in no case does a beach extend more than 50 yards inland from the high water line.

(15) When heavy swells and seas are encountered along a beach, a landing in a small boat should not be attempted as there are strong and dangerous undertows accompanied by variable currents. In addition to the lack of surveys, navigation in this region is made difficult by the prevailing thick weather and further by the lack of knowledge of the currents, which attain considerable velocity at times.

(16)

Currents

(17) South of latitude 50°N., is an east drift across the Pacific. An eddy, accompanying this flow, sets west along the south shore of the Alaska Peninsula and the Aleutian Islands and then drifts through the passes into the Bering Sea. These currents form a part of the general circulation of the North Pacific Ocean.

(18) Through the Aleutian Islands passes, the velocities of the currents caused by tidal and wind effects are large enough to mask the continual north drift through the passes.

(19) In the past, numerous reports have been received to the effect that the flood currents flowing into the Bering Sea are very much stronger than the ebb currents. These reports have been largely discounted by observations in a number of the passages, which in general reveal equally strong ebb currents flowing through the passes from the Bering Sea. It is believed that because of the large diurnal inequality in the current of this region, mariners have been deceived by the long periods of flood current that occur near the times of the moon's maximum declination.

(20) Currents are highly complex, making generalizations impossible. They set counter to general trends in many places along shores, even within major passes. Whirls and eddies in wide distribution further complicate the problem.

(21) All passages in the Aleutian Islands have strong currents. In the narrow Akun Strait, the current is reported to reach a velocity of 12 knots. Because of the scarcity of reliable observations, definite current predictions can be made for only a few of the passes. Current predictions for some of the more important passes may be obtained from theTidal Current prediction service at *tidesandcurrents.noaa.gov*.Links to a user guide for this service can be found in chapter 1 of this book.The effect of the tidal currents has often been felt offshore at a considerable distance from the passes, resulting in unexpected sets. Mariners should guard against such contingency. In the region of the Aleutian Islands the navigator must heed the currents carefully; a vessel is in more danger there from that cause than from any other, except the lack of surveys. In bad weather, the currents cause much heavier seas, and this effect has been noticed as much as 20 miles off the passes.

(22) In general, tide rips occur to the south of the passes on the ebb and to the north on the flood, furnishing a rough means of determining the set of the current, although local tide rips may be caused by detached banks.

(23) Tide rips even well off the entrances may appear as broken, choppy seas, with a few steep, short swells near the edge. In rough weather, the effect is to make the seas higher and steeper. The tide rips are much more noticeable during periods of tropic tides. Whirls are more likely to occur in the passes near the times of slack water.

(24) A characteristic of the currents in the vicinity of the Fox Island Passes is the sudden change from slack to strength of flood. A change from slack to almost 2 knots in 10 minutes has been noted, and in many cases the maximum flood occurs within 1½ hours after slack. It is therefore probable that the worst tide rips occur at the first of the flood, and under exceptional combinations of weather and tropic tides an effect resembling a bore may be caused in the narrower passes.

(25) In Unimak Pass the current is probably strongest between Scotch Cap Light and Ugamak Island, where at strength of flood or ebb the velocity averages about 3 knots, but the maximum may exceed this figure considerably during tropic tides when 6 knots during the flood and 6.5 knots during the ebb are to be expected.

(26) The current has a large diurnal constituent that at times of tropic tides may cause the current to set continuously in a flood direction for as much as 18 hours.

(27) The set of the flood in Unimak Pass averages about 300°. A vessel proceeding from Unimak Pass toward Avatanak Strait will experience a set when off Ugamak Strait and off Derbin Strait. When crossing the deep, usually marked by tide rips, north of Derbin Strait, a strong set in the direction of the axis of the deep is often experienced. Only weak currents are noted along the shore of Tigalda Island, but farther to the north strong ebb currents, setting toward Avatanak Strait, have been encountered.

(28) Tide rips occur off the east end of Ugamak Island and in places where there is a sudden change of depth.

(29) Instances have been reported of vessels, hove-to north of Unimak Pass and waiting for clear weather, being carried through the pass by the current and finding themselves on the opposite side when the fog lifted.

(30) In Akutan Pass the currents have an average velocity at strength of about 5.5 knots; however, velocities of 9 knots may occur.

(31) The tide rips in Akutan Pass are strong during the periods of largest tides. With a heavy northwest wind, the

rips are menacing in the vicinity of the 15-fathom spot just south of Cape Morgan. They are confused and make a vessel very uncomfortable; they are dangerous for small craft. However, the strongest rips are not generally found in the middle of the pass. With a current setting north, the rips will be strongest in the north entrance, and with a current setting south, the strongest rips will be found at the south entrance to the pass. When the current setting north is opposed by a strong north wind, the tide rips in the north entrance to the pass are dangerous, and it is advisable not to use this pass in a gale. Under ordinary conditions, when there are no strong winds, this pass can be used by full-powered steamers at any stage of the current, but sailing vessels should not use it except at or near slack water. It is said that the most dangerous rips occur at the north entrance to the pass.

(32) In Unalga Pass, northeast of Fisherman Point near the center of the pass, the average tidal current at strength is about 6 knots. At times of tropic tides, current velocities may reach 9 knots. The maximum velocity occurs in a short stretch between Fisherman Point and Unalga Island, and the strongest current can be avoided by favoring the Unalga Island shore. The current along the south side of Unalga Island will rarely exceed 2 knots.

(33) The tide rips in Unalga Pass accompanying a flood current are most pronounced northeast of Erskine Point. With an ebb current the most pronounced tide rips occur off Brundage Head. During the periods of tropic tides, however, tide rips may occur throughout the length of the pass. Small boats can avoid the tide rips by keeping close to the Unalga Island shore.

(34) Treacherous seas caused by wind or ocean swell opposing the current may be encountered in the narrow part of Unalga Pass. When tide rips are heaviest in Akutan and Unalga Passes, the water is broken into heavy choppy seas that board a vessel and make it difficult to control the steering. Tide rips are dangerous for small vessels even if there is no wind or sea.

(35) Additional information on currents will be found elsewhere in the text under their respective localities.

(36)

Local magnetic disturbance

(37) Differences have been found in many areas in the vicinity of the Aleutian Islands. On land, differences from normal variations of as much as 8° have been observed, with 3° and 4° rather common. Unusual disturbances have been observed on the northwest coast of Tigalda Island east of Kelp Bay; on the south shore of Akun Bay; on Cape Aiak, Unalaska Island; in Nazan Bay, Atka Island; on Yunaska Island and on Amukta Island.

(38)

Weather, Aleutian Islands

(39) The weather of the Aleutians is characterized by persistently overcast skies, strong winds and violent storms. It is often variable and quite local. Clear weather is seldom encountered over a large area. North shores are usually better off than south ones. The winter temperatures are moderated by the relatively warm waters of the Japan Current, so the islands are usually free from ice, which would hamper navigation. At Adak, overcast conditions average nearly 75% of the time during June and July, dropping back to approximately 50% of the time from October through February.

(40) Winds are variable, local and often strong. From the Fox Islands to the Andreanof Islands, southwest through northwest winds are the most common except in midwinter, when winds from all directions are frequent. There are numerous local variations to this general flow. On Unimak Island, southeasterlies are common in midwinter. Southeasterlies are also prevalent on the north side of Unalaska Island from November through February. At Atka, northwest winds are frequent year round. Williwaws and intense lows bring gales from October through March. Winds have climbed to 65 knots at Dutch Harbor and to 74 knots on Umnak Island. A peak gust of 109 knots occurred at Adak in March 1954. Gales occur in all months of the year at Adak with the greatest chance from December through March.

(41) In the west Aleutians over the Rat and Near Islands, winds are also strong and variable. From about April through November, south through northwest winds are common, while north through southeast winds blow frequently in winter. Williwaws can be violent; windspeeds reached 91 knots at Attu one February.

(42) In the Aleutians, about 30 to 75 inches (762 to 1,905 mm) of precipitation occurs on 200 to more than 300 days. This means there are a lot of days with snow and drizzle. For example, at Adak, there is an average of 341 days with measurable precipitation, and better than 72 percent of those see 0.1 inch (2.54 mm) or more measured. Winter is the wettest season and November, the wettest month. Adak averages over 61 inches (1,549 mm) of precipitation a year with the extremes of nearly 93 inches (2,362 mm) in 1954 and 37.37 inches (949.2 mm) in 1960. In general, precipitation increases west along the chain, but exposure can have some influence on larger islands. Snow is a frequent form of precipitation from November through April, when 30 to 100 inches (762 to 2,540 mm) fall on 10 to 25 days per month. The average annual snowfall for Adak is 95 inches (2,413 mm). The snowiest month is January, and every month of the year has seen snowfall except July.

(43) Temperatures are mild, and their range is small. In the coldest part of the winter, usually January, average daily maximums range from the mid-to upper thirties °F (1° to 3°C), while minimums fall to the 25°– 30°F (-4° to -1°C) range. Occasionally a cold air outbreak will drop temperatures into the teens (-11° to -7°C). Extreme low temperatures range from about 8° to 15°F (about -13° to -9°C). This is considerably warmer than along the Alaska Peninsula, where extremes drop well below 0°F (<-18°C). Temperatures begin to moderate after February. July and August are usually the warmest months. Daytime highs from 55° to 60°F (13° to 16°C) are common, while at night temperatures usually fall about 10°F (6°C) to the

45° to 50°F (7° to 10°C) range. Extreme high temperatures range from about 65° to 75°F (18° to 24°C); a few places have had a high of 80°F (26.7°C).

(44) The extreme maximum temperature at Adak is 75°F (23.9°C), recorded in August 1956, while the extreme minimum temperature is 3°F (-16.1°C), recorded in January 1963 and February 1964. The average annual temperature is 40.8°F (4.9°C). August is the warmest month, with average extremes of 56°F (13.3°C) and 46.6°F (8.1°C), and February is the coldest month, with average extremes of 36.9°F (2.7°C) and 28.4°F (-2°C). Because of the major maritime influence, no month has an average temperature span greater than 10°F (5.6°C).

(45) The poorest visibilities in the Alaska area occur along the Aleutians. They are best in winter, although even then they can be hampered by fog, snow and rain. In summer when warm air from the Pacific moves over relatively cooler waters near the Aleutians, extensive fog formation takes place. Often the sun's heat has little effect in dissipating this fog, and it takes a change in air flow to clear the region. This advection or sea fog forms most often from June through September. At its peak in July and August, it can reduce visibilities to below two miles on 10 to 20 days per month throughout the chain. It is most likely to affect the south shores, although quite often it blankets the entire region. In winter, land fog is more local and can be expected, along with snow and rain, to drop visibilities to less than 2 miles on 1 to 4 days per month.

(46) Adak averages 173 days per year with fog. The foggiest months are July and August, when an average of 26 of the 31 days have fog. This number drops dramatically toward the winter season, where the months of December through March have, on average, fewer than 10 days with fog during any one month.

(47) The **Aleutian Trench** begins off Cape St. Elias in the Gulf of Alaska and parallels the Alaska Peninsula and the Aleutian Islands for more than 2,200 miles. The axis of the trench is 60 to 90 miles south of the Aleutians, and depths range from 2,400 fathoms in the east part to more than 4,000 fathoms in the west part.

(48)

Unimak Island

(49) **Unimak Island**, the first of the Aleutian Island chain, is separated from the end of the Alaska Peninsula by narrow Isanotski Strait (also called False Pass). This pass is practically closed by shoals at its entrance from the Bering Sea. Unimak Island is about 50 miles long and 23 miles wide; it is extremely mountainous, bare of trees and generally grass covered.

(50) Unimak Island is one of the group known as the **Fox Islands**, the others being Unalaska and Umnak and their associated islands. The Krenitzin Islands, a part of the Fox Islands group, are between Unimak and Unalaska Islands. All these islands are bare of trees and are generally grass covered. They are frequented by many birds, and immense flocks are frequently encountered in the vicinity.

(51) The higher peaks on Unimak Island are excellent landmarks if they can be seen, but in summer they are usually obscured by fogs or low-lying clouds. The lower hills and islands and objects near the sea level are generally the only landmarks available.

(52) **Shishaldin Volcano**, 9,372 feet high, near the center of Unimak Island, is cone shaped and very regular in outline, with faint wreaths of smoke and vapor drifting at times from its summit. It is for the most part snowclad, except where the rocky cliffs and projections afford no lodgment.

(53) **Isanotski Peaks** are east of Shishaldin. They are rugged and have a broken or castellated double summit, the highest point rising to 8,135 feet. The summit is bare and looks as though it were composed of great vertical rock masses. This mountain is known locally as **Ragged Jack**.

(54) **Roundtop Mountain** is a rounded summit 6,140 feet high, surrounded by snowfields.

(55) **Pogromni Volcano**, about 9 miles from the west end of Unimak Island, is 6,568 feet high and is a snowclad, conical peak with vertical ridges cropping through the snow. Pogromni is a guiding landmark in clear weather for making Unimak Pass both from south and from the Bering Sea.

(56) The south coast of Unimak Island has cliffs in places, with lower land and sand beaches, between and is backed by the high mountain masses of the central part of the island. The coast is fairly regular, with no indentations of any extent, and there are no harbors nor sheltered anchorages west of Ikatan Peninsula. The coast is exposed to the ocean swell, and there is generally a heavy surf, which makes landing dangerous. The 10-fathom curve is less than 0.8 mile from the beach in most places, and there are no known outlying dangers.

(57)

Cape Lazaref to Rock Island

(58) **Cape Lazaref**, about 800 feet high, on the south coast of Unimak Island, is the southwesternmost of three high cliffs, with sand beaches between them. The northeast cliff of the series is at **Cape Aksit**. From the sharp point of the cape, **Lazaref Reef** extends 1 mile south. On this reef are **North Pinnacle Rock** and **South Pinnacle Rock**, about 100 feet high. Anchorage, with fairly good protection from west winds, can be had northeast of this reef, about 0.5 mile south of a group of rocks that are about 0.4 mile off the east side of the cape, in 10 fathoms, sandy bottom. **Rock Island**, small and 112 feet high, is 1.5 miles west from the cape and 0.4 mile from the beach. In 1984, the NOAA Ship MILLER FREEMAN reported finding anchorage with excellent protection from a north storm close to shore between Cape Lazaref and Rock Island. Outside this protected zone, winds of 50 to 60 knots were encountered.

(59)

Unimak Bight to Unimak Pass

(60) From Cape Lazaref the coast trends west, curving gradually west and south, for about 30 miles to form **Unimak Bight**, broad and open, and having a sandy beach. This sand beach is broken by a lava bed 8.5 miles west of Cape Lazaref, and by three conical hills, the southernmost formed into several columns and reaching the water to make a small projection, **Cape Rukavitsie**, 15 miles west of Cape Lazaref.

(61) At the south end of the sand beach is a broad valley; the south point is a sharp steep-sided projection, about 350 feet high, which forms **Promontory Cove**, small and open to north. The cove is reported to afford anchorage with protection from south winds but not from the swell. The bottom is sandy, and shoaling toward the beach is gradual.

(62) **Cape Lutke**, the southwest headland of Unimak Bight, is a cliff 610 feet high, joined by a lower ridge to the higher land farther back. At this point the coast changes direction to southwest and then west for 13 miles to Seal Cape.

(63) **Seal Cape**, on the north side of Unimak Pass in entering from the Pacific, is not particularly noticeable, but the locality is well marked by Arch Point, Promontory Hill and Scotch Cap. The coast is bold and can be approached close enough (0.3 to 0.5 mile) in moderately thick weather to be seen and followed.

(64) **Arch Point**, 3 miles northeast of Seal Cape, is a rocky projection 172 feet high with an arch through the point near its extremity. The arch is visible only from onshore or close to shore. A small sand beach on the west side of Arch Point is well protected from any weather, except from the south, by the point itself and by a projecting ledge. The heavy surf, which generally prevails along most of this coast, is reported to be absent on this beach. Small boats could probably land here in an emergency.

(65) **Promontory Hill**, 5 miles northeast from Seal Cape, is a short ridge, about 1,100 feet high, having a northwest and southeast direction, and detached from the interior high land. Its outlines are smoothly rounded and it has a slight saddle, the whole having a bare, brown appearance. It is isolated and prominent and together with Scotch Cap is a good landmark for the east entrance to Unimak Pass. Approaching Unimak Pass from the east and southeast, Promontory Hill can often be seen when other landmarks are fog covered.

(66) From Seal Cape around to Cape Sarichef, a distance of 19 miles, the coast of Unimak Island has a number of projecting points, is low in appearance and slopes gradually upward to the high land of the island. Between Seal Cape and Sennett Point, the 10-fathom curve is from 0.3 to 0.7 mile offshore. The 20-fathom curve is close inshore in places and is irregular. A study of the chart will show that great care is required in navigating on soundings alone around the west end of Unimak Island, which is a region of strong currents. There are no dangers if the coast is given a berth of 0.5 mile.

(67) Along this part of the coast there are several prominent hills. **Red Hill**, a very distinctive formation, is near Cape Sarichef. This isolated hill, 798 feet high, is closer to the shore than the other peaks in the vicinity and is easily recognized by its reddish hue. It is prominent from the north, northeast and west and is often clear when higher peaks are obscured by fog or clouds.

(68) **Scotch Cap**, 420 feet high, is a precipitous cliff of rock that extends along the beach nearly 1 mile. Back of the cliff the land slopes downward for nearly 1 mile, then rises uniformly to the higher land of the island. Scotch Cap can be seen many miles in clear weather and is unmistakable.

(69) **Scotch Cap Pinnacle**, a rock 172 feet high, is 50 yards seaward from the cliff.

(70) **Scotch Cap Light** (54°23'41"N., 164°44'39"W.), 110 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark about 1.8 miles east-southeast of Scotch Cap.

(71) **Sennett Point**, midway between Scotch Cap and Cape Sarichef, is a low, flat, grass-covered bluff with a bold rocky coastline. Many detached rocks are near the surf-worn ledges that extend offshore from the base of the bluff.

(72) About 1 mile north of Sennett Point a reef makes out 0.2 mile from shore; the rocks at the outer end of the reef are 3 feet high. The bight between the reef and Sennett Point offers the best shelter and has the best holding ground in this locality. Anchorage inside the 10-fathom curve is usually free from current, no matter how strong it may be running in Unimak Pass. In 1938 a survey ship rode out several southeast gales at this anchorage.

(73) A good landing is just north of Sennett Point. It is a small protected beach between the rocky ledges of the point and a group of inshore rocks; the highest is 13 feet. In south weather, this is the best small-boat landing on the west coast of Unimak Island. Mail and supplies for both Scotch Cap and Cape Sarichef Lights are landed on this beach when landings cannot be made at either light. A small cabin on the shore is kept in repair by the U.S. Coast Guard and is equipped with stove fuel and a few necessary supplies. In north weather landings are made in the bight south of Sennett Point.

(74) About 2 miles south of Cape Sarichef Light is a small, rocky beach that is well protected by rocks and ledges and could be used as an emergency landing in rough weather. The beach is at the south edge of the black lava flow from a prominent extinct volcano, 1,240 feet high and 3 miles inland.

(75) **Cape Sarichef** is a steep, grassy bluff about 175 feet high; back of it is a tableland, then a gradual slope upward to Pogromni Volcano. The black lava flow extends north along the coast to within 0.5 mile of the light. At **Sealion Point**, 1.5 miles south of the light, is a flat rock, 35 feet high, which is prominent from seaward.

(76) A shoal area extends west from Cape Sarichef for about 3 miles. Depths on the shoal are 7½ to 15 fathoms; the bottom is mainly gravel, with some rocky patches. The shoal appears to be a submerged extension of the lava flow on the coast. Ships should avoid crossing it because of the heavy tide rips, overfalls and eddies; the current reaches a velocity of 4 to 6 knots. During favorable weather and sea, passage may be made inside the rocky patches by following the shore at a distance of 0.5 mile.

(77) **Cape Sarichef Light** (54°35'54"N., 164°55'40"W.), 170 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on the west end of Unimak Island. Several large buildings are near the light. In very smooth weather, boats can land in the small cove directly below the light.

(78) **Unimak Pass** is the first ship passage southwest of the Alaska Peninsula into the Bering Sea. It is about 10 miles wide between the southwest end of Unimak Island and Ugamak Island, which is one of the smaller islands of the Krenitzin Group.

(79) Unimak Pass is the widest of the Fox Islands Passes and the most generally used by deep-draft vessels. Unalga and Akutan Passes, 50 miles farther to the west, are convenient under certain conditions if bound for Dutch Harbor, but Unimak Pass is the only one of the three that is lighted.

(80) Besides being a gateway to the Bering Sea, Unimak Pass is also used by some vessels to effect a shorter and better weather route across the North Pacific Ocean. The route west via the Bering Sea avoids the prevailing head winds and heavy seas that are encountered south of the Aleutians.

(81) Unimak Pass is free from outlying dangers, but the currents and prevailing thick weather make it necessary to exercise unusual care in approaching the pass, especially from south. The Krenitzin Islands furnish considerable protection from south and southwest weather, but during east or north weather the seas in Unimak Pass are accentuated by the current. A northeaster will also augment the prevailing southwest current along the Alaska Peninsula. See the Tidal Current prediction service at *tidesandcurrents.noaa.gov* for specific information about times, directions, and velocities of the current at numerous locations throughout the area, including Unimal Pass. Links to a user guide for this service can be found in chapter 1 of this book.

(82) Southeast of Unimak Pass is **Davidson Bank**, on which the depths vary between 35 and 50 fathoms; the seaward edge of the bank drops off sharply into deep water. At times there is a marked change in the color of the water from blue to green when coming from deep water onto the bank. The current runs west with an average velocity of about 0.2 knot; with an east wind it reaches a velocity of more than 1 knot along the 100-fathom curve. Tide rips are of frequent occurrence.

(83) A vessel should be sure of its position before attempting to enter Unimak Pass and in thick weather should not attempt the other passes.

(84) Vessels should approach Unimak Pass through the prescribed **Unimak Pass Shipping Safety Fairway**. The Fairway is composed of an east-west route with a connecting north-south route in the west section. (See **33 CFR 166.100** through **166.110** and **166.400**, chapter 2, for limits and regulations.)

(85) Approaching Unimak Pass from the east, care must be taken to avoid Sanak Reef and Aleks Rock. A good rule is to stay on (or south of) 54°N. and make 163°W. while still outside the 100-fathom curve, then stand west-northwest across Davidson Bank for a position about 3 miles south of Scotch Cap Light.

(86) If the weather is very clear, the mountains of Unimak Island can be seen and recognized, but under ordinary conditions the first land sighted will be Promontory Hill, Ugamak Island or Tigalda Island. From a distance Tigalda Island will appear as a number of small islands, but closer to, it is one island with six distinct peaks or short ridges. Some navigators prefer to stand west on 54°N. beyond 164°W. so as to sight Tigalda or Ugamak Islands; these islands often show when Unimak Island is fogged in.

(87) The comparatively low land in the depression on the middle part of Avatanak Island is often clear when no other land is showing, especially in north weather. The grotesque irregularities of the topography make it easy to identify the locality. If approaching from the south, this stretch probably offers the best chance for identification of surroundings, especially since it is easy of approach and comparatively free from current.

(88)

Ugamak Island to Little Bay

(89) **Ugamak Island**, marked by a light on its north side, is the easternmost of the **Krenitzin Islands**, which extend from Unimak Pass to Akutan Pass. The island has a sharp peak, 1,042 feet high, at the east end; when viewed from the southeast, several pinnacles protrude from the side of this peak, giving it an extremely rugged appearance. Near the middle of the island is a knob 905 feet high. The island is mainly tundra covered. The shore is backed by bluffs 50 to 1,000 feet high. Off the southeast point of the island is a conical pinnacle, 310 feet high, which is separated from the island by a narrow gorge 10 to 15 yards wide. About 0.3 mile off the southeast end are two rocks awash, generally marked by breakers. Twin grassy islets, the north of which is 127 feet high, are 0.6 mile south of the east point of **Ugamak Bay**, a cove on the south side of Ugamak Island. The islets are separated by a deep gorge and appear as one; the collective name of **Round Island** is applied to them.

(90) Strong currents sweep around the east end of Ugamak Island and heavy tide rips occur. It is advisable to give this end of the island a berth of about 2 miles.

(91) The east end of Ugamak Island is a Steller sea lion rookery site. There is a 3-mile vessel exclusionary buffer zone around this rookery that encompasses the entire island and the islands and islets within the 3-mile

limit. (See **50 CFR 224.103**, chapter 2, for limits and regulations.)

(92)

Local magnetic disturbance

(93) Differences of as much as 5° from the normal variation have been observed on Tigalda Island and as much as 3° between Akutan and Rootok Islands.

(94) **Aiktak Island**, 556 feet high, is south of the west part of Ugamak Island; the two islands are separated by a pass 0.5 mile wide and 3¼ to 6¾ fathoms deep. Small vessels use this pass for temporary anchorage, but moderately strong currents make the anchorage unfavorable. On the south side of Aiktak Island are sheer bluffs, the tops of which approach the highest parts of the island. The islet off the northeast end is grass covered and less than 100 feet high.

(95) Temporary anchorage in north weather may be found in Ugamak Bay in 16 fathoms about 0.5 mile from shore. In south weather, some shelter may be found on the north side of Ugamak Island in a small bight 1.5 miles on the east end; depths are 16 to 20 fathoms, 0.3 mile from shore.

(96) **Ugamak Strait** has a width of 3 miles between Ugamak and Aiktak Islands on the north and Kaligagan Island on the south. A detached shoal, covered 10 fathoms, is in the middle of the northwest entrance to the strait. Heavy rips and swirls occur in this area at certain stages of the tide. Passage of Ugamak Strait has been made on a **288°** course, heading approximately for Billings Head on Akun Island; this course passes about 1.3 miles north of the northernmost rock off Tigalda Island. Allowance must be made for the current that sets across this course. The velocity of the current is 3.8 knots; velocities greater than 6 knots have been observed. See the Tidal Current prediction service at *tidesandcurrents.noaa.gov* for specific information about times, directions, and velocities of the current at numerous locations throughout the area, including Ugamak Strait. Links to a user guide for this service can be found in chapter 1 of this book.

(97) **Tigalda Island**, on the south side of Ugamak Strait, is 11 miles long in an east-west direction and 3 miles wide. It has six mountain ridges, 1,000 to 1,600 feet high, which trend northwest and are separated by low valleys. The west end of the island is comparatively low. Grass and tundra cover the island.

(98) **Kaligagan Island**, in Ugamak Strait, 0.8 mile off the northeast end of Tigalda Island, is 0.8 mile long and 478 feet high. A large number of bare rocks or islets extend 2.5 miles west and northwest of Kaligagan Island. The northernmost is the highest (63 feet) and is about 1.8 miles north of the Tigalda Island shore. Passages between groups of these rocks are deep and safe for small craft.

(99) Proceeding to Tigalda Bay from among the islets, care should be taken to avoid a group of rocks awash that extend 270 yards off the north side of the entrance point of the bay. These rocks are marked by thick kelp. Currents in the passage between Kaligagan and Tigalda Islands are approximately as strong as in the main passage of Ugamak Strait, and currents are present among the groups of islets.

(100) **Tigalda Bay**, on the north side of Tigalda Island, 3 miles from its east end, is sheltered from all except northwest winds. The bay is about 0.6 mile wide and 1.5 miles long in an east-west direction and has depths of 8 to 10 fathoms, rocky bottom. Because of the poor holding bottom, the anchorage is not secure in strong winds. An anchorage off the entrance to the bay in 12 to 15 fathoms, gravel bottom, is preferred, and furnishes just as good shelter in south and east weather.

(101) The small bay just east of Tigalda Bay is not recommended as an anchorage for small craft because the swell making in from the north or west is not broken up by the group of islets.

(102) **Welcome Bay**, just west of Tigalda Bay, is an open bay 0.8 mile wide. At the head, a narrow passage leads to a lagoon largely bare at extreme low water. The passage at its narrowest part is 90 yards wide and 2½ fathoms deep. The bay anchorage is in 15 fathoms, sand and gravel bottom, 0.4 mile from shore. An anchorage for small craft is in 4 to 6 fathoms, sand bottom, at the entrance to the passage.

(103) **Kelp Bay**, on the north side of Tigalda Island and 2 miles from the west end, provides temporary anchorage in south weather. The entrance is constricted by a reef that extends 0.3 mile from the west entrance point. The point to the east of the bay is marked by several off-lying rocks, the outermost showing 9 feet. Because of a shoal area that extends 0.8 mile north of the point, large vessels should pass at a distance of not less than 1 mile. Anchorage is found in the center of Kelp Bay in 7 to 10 fathoms just inside the entrance.

(104) A small bay 2 miles east of Kelp Bay provides anchorage for small craft in south weather. Care should be taken to avoid covered rocks 170 yards off the east entrance point and others 150 yards offshore on the west side. Anchorage in 7 fathoms is found 0.3 mile from the head of the bay.

(105) At the west end of the south shore of Tigalda Island is a pinnacle rock, 165 feet high and about 100 yards offshore, that shows prominently in a southeast and northwest direction. The point about 3 miles east of the west end is marked by **Derbin Island**, about 0.4 mile long and 206 feet high, lying close to the shore. East of this point the south shore of Tigalda Island consists of high cliffs intersected by low valleys. About 2.5 miles east of Derbin Island are two round bare rocks, 85 and 27 feet high, about 0.4 mile from the shore. The section of the coast abreast of the rocks is a steep rocky bluff rising to a 1,682-foot peak. About 2.5 miles east of the two rounded rocks is a 191-foot pinnacle near the shore. An arch through the pinnacle rock gives it the appearance of a huge chair.

(106) **Derbin Bay**, the bight east of Derbin Island, provides temporary anchorage in north weather. The recommended anchorage is in 16 to 18 fathoms, 0.5 mile

from shore and 0.8 mile from Derbin Island. The east shore of the bight is foul, with a covered rock 300 yards southwest of a 134-foot rocky islet. Small craft should favor the west shore of the bight in running to anchorage in 7 to 10 fathoms, 0.4 mile from the head of the bight.

(107) A small indentation, 0.3 mile long and 0.1 mile wide, is 1 mile southwest of the east extremity of Tigalda Island. Rocky bottom and rocks awash along the shores make this anchorage acceptable only in case of an emergency. The depths range from 5 to 7 fathoms. A low pass extends in a northwest direction across the island to Tigalda Bay.

(108) **Derbin Strait**, separating Tigalda and Avatanak Islands, is a little over 1 mile wide. A safe course through the strait is **326°** in midchannel, with Billings Head of Akun Island ahead. On the east side of the south entrance is Derbin Island; on the west side is a bare rock, 30 feet high and 400 yards off Avatanak Island.

(109) A 1¾ fathom sounding is off the west end of Tigalda Island in about 54°05'51"N., 165°13'53"W. A reef awash at half tide extends 330 yards west from the 165-foot pinnacle rock about midway on the east side of Derbin Strait. On the west side of the north entrance is a bare rock 2 feet high, 400 yards off the northeast point of Avatanak Island.

(110) Tidal currents in Derbin Strait average about 5.5 knots, although velocities of almost 8 knots have been observed. The flood sets northwest and the ebb southeast. In midchannel, with wind and current opposing, the strait becomes exceedingly rough. A swell from southwest to southeast makes into the strait and is accentuated by the current. There are numerous eddies and cross currents near the shore. The ebb current causes tide rips a considerable distance offshore, especially on spring tides. Small boats should avoid Derbin Strait except under favorable conditions. See the Tidal Current prediction service at *tidesandcurrents.noaa.gov* for specific information about times, directions, and velocities of the current at numerous locations throughout the area, including Derbin Strait. Links to a user guide for this service can be found in chapter 1 of this book.

(111) **Avatanak Island** is 9 miles long and 3 miles wide at its east end, but the west half of the island averages less than 0.8 mile in width. The middle of the island is a depression less than 100 feet high, the sides of which slope gently upward to 1,635 and 1,276 feet on the east and west ends, respectively. The low land of the depression is often clear when no other land is showing, especially in north weather. There are many grotesque irregularities in the topography.

(112) **Avatanak Point**, the south end of the island, is sharp and bold and has a ragged chain of rocks and rocks awash that extend over 0.3 mile in a south direction. The southernmost of these is a symmetrical oval rock 6 feet high.

(113) In 1981, the NOAA Ship MILLER FREEMAN anchored in the center of the bight east of Avatanak Point in a 35-knot north-northwest wind; good holding ground was in 15 to 16 fathoms, sand bottom.

(114) Two pinnacle rocks are west of the west extremity of the island; the highest and outermost is 200 yards offshore and 60 feet high.

(115) Near the center of the island on the south side is **Chimney Cove**, which affords temporary protection to small craft from north weather. It is exposed to the ocean swell. The cove is marked by a vertical chimney-shaped slab of rock, over 200 feet high, which projects from the ground surface on the west point of the cove. The rock also shows in Avatanak Strait over the low-lying middle ground. Larger vessels may find temporary anchorage in 15 to 20 fathoms south of this rock, well clear of any currents.

(116) **Rootok Strait**, separating Avatanak Island from Rootok Island, is a little more than 1 mile wide, but the clear channel is reduced to about 0.5 mile by a reef that extends from the east side and by rocks that extend from the west side. The reef, composed of separate rocks and heavily fringed with kelp, is bare at various stages of the tide and extends 525 yards in a southwest direction from the highest of the two pinnacle rocks off the west extremity of Avatanak Island. The rocks on the west side extend 250 yards from the Rootok Island shore. Depths less than 10 fathoms extend almost 0.5 mile north and northeast from the northeast point of Rootok Island.

(117) A detached shoal covered 3½ fathoms is near the middle of the south entrance, about 1 mile northeast of the east end of Rootok Island. Another detached shoal covered 3¾ fathoms is near the middle of the north entrance, 0.5 mile west of the western tip of Avatanak Island.

(118) A flat-topped rock about 20 feet high is just off the east end of Rootok Island, and other rocks extend 400 yards from the rock into the strait.

(119) In the bight indenting the east shore of Rootok Island, a rock awash at low tides is about 500 yards from the shore. Several pinnacle rocks fringe the south shore of this bight.

(120) To make the passage through Rootok Strait, steer **298°** for the north end of Rootok Island, leaving the east end of the island 0.6 mile to port; when the west end of Avatanak Island is abeam, change course to **331°** and pass in midchannel between the bare rocks off Avatanak Island and those close to the north end of Rootok Island.

(121) The currents in Rootok Strait have an estimated maximum velocity of 4 knots. Tide rips and whirls occur off the north entrance, but, as this area is sheltered from winds from most directions, they are mild compared to the rips that occur in other passes.

(122) **Rootok Island**, the westernmost island on the south side of Avatanak Strait, is 3 miles by 2.2 miles in extent. The island's most prominent features are the twin peaks, 1,545 and 1,532 feet high and 600 yards apart in an east-west direction. The south side of the island is a continuous cliff broken only by a small valley slightly east of the twin peaks. A flat-topped rock about 20 feet high is off the east point of Rootok Island. The island is fringed with rocks and kelp and affords no secure anchorage. It is used as a

fox farm, the buildings being in the south valley of the bight on the east side.

(123) **Akun Island**, 23 miles southwest of Unimak Island, is the northernmost island of the Krenitzin Group. It is about 12 miles long and very irregular in shape, being nearly divided by Akun Bay and Lost Harbor and a low depression joining them. The island is high and rugged, particularly its north part, which reaches an elevation of 2,620 feet at **Mount Gilbert**, an extinct crater on the north side of Lost Harbor.

(124) **Avatanak Strait** is a broad passage separating Avatanak and Rootok Islands from Akun Island. The strait has a general northeast-southwest direction and is 3 miles wide at its narrowest part. There are no hidden dangers over 0.3 mile from shore, and navigation is not difficult in clear weather. It is reported that strong northwest winds draw heavily through Akun Strait into the west end of Avatanak Strait.

(125) Currents with a velocity of 6.5 knots have been observed in Avatanak Strait, but average strengths of flood and ebb are about 4 knots and 3.5 knots, respectively. The ebb sets to the west, and the strength of the current is felt well to the west of Rootok Island, but to the east of the strait along the north side of Tigalda Island the currents are weak. See the Tidal Current prediction service at *tidesandcurrents.noaa.gov* for specific information about times, directions, and velocities of the current at numerous locations throughout the area, including Avatanak Strait. Links to a user guide for this service can be found in chapter 1 of this book.

(126) Tide rips and swirls occur in the narrowest part, off the entrance to Akun Strait, and among the islands off the south shore of Akun Island. A pronounced set is often experienced when crossing the narrow depression abreast of Derbin Strait, and light tide rips occur there.

(127) **Basalt Rock**, in Avatanak Strait and 1 mile north of Avatanak Island, is a symmetrically rounded rock 50 feet high; it is steep-to and the channel inside is clear, with depths of 10 to 20 fathoms.

(128) **Jackass Point**, the south extremity of Akun Island, terminates in a chain of irregularly shaped rocky islets, the highest of which is 80 feet. Tall and conspicuous **Pinnacle Rock**, 145 feet high, is 0.5 mile west of Jackass Point and 0.3 mile offshore.

(129) **Easy Cove**, at the south end of Akun Island, is 0.4 mile wide with about the same distance to its head. Small vessels may find temporary shelter from north winds in 8 to 10 fathoms.

(130) **Poa Island**, about 2.5 miles northeast of Jackass Point, is steep sided, about 0.6 mile long in an east-west direction, and 305 feet high.

(131) **Tangik Island**, about 1 mile northeast of Poa Island, is about 0.4 mile long and 225 feet high at its east end. It is surrounded by rocks, and a reef extends about 350 yards southwest from its southwest end. The channel between Tangik and Poa Islands is clear except for reefs close to the south side of Tangik Island, which should be given a berth of at least 0.3 mile.

(132) **Trident Bay**, west of Tangik and Poa Islands, is about 0.8 mile wide and 1 mile long. The entrance is constricted to less than 0.5 mile by an islet, 82 feet high, on the north side and a chain of rocks, terminating in a flat-topped rock 32 feet high, on the south side. Three small coves indent the shore at the head of the bay. A rock awash at low water is about 225 yards off the point between the middle and south coves. The heads of the coves are shoal.

(133) Anchorage can be found in the middle of Trident Bay in 20 fathoms, with good protection from all directions but the southeast; however, the islands off the entrance provide some protection from this direction. With a southwest swell, small boats find better protection at the entrance to the west cove in 2 to 6 fathoms. The survey ship found this bay the best sheltered in the vicinity, and had sufficient swinging room.

(134) To enter Trident Bay from south, steer **350°**, heading for the west tangent of the islet at the north entrance point. Pass midway between Pao Island and the land to the west. When the outermost flat-topped rock is abeam to port, swing sharply to **300°**, heading for the sand beach in the middle cove with the south tangent of Poa Island directly astern. In making this turn, favor the flat-topped rock which is steep-to, as the currents eddying around the entrance to the bay have a tendency to keep the ship's head from coming around. A bank of 8 fathoms extends across the entrance channel.

(135) **Cross Bay** is an indentation about 1 mile wide on the southeast side of Akun Island and to the north of Tangik Island. Rocks, covered with kelp, extend about 450 yards off the middle point of the bay. The channel north of Tangik Island is clear, but the channel west of the island, with a depth of 3¾ fathoms, should be avoided.

(136) **Round Head**, the southeast point of the peninsula that extends east from Akun Island, is a rounded steep-sided headland 465 feet high; a pinnacle 52 feet high is 200 yards off the point. From Round Head the shore of Akun Island trends west for 3 miles and is less rugged. It then turns to the south for 1.5 miles to **Cross Point** forming an indentation known as **Seredka Bay**. Anchorage with good shelter from north and west winds can be found in 10 to 20 fathoms about 0.4 mile from the shore. The northeast side of Cross Point is fringed with rocks and kelp.

(137) **Tanginak Island**, of small extent but 270 feet high, is 2.2 miles off the east end of Akun Island. Although it appears to be one rounded island, it is in reality two islets separated by a narrow passage. The passage between Tanginak and Akun Islands is deep, but strong currents sweep through it, accompanied by tide rips and swirls.

(138) About 4.8 miles north of Tanginak Island and in the approach to Akun Bay is **Fathometer Reef**, a 3¼-fathom rocky shoal, which is about 0.3 mile in diameter and is surrounded by depths of over 30 fathoms. Heavy tide rips and swirls occur in the vicinity except at slack water. Vessels should keep well clear of the reef, as no

kelp has been reported on it and breakers may not be distinguishable from the tide rips.

(139) **Akun Bay** is the broad indentation in the northeast side of Akun Island; it affords anchorage at its head except with winds from the southeast to northwest, but heavy williwaws are experienced with offshore winds. There are no known dangers in the bay except close to shore. At its head, where the bay is 2.5 miles wide, there are two large bights; the north bight is known as **Helianthus Cove**. Anchorage may be made in either of the bights, about 0.5 mile from shore, in 10 to 15 fathoms. Small vessels can find fairly good shelter from all directions in the south part of Helianthus Cove. Both bights have freshwater lakes at the head; the lakes are about 10 feet above high water. A very low depression extends across the island from Helianthus Cove to Lost Harbor.

(140) A long peninsula extends east from the middle of Akun Island; off the north point at the outer end of the peninsula is a twin pinnacle, 230 feet high, which marks the southeast limit of Akun Bay. A gully indents the cliffs at the most east point of the peninsula.

(141) The north ends of Akun Island are **Billings Head** and **Akun Head**, 4 miles to the west. These massive heads, separated by Little Bay, both have precipitous faces. Akun Head has a flat top 1,645 feet high. The bluffs on its north and west sides are marked by rust-colored stratification. Billings Head rises to 1,660 feet.

(142) **Billings Head Bight**, on the north side of Billings Head, is a Steller sea lion rookery site. There is a 3-mile vessel exclusionary buffer zone around the rookery which encompasses Akun Head, Little Bay, Billings Head and the north portion of Akun Bay. (See **50 CFR 224.103**, chapter 2, for limits and regulations.)

(143) **Billings Head Light** (54°17'48"N., 165°31'28"W.), 210 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on the north side of the head.

(144) **Little Bay** indents the north end of Akun Island. A spit makes out from the west shore. The area south of the spit is closed by a rocky bar and only boats drawing a few feet can enter. Anchorage outside of the spit may be had in 8 to 10 fathoms, sandy bottom.

(145)

Akun Strait to Ridge Point

(146) **Akun Strait**, between Akun and Akutan Islands, is about 1 mile at its narrowest part, but the navigable channel is reduced to 400 yards by reefs that extend from the east shore and by Race Rocks on the west. Race Rocks, a flat rocky islet 25 feet high and some smaller bare rocks, are near the north end of the strait and 0.3 mile from its west shore. **Akun Strait Light** (54°07'55"N., 165°39'35"W.), 46 feet above the water, is shown from a skeleton tower on Race Rocks.

(147) Shoal water and heavy kelp surround Race Rocks for a distance of about 250 yards; **Swirl Rock**, awash at half tide, is 250 yards north of the light and is conspicuous by the heavy overfall and swirls. The main channel is to the east and north of Race Rocks and Swirl Rock and has a least depth of 4½ fathoms. The channel to the west of Race Rocks has a least depth of 2 fathoms and is subject to currents that are just as strong as in the main channel.

(148) With northwest winds in the summer, a bank of fog frequently streaks through Akun Strait, but under such circumstances, vessels navigating Avatanak Pass will usually sight the south shore of Akutan Island.

(149) Currents in Akun Strait attain an estimated velocity of 12 knots in the narrowest part, setting north with the flood. The slack period is very short. Tide rips, swirls and overfalls occur and with a north wind or swell are extremely heavy. By skirting the kelp off Race Rocks and passing within 100 yards to the north of Swirl Rock, local vessels are able to keep out of the strength of the current.

(150) **Green Bight**, indenting the southeast shore of Akutan Island at the entrance to Akun Strait, offers temporary anchorage in 6 to 8 fathoms 0.4 mile from shore. It is convenient while waiting for slack water to pass through the strait.

(151) The west or Akutan Island shore of Akun Strait is low, except in the middle where a rounded peak 650 feet high forms a steep cliff on the north point of Green Bight. Shoal water marked by heavy kelp extends about 500 yards east from this point.

(152) From this low point with an arch, 1.6 miles west from Jackass Point, the east shore of Akun Strait extends northwest for about 2 miles to a point with a flat grassy islet, 80 feet high, close by. Shoal water marked by heavy kelp fringes this shore. A rounded rock, 10 feet high, is 650 yards northwest from the arch. A group of rocks, bare at low water, are about 500 yards northwest of the rounded rock and about the same distance off the east shore of the strait.

(153) The west end of the flat grassy islet can be approached to within 250 yards on the west, but shoal water marked by heavy kelp extends about 700 yards south. A flat islet, 200 feet high, is 0.4 mile north of the grassy islet; the passage between the two islets is obstructed and foul.

(154) **Akutan Bay** opens into the Bering Sea between Akun Head and North Head. This approach from the Bering Sea is used to reach Akutan Harbor and other arms of the bay. Akun Strait, previously described, connects Akutan Bay with Avatanak Strait and the Pacific, but it is comparatively shoal and contracted and is not recommended.

(155) **Akutan Harbor** opens into Akutan Bay on the north side of the peninsula that juts into Akun Strait from Akutan Island; the preferred approach to the harbor is from north through Akutan Bay. The harbor is 4 miles long and from 0.5 to 1.8 miles wide. Except for crabpots, there are no known dangers over 300 yards from shore. From the head of the harbor, a trail leads inland to the hot springs.

(156) **Akutan Point**, on the north side of the entrance to Akutan Harbor, is a grassy hummock 175 feet high,

which is connected with the island proper by a low grassy neck. A light is on the point.

(157) **Akutan** is on the north side of the harbor about 2 miles west from the east end of Akutan Point. Two wharves are at Akutan. A sector light (54°07'56"N., 165°46'54"W.) is southwest of Akutan. On the opposite side of the harbor 1 mile farther west is a former whaling station with a pier in ruins. A concrete piling, covered at high water, is just off the pier; this wharf is not recommended for mooring. There is a post office in Akutan. Seaplane flights and ferry service are available. An airport servicing Akutan is located approximatley 6 miles east across Akutan Bay on the southwest side of Akun Island.

(158) A recommended anchorage is about 300 yards off the village in 22 fathoms. Vessels can also anchor in the broad bight in the south shore in 15 fathoms, with the east end of Akutan Point bearing **018°**. The bottom at both anchorages is very sticky. The harbor is well sheltered from all except east winds, but heavy williwaws are encountered during gales.

(159) A cannery (54°07'55"N., 165°47'12"W.), about 0.5 mile west of Akutan, has a dock with 1,600 feet of total berthing space and 15 to 35 feet alongside. The dock can receive and ship cargo, petroleum products and seafood. Fuel, water, fishing supplies and a 17-ton crane are available. The cannery monitors VHF-FM Channel 6.

(160)

Pilotage, Akutan

(161) Pilotage, except for certain exempted vessels, is compulsory for all vessels navigating the waters of the State of Alaska.

(162) The Aleutian Islands are served by the Alaska Marine Pilots. (See **Pilotage, general** (indexed), chapter 3, for the pilot pickup stations and other details.)

(163) **Surf Bay**, on the Akun Island side of Akutan Bay and just north of Akun Strait, is an open bight exposed to the west and north. A group of rocky islets, the highest 64 feet, is in the middle of the bay about 1 mile from shore. A group of rocks, awash at low water, is 0.3 mile north of the islets, and irregular bottom, with least depth of 2¼ fathoms, is found 0.3 mile northwest of the rocks. The channel south of the islets is clear, and anchorage can be found in 10 fathoms, 0.4 mile from shore, with good shelter in south and east weather. On the east side of Surf Bay is a sand beach about 1 mile long.

(164) **Lost Harbor**, 3 miles north of Surf Bay, affords fairly good shelter, although in northwest weather considerable swell rolls in from Akutan Bay. The north side of the harbor has gently sloping sand bottom, with depths of 6 fathoms or more 0.4 mile from shore. A prominent stack and buildings mark the remains of a former sulphur mine on the north shore.

(165) In 1990, numerous submerged obstructions were reported about 0.6 mile east of the stack in about 54°14'07"N., 165°36'39"W.

(166) **Sandy Cove** is a small bight about 3 miles northwest of Akutan Point. Small craft can anchor in the center of the bay in about 5 fathoms, sandy bottom. The cove is exposed to the northeast.

(167) **Hot Springs Bay** is a wide indentation in Akutan Island opening into Akutan Bay. The point on the northwest side of the entrance is a high, rock cliff; **Ridge Point**, on the east side of the entrance, is a narrow ridge about 356 feet high, which has bare rock cliffs on its west side but slopes rapidly on its east side into a grassy valley and sandy cove. At the head of the bay are three bights; a stream drains into the middle bight from the hot springs 0.5 mile inland.

(168) A rock, covered 2¼ fathoms, is 0.5 mile from the southeast shore 1.5 miles inside Hot Springs Bay from Ridge Point. There are no other known dangers in the bay. Anchorage in south and west weather can be found in the west part of the bay 0.5 mile from shore, in 14 to 16 fathoms, sandy bottom.

(169)

Akutan Island to Flat Bight

(170) **Akutan Island**, largest of the Krenitzin Group, is about 9 miles northeast from Unalaska Island and is separated from the latter by Akutan and Unalga Passes.

(171) The shore of Akutan Island bordering on Akutan Bay and Akun Strait is described in connection with those bodies of water.

(172) **Akutan Peak**, 4,244 feet high, rises about 600 feet on the south rim of a crater, about 1.2 miles in diameter, to form a sharp summit. It is the highest peak between Unimak and Unalaska Islands.

(173) **North Head**, the north end of Akutan Island, is a high bold cliff, with a large, deep grassy valley in the otherwise high shore on its east side. About 2 miles southwest of the cape, a narrow, grassy valley separates the high ridge behind North Head from another high ridge; the west side of the valley is a bluff. **North Head Light** (54°13'16"N., 165°58'50"W.), 60 feet above the water, is shown from a pole with a red and white diamond-shaped daymark on the point 1.5 miles west of the head.

(174) **Open Bight** is an indentation just east of North Head. No depths greater than 10 fathoms are found in the bight. It is exposed to north swell from the Bering Sea and is not recommended as an anchorage.

(175) A rock awash is about 250 yards off the rounded point just east of Open Bight; a covered rock is inshore from the rock awash.

(176) **Lava Point**, 6 miles southwest of North Head, is a fairly flat lava bed varying in elevation from 150 feet along the shore to 300 feet at the base of the hill back of it. The cliffs all around the point are nearly vertical except in places where they are broken off. Numerous tunnels are under the cliffs. The northwest face of the hill back of the point is concave and very steep.

(177) At the end of Lava Point is a flat rock having the same height as the point and slightly detached from it. In foggy weather low points will sometimes be seen below the fog, and the lava flow terminating in Lava Point

often enables the navigator to identify this point. Due to the similarity of the headlands along these islands, this area is one where the navigator has unusual difficulty in identifying landmarks.

(178) **Lava Bight**, just south of Lava Point, provides temporary anchorage in south and east weather. On the south shore of the bight are several waterfalls, including a large one to the east of a group of small ones. The anchorage is in 12 to 15 fathoms, sandy bottom, 0.5 mile from shore, with the large waterfall bearing **160°.**

(179) A large circular reef is off the west coast of Akutan Island between Lava Bight and Reef Point; the outer edge of the reef is about 0.9 mile from the shore. The reef is marked by heavy kelp and is studded with numerous rocks that uncover 3 feet. The west part of North Head open at Lava Point is a good range to clear this reef in passing to the north of it. Between the reef and the shore is a passage which has a least depth of 2¾ fathoms and is clear of kelp; small boats use the passage to avoid the disturbed water outside.

(180) **Reef Bight**, on the south side of the reef, is not recommended for anchorage because of poor holding ground.

(181) **Reef Point**, the west extremity of Akutan Island, is steep and rocky and reaches a height of 500 feet. A low rock 150 yards off the point has the appearance of a stranded freighter when seen from the north or south.

(182)

Currents

(183) Flood currents with an estimated velocity of 2 knots set along the west shore of Akutan Island as far north as Reef Point. Near Lava Point an ebb current of 1 knot has been observed. Off North Head, currents are weak. A north wind blowing against a flood current produces tide rips as far north as Lava Point.

(184) The south shore of Akutan Island between Green Bight and Sarana Bay is a steep rocky bluff with numerous boulders that extend about 200 yards offshore. A rectangular rock, 75 feet high, is 225 yards offshore, about 1 mile southwest from the south end of Green Bight. Numerous waterfalls are visible along this shore in rainy weather.

(185) **Talus Point**, on the east side of the entrance to Sarana Bay, is the end of a rocky ridge, about 1,700 feet high, which has several massive pinnacles split from the top. It is more easily distinguished from offshore than Battery Point.

(186) **Sarana Bay**, between Talus Point and Battery Point, is 4 miles wide at its entrance, but narrows rapidly to an inner cove about 1 mile wide and 0.7 mile to its head. **Vulcan Point**, on the east side of the entrance to the inner cove, is marked by a flat-topped rock 45 feet high; a reef extends 450 yards southeast from the rock. Anchorage in 5 to 10 fathoms can be found in the inner cove, but the shore should not be approached closer than about 450 yards. The bay is wide open to the south and in a south swell is very uncomfortable.

(187) **Battery Point**, the southernmost headland of Akutan Island, is marked by a peak with a distinctively shaped conical top resembling a liberty cap; it is faced by steep, high cliffs. Large vessels should give Battery Point a berth of 1.5 miles to avoid a 7-fathom shoal 1.3 miles offshore in a southeast direction; swirls and tide rips mark the shoal. A 3¾-fathom shoal, marked by kelp, is 0.4 mile off the southeast side of Battery Point, and a rock awash is 370 yards off the southwest side.

(188) **Broad Bight** and **Cascade Bight** are the east and west bights, respectively, between Battery Point and Cape Morgan. This region can be used only for temporary anchorage in north weather. The heads of the two bights have beaches of sand and gravel and each is backed by a low, grassy valley. The bights are separated by a ridge terminating in a bold rocky headland with steep cliffs 800 feet high. Anchorage in Broad Bight can be found in 16 to 20 fathoms, sandy bottom, 0.8 mile from the beach and 1.1 miles 105° from the point of the headland; anchorage in Cascade Bight is in 14 to 16 fathoms, sandy bottom, 0.8 mile from the beach and 0.6 mile west of the same point.

(189) About 1.3 miles southwest of Cascade Bight is a group of rocky islets; one of them, 298 feet high, is 0.8 mile east of Cape Morgan. Close to these islets on the offshore side the depth is 14 fathoms.

(190) **Cape Morgan**, the southwest end of Akutan Island, is a prominent headland with steep, high cliffs intersected by dikes of hard rock of characteristic color. **Triplet Rocks**, three pinnacles 8 to 15 feet high, are 600 yards off the cape. In navigating Akutan Pass, Triplet Rocks should be given a berth of over 0.5 mile.

(191) Cape Morgan is a Steller sea lion rookery site. There is a 3-mile vessel exclusionary buffer zone around this rookery that encompasses Flat, Cascade and Broad Bights and Triplet Rocks. (See **50 CFR 224.103**, chapter 2, for limits and regulations.)

(192) **Flat Bight** is north of a bold headland that forms the northwest part of the Cape Morgan peninsula. At the headland, foul ground with thick kelp extends 0.5 mile offshore, and a covered rock is near a rock awash 0.3 mile north of the headland. The bight is bordered by a gravel beach 1 mile long, which in turn is backed by a low, grassy valley. Temporary anchorage in east weather can be found 0.6 mile from shore in 12 fathoms, sand bottom.

(193) A large rock 2 feet high is 1 mile of Reef Point and 400 yards from shore. A depth of 12 fathoms can be carried to the face of this rock. There is no kelp around it. Several other rocks are inshore of this one, but they are inside the kelp line. A rock awash is 0.8 mile farther to the south and 250 yards from shore.

(194) The shore between Reef Point and Flat Bight is an eroded bluff 300 to 600 feet high; when close by, a reddish outcrop is discernible.

(195)

Akutan Pass to Lofty Mountain

(196) **Akutan Pass** and Unalga Pass, on either side of Unalga Island, are ship passages, secondary to Unimak Pass, for entering the Bering Sea from the Pacific through the east part of the Aleutian Chain. Akutan Pass is 2.5 miles wide in its narrowest part between the Baby Islands on the southwest and Triplet Rocks off Cape Morgan. The depths in the pass are very irregular, but no hidden dangers have been found. Depths less than 10 fathoms extend about 0.4 mile south from Triplet Rocks, and the tide rips there are intensified, appearing as breakers. Small craft should avoid them. A narrow shoal with a least depth of 7 fathoms is 3.5 miles northwest from Cape Morgan. The shoal can be detected by the swirls and tide rips marking it.

(197) Akutan Pass is wider than Unalaga Pass, but the currents and tide rips are similar. However, the current is felt over a much greater distance, so that with an adverse current it has been found that better time can be made by using Unalaga Pass. On the larger tides, the flood creates such heavy tide rips north of Unalaga Island, even in calm weather, that it is advisable to be prepared to take seas aboard. Tide rips 15 feet high have been observed. In approaching both Akutan Pass and Baby Pass, fewer rips will be encountered if courses are directed for the area southeast of the Baby Islands and then swing over to either pass. This area is comparatively quiet on the ebb when both of the passes have heavy tide rips.

(198) Akutan Pass, in the daytime and with clear weather and a fair current, furnishes a convenient route for vessels bound to or from Unalaska Bay. From east it is recommended that courses be steered to make land in the vicinity of Tigalda Island and Avatanak Island then follow the south side of these islands until the course is shaped from Rootok Island to Cape Morgan. A midchannel course through the pass is recommended.

(199) Remarks on currents in Akutan Pass will be found in the first part of this chapter. See the Tidal Current prediction service at *tidesandcurrents.noaa.gov* for specific information about times, directions, and velocities of the current at numerous locations throughout the area, including Akutan Pass. Links to a user guide for this service can be found in chapter 1 of this book.

(200) **Baby Islands**, a group of six low islands in Akutan Pass and north of the east end of Unalga Island, have numerous rocks among them. The islands are all tundra covered. On the west island is a large rookery and the ground is very pitted over almost the entire top. The southeast island is used as a fox ranch. When seen apart from Unalga Island, the Baby Islands are prominent although they tend to blend together to appear as one island.

(201) Numerous submerged rocks, covered 1½ fathoms, in 54°00'13"N., 166°06'05"W., are about 1.0 mile northwest of the northwest island. Mariners should use extreme caution in this area.

(202) Strong currents sweep among the Baby Islands. The south end of the passage between the two southeast islands is blocked by a reef bare at low water, forming a small protected bay, but strong currents make it a rather uncomfortable anchorage for small boats.

(203) **Baby Pass**, about 0.8 mile wide, separates Unalga Island from the Baby Islands. Ledges along the shore restrict the navigable width, but depths up to 20 fathoms will be found in midchannel. Less water and numerous rocks, described previously, are found at the north end of the pass. A 3½-fathom depth in 54°00'06"N., 166°07'16"W., is at the northwest end of the pass and about 0.65 mile from shore.

(204) On the Unalga shore of Baby Pass is a shallow cove in which small boats may get fair protection from south and west weather; however, a rock awash at low water is a little south of the middle of the cove. Off the north point of the cove is a group of bare rocks that extend into Baby Pass. The outer rock, 12 feet high, is 300 yards from the point. Foul ground extends 400 yards into Baby Pass from the 0.8 mile stretch of shore west of the cove.

(205) Very heavy tide rips occur to the northwest of the Baby Islands on the flood and extend a considerable distance to the southeast on the ebb. (See remarks on tide rips in Akutan Pass.) The flood and ebb current velocity is about 4 and 5 knots, respectively. Flood and ebb velocities of 5.5 and 7 knots occur at times of tropic tides. See the Tidal Current prediction service at *tidesandcurrents.noaa.gov* for specific information about times, directions, and velocities of the current at numerous locations throughout the area, including Baby Pass. Links to a user guide for this service can be found in chapter 1 of this book.

(206) **Unalga Island** is separated from Unalaska Island by Unalga Pass. The island is low compared with the neighboring islands, the highest point being a rounded hill of 707 feet southwest of the central point. The east end of Unalga Island is a flat-topped hill, 145 feet high.

(207) **Malga Bay**, on the northwest side of Unalga Island, is about 0.6 mile in diameter and affords shelter in south weather. The east shore of the bay is a chain of jagged rocks and islets, the highest being 106 feet. Temporary anchorage in south weather can be found in the center of the bay in 11 fathoms.

(208) On the north coast of Unalga Island, precipitous bluffs rise 100 to 200 feet, blending abruptly at the top into rolling, slightly rising, tundra-covered tableland. There is generally no beach, though a flat rock shelf, from 10 to 30 feet wide, extends from the bluffs to the water's edge. In places a few scattered boulders may be found on the shelf.

(209) On the south shore of Unalga Island, a prominent cylindrical rock, 120 feet high, is 0.5 mile south of the east end of the island and 375 yards offshore. A point terminating in a rounded knoll, 150 feet high, is 1.8 miles southwest of the east extremity.

(210) A large barn, about 1 mile southwest of the east end of Unalga Island, is on the side of a hill over 100 feet high, and is conspicuous from the south. Several small houses are in the gully below the barn but can be seen only when close-to.

(211) Numerous boulders and rocks border the south shore of Unalga Island. A dangerous rock, covered 2¼ fathoms, is 700 yards off, midway of this shore.

(212) Off the southwest extremity of Unalga Island, a group of rocks extend about 200 yards into Unalga Pass, and a rock about 4 feet high near the outer end of the group is conspicuous while entering the pass. The 4-foot rock should be given a berth of 300 yards.

(213) **Unalga Pass**, the narrowest of the three principally used passes in the east Aleutians, is about 1.3 miles wide in its narrowest part and, with the exception of rocks which make out a short distance from Unalaska and Unalga Islands, is free from dangers. The depths in Unalga Pass vary from 8 fathoms at the south end of the pass in about 53°56'16"N., 166°11'25"W., to over 50 fathoms.

(214) Under normal conditions the pass is not difficult to navigate as the current sets fair with the pass. In thick weather the shore of Unalga Island can be approached close enough to pick up an echo and followed through the pass. The soundings, especially in the south approaches, furnish numerous characteristic depths to assist a vessel, equipped with echo sounding apparatus, to determine its position. For these reasons, coupled with the fact that this pass has been thoroughly surveyed, it is believed that it has distinct advantages over Akutan Pass for vessels going north, especially in thick weather. However, under exceptional circumstances, currents and tide rips of unusual magnitude may be encountered, and treacherous seas, particularly in the narrow part of Unalga Pass, caused by wind opposing the current, often sweep a vessel without warning. These have caused severe damage and men have been washed overboard with resultant loss of life. There are temporary anchorages, easy of access, at either end of Unalga Pass where better conditions may be awaited.

(215) South of Unalga Pass, a belt of deep water leading into Beaver Inlet makes the approach to the pass on echo soundings comparatively easy; the 50-fathom curve can be followed along the east limit of the deep and the 100-fathom curve along the north limit. In the outer reaches of Beaver Inlet it has been found possible to catch a glimpse of the shore during the summer fogs. For this reason and because of ease of access, it can be recommended as good practice in thick weather to make the slight detour into the inlet to check the vessel's position before entering Unalga Pass. The currents in the entrance to Beaver Inlet generally do not exceed 2 knots.

(216) See the Tidal Current prediction service at *tidesandcurrents.noaa.gov* for specific information about times, directions, and velocities of the current at numerous locations throughout the area, including Unalga Pass. Links to a user guide for this service can be found in chapter 1 of this book.

(217) **Deep Bay**, indenting Unalaska Island on the north side of the entrance to Beaver Inlet, is protected on the northeast by rocks awash and small islets which make offshore about 0.3 mile; the ledge continues, totally submerged, 0.3 mile farther and terminates in a kelp-marked ¾-fathom rocky shoal that breaks in southeast weather. A kelp-marked 1¼-fathom rocky shoal is 0.3 mile off the bluff point on the southwest side of the entrance. Temporary anchorage in northwest weather can be found at the entrance to the small cove in the northwest corner of the bay, in 10 to 20 fathoms.

(218) Beaver Inlet is described later in this chapter.

(219) From the ledge marking the east part of Deep Bay, the shore extends northeast for 2 miles to Brundage Head. This stretch of shore has numerous rocks and islets that extend as much as 0.3 mile offshore, and strong currents are noticeable.

(220) **Brundage Head**, on the west side of the south entrance to Unalga Pass, has a knoll 192 feet high at its outer end. A pinnacle rock, 22 feet high and 300 yards east of the point, has deep water outside of it.

(221) **Fisherman Point**, about 1 mile northwest from Brundage Head, is 140 feet high. A reef, with several bare rocks about 15 feet high and marked by heavy kelp, extends over 400 yards north from the point. The shore between Fisherman Point and Brundage Head is fringed with rocks, but none extend more than about 300 yards into the pass.

(222) **English Bay**, on the west side of Fisherman Point, is a secure anchorage for small vessels. The west shore of the bay trends due south for about 2 miles to a low point, where it turns sharply west for 0.9 mile to the head of an arm about 0.3 mile wide. The most secure anchorage is in this narrow arm, southwest of the low point at the turn. The width of this anchorage between the 5-fathom curves is about 300 yards. Good anchorage with more swinging room can be found east of the low point in 8 to 10 fathoms, but a shoal area that extends 400 yards off the shore north of the point must be cleared.

(223) In entering English Bay, account must be taken of the strong currents in Unalga Pass: follow a midchannel course, giving the west shore a berth of at least 0.3 mile, and when heading into the arm at the head of the bay favor the south shore slightly. Good holding ground in 12 to 20 fathoms will be found near the entrance.

(224) From English Bay north, the Unalaska shore of Unalga Pass is much higher.

(225) **Erskine Point**, about 3 miles northwest of Fisherman Point, is the north extremity of a ridge 1,432 feet high. Along the shore from English Bay to Erskine Point are numerous rocks, but none are more than 250 yards off.

(226) **Lofty Mountain**, 2,284 feet high and 2.5 miles southwest from Erskine Point, is a symmetrically-shaped conical peak, the highest point in the vicinity. It is easily identified and, as it is often clear when surroundings are obscured, makes a valuable landmark.

(227)

Unalaska Island

(228) **Unalaska Island**, one of the larger of the Fox Islands that form the east group of the Aleutian Island chain, is about 67 miles in length along the axis of the chain. The island is mountainous, and during the greater part of the year the higher elevations are covered with snow. The irregular coastline is broken by three long deep bays; Beaver Inlet, Unalaska Bay and Makushin Bay; as well as by numerous smaller bays and coves. In general, the bays have deep water close to shore, sometimes too deep for convenient anchorage. Makushin Volcano, the highest point on the island, is near the northwest side and about 25 miles from the east end of the island. In clear weather the volcano is a prominent landmark for vessels bound to Dutch Harbor, in Unalaska Bay.

(229)

Naval Defensive Sea Area and Airspace Reservation

(230) Under the authority of Executive Orders 8680 of February 14, 1941, and 8729 of April 2, 1941, Unalaska Island is a designated Naval Defensive Sea Area and Airspace Reservation. Restrictions imposed under the authority of the above executive orders have been suspended subject to reinstatement without notice at any time that the interests of national defense may require such action.

(231)

Kalekta Bay to Summer Bay

(232) **Kalekta Bay** is a broad, open bay in the north end of Unalaska Island just east of Unalaska Bay. An obstruction, covered 11 feet, is reported to be 800 yards off the west shore of the bay in about 53°59'N., 166°21'W. There are no other known dangers over 400 yards from shore. There are a number of places where a vessel may anchor, but as this bay is open north, English Bay and Dutch Harbor are recommended. A pinnacle rock is off Erskine Point, the east point at the entrance, somewhat similar to Priest Rock off Cape Kalekta, but the rock off Erskine Point is distinguished by a smaller one between it and the point. On the west side of Kalekta Bay, 1.8 miles in from Cape Kalekta, is a narrow pinnacle rock 45 feet high, 100 yards offshore.

(233) On the west side of Kalekta Bay, 3 miles south from Cape Kalekta, a gap cuts through to Constantine Bay in a west-southwest direction. This gap is filled by a lagoon not connected with either bay. A reef extends 400 yards offshore just south of this gap. Anchorage may be found in the south end of the bay 0.5 mile from shore in 12 to 20 fathoms, sandy bottom. Small craft may find anchorage in the center of the small bight 0.5 mile in diameter on the east side of the bay, 1 mile in from Erskine Point, in 5 fathoms, rocky bottom. The holding ground is poor and this bight is not recommended for anchorage except in emergency.

(234) **Unalaska Bay** opens into the Bering Sea between Cape Kalekta and Cape Cheerful when on the north side of Unalaska Island. The bay has little commerce except for diesel oil and supplies for the local village of Unalaska. The shores of the bay are in general mountainous, with precipitous sea faces. Amaknak Island is near the south end of the bay. West of the island the water is deep, but there is no good harbor in this part of the bay; east of the island are the important harbors and anchorages of Iliuliuk Bay, Dutch Harbor and Iliuliuk Harbor. The channel to Iliuliuk Bay and Dutch Harbor is free from dangers, except along the shores. Iliuliuk Harbor is obstructed at its entrance by ledges, but with the aid of the buoys, it is not difficult to enter with a vessel under 250 feet in length.

(235) Unalaska Bay is open to navigation at all seasons. It is reported that on two occasions the drift ice of Bering Sea entered Unalaska Bay, but such an occurrence is so rare that it need not be considered. Ice often forms in the sheltered coves and harbors in cold, calm weather, but it never attains any thickness or interferes with navigation.

(236)

Prominent features

(237) Makushin Volcano, 6,680 feet high, is the highest point on Unalaska Island. The volcano can generally be seen in clear weather. Table Top Mountain, 2,710 feet high, back of Cape Cheerful, and the crater of an extinct volcano with three points, the highest being 2,293 feet, west of Eider Point, are distinctive. Either peak may be used as a leading mark in approaching Cape Cheerful until close enough to distinguish the surrounding features; however, the crater west of Eider Point can be used only when it is not obstructed from view by the higher elevations northwest of it. On getting close to the island, when the fog hangs over the land but leaves a clear space just along the water's edge, Wislow Island forms a good mark. It is in a small bay about 2 miles west of Cape Cheerful; is a small, rounded island, regular in shape; and stands far enough from the land to be seen as not a part of the main island. West, under similar conditions, Koriga Point can be seen at times. The land slopes gently to the point from Makushin Volcano and ends in a small peak-like formation. From east the cascade southeast of Cape Cheerful is also useful as a mark, particularly in low visibility. Strangers, when in the vicinity and uncertain of the identity of the bay and its landmarks, should endeavor to pick out Ulakta Head. Looking into the bay, its flat top breaking off abruptly to sloping sides presents an appearance unlike any other in the vicinity and shows up well against the background of mountains. When sighted, steer for it, leave it on the starboard hand, and follow around, keeping out of kelp.

(238) **Chelan Bank**, the extensive 45-fathom bank that extends about 7 miles northeast from the vicinity of Cape Cheerful, may be found useful in fixing the position of a vessel by soundings. The bottom on the bank is composed of black sand and gravel; on the shelving areas the bottom

is of gray sand and gravel up to about the 80-fathom depth. Chelan Bank, at its northeast end, almost makes a junction with a similar bank that extends north and west from Cape Kalekta, the two banks practically enclosing Unalaska Bay. A light tide rip occurs along the outer edge of Chelan Bank.

(239) **Caution**

(240) A former 1947 Ordnance Disposal Area containing unexploded ordnance is located approximately 12 miles north of Reese Bay, Unalaska Island at about 54°11'N., 166°41'W. Unexploded ordnance has been brought forth within fishing nets approximately 6.5 miles north of Cape Cheerful at approximately 54°06.5'N., 166°38.0"W. The unexploded ordnance are potentially hazardous and mariners are advised against anchoring, dredging, or trawling in this area due to their presence.

(241)

Routes

(242) **Routes, Unalaska Bay**.–When bound for the bay from any part of Bering Sea, it is recommended to shape the course for Cape Cheerful. In thick weather it is better to fall west of Cape Cheerful and then round it than to fall to the east, with the possibility of being carried by currents into the dangerous regions of the passes.

(243) **Cape Kalekta** is the headland at the east side of the entrance to Unalaska Bay. The headland has two summits 785 and 904 feet high, and a ridge, which sags to about 700 feet, connects the headland with the mountains to the south. The rounded extremity of the cape is the base of the slope from the lesser summit. When viewed sidewise, this slope, which forms the end of the headland, is rounded in outline, rising precipitously at the water's edge and then bending gradually to meet the lesser summit.

(244) The 904-foot summit is very close to the west side of the cape. It is predominant, being the highest point on the headland. Viewing the cape from either side, this summit has somewhat the shape of a crown. When off the extremity of the cape it appears as a sharp peak, and the outline of a spur along the west descent becomes visible. This spur is composed of the massive protuberances, the most prominent of which takes the shape of a vertical shaft of rock rising above the level of the top of Priest Rock.

(245) Cape Kalekta is rugged and precipitous at its extremity and particularly so on its west side. The headland rises almost vertically at the waterline, with a few detached rocks including Priest Rock but no beaches. The area about the extremity is foul and marked by kelp, and a dangerous ledge that uncovers 1 foot, usually marked by breakers, is nearly 0.4 mile north from the cape. The ledge is roughly in line with the pinnacle of Priest Rock and the west parts of the low islets north of Priest Rock. Broken bottom extends about 200 yards farther out. The north end of the cape should be given a berth of at least 1.2 miles to avoid being carried toward the dangers by strong currents. There are pronounced tide rips.

(246) **Priest Rock**, close-to, off the north side of Cape Kalekta, is a pinnacle 204 feet high. It is one of the most important landmarks in making Unalaska. Priest Rock should not be confused with the pinnacle rock off Erskine Point. Two low rocky islets of appreciable area are north of Priest Rock.

(247) The cascade south of Cape Cheerful is visible off Cape Kalekta.

(248) The point on the east shore of Unalaska Bay, about 1.4 miles south of Priest Rock, presents a smooth, rounded profile and is grass covered. The shore on either side of the point has little or no irregularity. The land about the point rises somewhat abruptly at the shore to about 150 feet, then rounds to assume a more or less flat area. This area has a gentle slope toward the steeper slopes leading up to a series of jagged peaks 0.5 mile inland from the point. The peaks have no particular distinctiveness. The 10-fathom depth curve is almost 0.5 mile off the point and broken bottom with a 1½-fathom spot is inside the curve.

(249) **Princess Head**, on the east side of Unalaska Bay, about 1.9 miles southwest of Priest Rock, is a wall-like rock formation that extends out for 200 yards from the shore cliff of that locality. The outer 200-foot length forms the highest part or head of the feature. The head has a fairly level top 214 feet high. The side facing the southwest presents the surface of a rough square, distinguished from the remainder of the rock formation by its lighter shade. Small knobs on the top of the head mark the upper corners of the square. The head is an important and distinctive landmark, especially when in close to the east shore of Unalaska Bay, in thick weather or when fog closes out the peaks. Two low detached rocks are off the end of Princess Head.

(250) The rounded shore in the vicinity of Princess Head is the base of a mountain rising to a peak 1,729 feet high. The south slope of this mountain descends gradually to the lagoon in a low gap which bisects Cape Kalekta peninsula. The point on the rounded shore is a spur from the base of the mountain. The spur parallels Princess Head and is 0.3 mile southwest of it. A smaller projection from the shore is close north of the point. A group of bare rocks are off the point; about 100 yards off the outer one of this group is a rock that uncovers 2 feet.

(251) **Constantine Bay**, on the east side of Unalaska Bay, has shoal and irregular depths, less than 10 fathoms, and its use as an anchorage, except by small craft under favorable conditions, is not recommended. The shore at the head of the bay is sandy. The southwest shore is fringed with rocky ledges. On the east side of the bay is a gap in the land that extends east-northeast to Kalekta Bay. This gap is filled with a lagoon which is not connected with either bay.

(252) The headland west of Constantine Bay is rugged and precipitous and the area near and around its extremity is foul with rocks and kelp. The bluffs along the 1.5-mile stretch of shore south of the extremity, facing Unalaska Bay, are especially high. They are very rugged and have gray, rocky knobs and deep vertical scars, giving the

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appearance of vertical stratification. **Split Top Mountain** marks the south end of this formation; the bluffs rise to more than 1,600 feet near the peak.

(253) **Summer Bay**, a wide opening in the east shore of Unalaska Bay, opposite Ulakta Head, is composed of several coves, the heads of which are low and sandy. **Morris Cove**, on the east side just north of a prominent headland, has depths less than 4 fathoms, and the bottom is somewhat irregular. In the small cove between the south cove and the headland, the depths decrease uniformly from 4 fathoms in midchannel to the sand shore at the head. The depths in the south cove are shallow and irregular.

(254)

Second Priest Rock to Iliuliuk Harbor

(255) **Second Priest Rock**, a pinnacle 75 feet high, is close to the north side of the headland between Summer and Iliuliuk Bays. The pinnacle stands on the reef bordering the shore of the headland. A dangerous rocky shoal extends 0.2 mile north from the headland.

(256) **Ulakta Head**, the north end of **Amaknak Island**, is about 900 feet high. It has a flat top, and in clear weather it is one of the best landmarks for fixing the position of Unalaska Bay. Looking into the bay, its flat top, breaking off abruptly to sloping sides, presents an appearance unlike any other in the vicinity and shows up well against the background of mountains. From its northwest point a reef extends 0.1 mile, marked by **Needle Rock**, similar in appearance to Priest Rock, but not so large.

(257) **Ulakta Head Light** (53°55'27"N., 166°30'32"W.), 61 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on the reef bordering the northeast side of Ulakta Head. A pinnacle rock, 30 feet high, adjacent to the shore, is about 50 yards west of the light. Another rock, 20 feet high, is 75 yards northwest of the light.

(258) **Mount Ballyhoo**, 1,589 feet high, dominates Amaknak Island.

(259) **Iliuliuk Bay** has its north entrance between Ulakta Head and Second Priest Rock. The entrance is marked by a lighted bell buoy. North of Spithead is a covered ridge that extends across the bay with at least 6 to 7 fathoms near the middle of the bay; kelp has been seen on this ridge in about midchannel. South of this ridge the depths increase to 18 fathoms. There is anchorage almost anywhere in the bay. The usual anchorage is at the head, off shore from the APL container facility, in 14 to 16 fathoms, muddy bottom, where, even with north winds, the force of the sea does not seem to reach. In severe weather, anchorage in Iliuliuk Bay is subject to restrictions. Vessel operators are encouraged to contact the Port of Dutch Harbor at 907–581–1254.

(260) **Caution** - Unexploded ordnance has been observed within nearshore waters of southeast Iliuliuk Bay,

adjacent to the Dutch Harbor Landfill. The unexploded ordnance are potentially hazardous and mariners are advised against anchoring, dredging, or trawling within nearshore waters of southeast Iliuliuk Bay, adjacent to the Dutch Harbor Landfill due to their presence.

(261) At the head of Iliuliuk Bay, behind the town of Unalaska, is a ravine or break in the mountains that extends through to the water southwest. This is sometimes useful as a guide in entering the bay. Buildings at Unalaska, on the lowland at the head of the bay, are prominent.

(262) **Spithead** is the end of the long, low sandspit that forms the east side of Dutch Harbor. **Spithead Light** (53°53'51"N., 166°30'56"W.), 38 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on the south end of the spit. Shoal water, less than 6 fathoms, marked prominently by kelp, extends 0.3 mile into Iliuliuk Bay from the middle part of the sandspit.

(263) The west shore of Iliuliuk Bay south of the sandspit is fringed with rocks and should not be approached closer than 0.3 mile.

(264) **Rocky Point** has a kelp-marked reef that extends 400 yards toward Spithead; the outer limit is marked by a lighted buoy. Along the east side of Rocky Point the reef is extensive; the 10-fathom curve, which marks the outer limit of broken bottom in this part of Iliuliuk Bay, roughly parallels the side of the point at a distance of nearly 400 yards.

(265) A signal station and six oil storage tanks are on the hillcrest west of Rocky Point. Eight additional tanks are 0.1 mile south of Rocky Point.

(266) **Dutch Harbor**, on the west side of Iliuliuk Bay, has its entrance between Spithead and Rocky Point. The water is deep close to the shores and in all parts of the harbor except off Rocky Point. The entrance is about 0.5 mile wide and 12 to 18 fathoms deep.

(267) **Caution** - Unexploded ordnance may be present within the nearshore waters of southwest Dutch Harbor near Rocky Point. The unexploded ordnance are potentially hazardous and mariners are advised against anchoring, dredging, or trawling within Dutch Harbor due to their potential presence.

(269) Anchorage may be had within the harbor in 13 to 18 fathoms. Violent williwaws are experienced during gales, especially from the southwest, and the best shelter will be found under the high part of the island well north of the entrance. Southwest gales practically have a clear sweep across the entrance because of the lowland west. Vessels forced to moor at Delta Western, Dutch Harbor Terminal Wharf during the early spring and fall will find it necessary to use chains and wire cables in addition to mooring lines during the severe gales. Vessel operators are encouraged to contact the Port of Dutch Harbor at 907–581–1254 and consult the **Severe Storm Plan** found at the Marine Exchange of Alaska website at *www.mxak.org*.

(270)

Wharves

(271) Numerous wharves, piers and docks are at Amaknak and Unalaska Islands.

(272) **Delta Western, Dutch Harbor Terminal Wharf** (53°53'29"N., 166°32'04"W.): a T-head pier about 0.3 mile northwest of Rocky Point; 425-foot face; 35 to 50 feet alongside; deck height, 18 feet; pipelines extend from wharf to storage tanks in rear, total capacity of 187,650 barrels; receipt and shipment of petroleum products; and fueling vessels; owned and operated by Delta Western, Inc.

(273) Large vessels berthing at this pier should drop anchor well offshore and warp in to enable them to get away at once in case of a sudden onshore wind.

(274) **City of Unalaska, Marine Center Wharf (City Dock)** (53°54'06"N., 166°31'47"W.): 0.7 mile north-northeast of Delta Western, Dutch Harbor Terminal Wharf; 690-foot face, 2,150 feet total berthing space with dolphins; 40 feet alongside; deck height, 18 feet; 6,000 feet of covered storage area; open storage area for 1,500 containers; receipt and shipment of containerized general cargo; landing for passenger-and-vehicular ferry; and fueling vessels; owned by City of Unalaska and operated by various operators.

(275) **City of Unalaska, Ballyhoo Wharf** (53°54'09"N., 166°31'41"W.): across from Spithead; 231-foot face; 40 feet alongside; deck height, 18 feet; receipt and shipment of conventional general cargo; handling supplies and equipment for fishing vessels; and fueling vessels; owned by City of Unalaska and operated by City of Unalaska and North Pacific Fuel.

(276) **North Pacific Fuel, Dutch Harbor Ballyhoo Wharf** (53°54'11"N., 166°31'39"W.): across from Spithead; 156-foot face; 42 to 45 feet alongside; deck height, 18 feet; receipt of petroleum products; and fueling vessels; owned by City of Unalaska and operated by North Pacific Fuel.

(277) **City of Unalaska, International Port of Dutch Harbor, UMC USCG Wharf (Coast Guard Dock)** (53°54'16"N., 166°31'34"W.): across from Spithead; 526-foot face; 626 feet total berthing space with dolphins; 25 feet alongside; deck height, 18 feet; mooring U.S. Coast Guard vessels; and fueling vessels; owned by City of Unalaska and operated by U.S. Coast Guard, State of Alaska, and North Pacific Fuel.

(278) **Kloosterboer, Dutch Harbor Wharf** (53°54'36"N., 166°30'46"W.): near the head of Dutch Harbor; 660-foot face; 660 feet total berthing space; 30 feet alongside; deck height, 16 feet; receipt and shipment of frozen cargo; handling supplies and equipment for fishing vessels; owned by Kloosterboer Dutch Harbor LLC, and operated by Kloosterboer Dutch Harbor LLC.

(279) **North Pacific Fuel, Dutch Harbor Resort Wharf** (53°54'41"N., 166°30'40"W.): near head of Dutch Harbor; 285-foot face; 25 feet alongside; deck height, 16 feet; receipt of petroleum products; and fueling vessels;

owned by Western Pioneer, Inc. and operated by North Pacific Fuel.

(280) **Trident Seafoods Corp., Dutch Harbor Wharf** (53°54'44"N., 166°30'32"W.): near head of Dutch Harbor; 450-foot face; 20 feet alongside; deck height, 16 feet; handling supplies and equipment for fishing vessels; and fueling vessels; owned by Western Pioneer, Inc. and operated by Trident Seafoods and North Pacific Fuel.

(281) **Icicle Seafoods, Dutch Harbor Docks** (53°54'15"N., 166°30'25"W.): two parallel, opposite-hand, L-shaped piers at the head of Dutch Harbor; 20 feet alongside; deck height, 16 feet; receipt of seafood; and handling supplies and equipment for fishing vessels; owned by Ounalashka Corp. and operated by Icicle Seafoods, Inc.

(282) **City of Unalaska, Light Cargo Dock** (53°54'28"N., 166°30'33"W.): 0.7 mile north of Spithead; 150-foot face; 395 feet total berthing space with bollards; 25 feet alongside; deck height, 20 feet; handling supplies and equipment for fishing vessels; owned and operated by City of Unalaska.

(283) **City of Unalaska, Spit Dock** (53°54'17"N., 166°30'42"W.): 0.45 mile north of Spithead; 980-foot face; 1,975 feet total berthing space; 50 feet alongside; deck height, 12 feet; mooring commercial vessels, fishing vessels and barges; owned and operated by City of Unalaska.

(284) **APL Limited, Dutch Harbor Wharf** (53°53'00"N., 166°31'52"W.): 0.35 mile southwest of Rocky Point; 538-foot face, 1,050 feet total berthing space; 45 feet alongside; deck height,12 feet; cranes to 40 tons; open storage area for 1,000 containers; receipt and shipment of containerized and conventional general cargo; and fueling vessels; owned by Dutch Harbor Development Corp. and operated by APL Limited and Delta Western, Inc.

(285) Immediately south of the container pier and fronting Iliuliuk Bay are the ruins of another oil pier; submerged piles and broken dolphins may exist.

(286)

Pilotage, Dutch Harbor

(287) Pilotage, except for certain exempted vessels, is compulsory for all vessels navigating the waters of the State of Alaska.

(288) The Aleutian Islands are served by the Alaska Marine Pilots. (See **Pilotage, General** (indexed), chapter 3, for the pilot pickup stations and other details.)

(289) Dutch Harbor is a **customs station.**

(290) An **Immigration and Naturalization Service** office is located in Dutch Harbor. (See chapter 3, Vessel Arrival Inspections, and Appendix A for address.)

(291)

Supplies

(292) Provisions and fuel are available in Unalaska and Dutch Harbor.

(293)

Repairs

(294) In Dutch Harbor, a marine repair plant on two permanently moored barges is located north of the Coast Guard Dock with cranes up to 70 tons.

(295)

Communication

(296) Passengers, freight, and mail for Dutch Harbor are handled by air. Dutch harbor has regular airline service year round. Telephone service is available. The Dutch Harbor marine operator monitors VHF-FM channel 16 or 14.

(297) An outpatient clinic in Dutch Harbor has two physician's assistants on call 24 hours a day. The clinic monitors 4125 kHz during working hours and may also be reached through the Unalaska Police Department on VHF-FM channel 16.

(298) **Unalaska** is on a low strip of land between the shore at the head of Iliuliuk Bay and a stream that empties into Iliuliuk Harbor. The wharf is at the west end of the strip of lowland. The north side of the wharf faces the passage connecting the bay and harbor and the west side faces the harbor. The channel approach to the passage is endangered by Iliuliuk Reef, which is off the town in Iliuliuk Bay.

(299) Unalaska is the largest settlement in the Aleutian Islands. The original Russian settlement was known as Iliuliuk. The principal sources of income are fishing and seasonal employment in the Pribilof Islands. Unalaska has a public grade and high school and a general store.

(300) A radio station is at Unalaska. Telephone service is available as well as cellular phone service for some carriers although coverage may be intermittent. Internet service is also available, however speeds are limited. Passengers, freight and mail for Unalaska are handled by air.

(301) **Iliuliuk Reef** is a ledge extending 250 yards in an east-west direction due north of **East Channel** leading into **Iliulik Harbor**. The reef bares in places, and from the east dry rocks, a ledge covered 12 to 15 feet and marked by kelp, extends 100 yards south. A lighted buoy, due south of the reef, marks the approximate west extent of the reef.

(302) **East Channel**, connecting Iliuliuk Bay and Harbor, is dredged and marked by lighted buoys at the southeast end and a buoy on the north edge near Iliuliuk Reef. **South Channel**, connecting Iliuliuk Harbor and Captains Bay, is marked by daybeacons. A fixed highway bridge with a clearance of 20 feet crosses South Channel about 300 yards south-southeast of Expedition Island.

(303) The channel north of Iliuliuk Reef should not be attempted without local knowledge.

(304) **Iliuliuk Harbor**, the harbor for Unalaska, may be entered through East Channel from Iliuliuk Bay or through South Channel from Captains Bay. The latter channel carries the greater depth and is the most easily

navigated during north weather. The distance through East Channel is shorter for vessels from Dutch Harbor or the Bering Sea, but South Channel is nearer for vessels from Captains Bay. Iliuliuk Harbor is small but landlocked with good holding ground and has general depths of 5 to 9 fathoms. There is sufficient room for backing and filling in turning a moderate-sized ship. Violent williwaws are experienced with south gales. Vessels under 200 feet in length have ridden out gales here, but the short scope of chain allowable usually causes the anchor to drag. Because of the limited swinging room, an anchorage in Dutch Harbor or Unalaska Bay is recommended during severe weather. During the fishing season, the harbor entrances become highly congested with fishing vessels, and caution should be exercised when entering or leaving.

(305) Seafood processing facilities are along the shores of Iliuliuk Harbor.

(306) **Expedition Island** is a small peninsula in the south part of Iliuliuk Harbor. On the peninsula is a small grove of evergreens. The trees are from Sitka and were transplanted in 1805 by a Russian Orthodox priest. A similar grove is near the old Indian village of Amaknak. The trees are 25 feet in height and their number apparently has not increased. A small-craft facility operated by the city of Unalaska is along the south side of the peninsula.

(307) **Bailey Ledge**, near midchannel at the south end of the passage leading from Captains Bay to Iliuliuk Harbor, is of small extent, steep-to, and marked by a light with a red and white daymark. Only a small amount of kelp marks this ledge, which uncovers 2 feet.

(308) **South Amaknak Rocks** is in a foul area that extends from the south extremity of Amaknak Island. The smaller 15-foot rock near the south edge of the foul ground is about 250 yards southeast of the larger 30-foot rock. A deepwater channel is located between the lighted buoy marking this group of rocks and Bailey Ledge and also about 350 yards east of the easternmost South Amaknak Rock, thence deep water may be carried to the south entrance of Iliuliuk Harbor by favoring midchannel.

(309)

Captains Bay to Nateekin Bay

(310) **Captains Bay** is the arm at the head of Unalaska Bay. Its entrance from Unalaska Bay direct is west of Amaknak Island. The bay is also entered, as previously indicated, by passing east of Amaknak Island through Iliuliuk Harbor and through the channel leading south from the harbor.

(311) The entrance to Captains Bay west of Amaknak Island is marked by **Arch Rock Light 3A** (53°52’36”N., 166°34’01”W.),15 feet high, adjacent to the point 0.8 mile from the south extremity of the island. Directly opposite Arch Rock is a bold point marking the west side of the entrance. A reef extends 220 yards channelward from the bold point, and from the reef a bar of 5 to 8 fathoms extends to a point nearly three-quarters of the distance across the entrance toward Arch Rock. Large vessels in entering should pass about 100 to 200 yards off Arch Rock as the deepwater channel will be found at those distances.

(312)

Wharves

(313) Numerous wharves, piers, and docks are on the east side of Captain’s Bay. Many of the seafood industry facilities are not listed.

(314) **Westward Seafoods, Unalaska Dock** (53°51'27"N., 163°33'20"W.): about 1.0 mile south of Unalaska-Amaknak Island Bridge; 800-foot face; 35 to 45 feet alongside; deck height, 15 feet; 1,110 feet total berthing space; receipt of seafood and petroleum products; handling supplies and equipment for fishing vessels; and fueling vessels; owned by Westward Seafoods, Inc. and operated by Westward Seafoods, Inc. and North Pacific Fuel.

(315) **North Pacific Fuel, Captain’s Bay Terminal Wharf** (53°51'05"N., 163°34'24"W.): about 1.5 miles south of Arch Rock Light 3A; 507-foot face, 43 to 60 feet alongside; deck height, 12 feet; 617 feet total berthing space; receipt and shipment of conventional general cargo; receipt of seafood and petroleum products, handling supplies and equipment for fishing vessels; and fueling vessel; owned by Crowley Marine Services, Inc. and operated by North Pacific Fuel and Crowley Marine Services, Inc. In 1982, unexploded ordnance was reported about 40 feet seaward of the wharf; vessels are advised not to use anchors in this area.

(316) **Northland Service, Dutch Harbor Wharf** (53°50'34"N., 165°34'53"W.): about 0.6 mile south of Captain’s Bay Terminal Wharf; 200-foot face; 30 feet alongside; deck height, 15 feet; 360 feet total berthing space; receipt and shipment of conventional and roll-on/roll-off general cargo and seafood; handling supplies and equipment for fishing vessels; owned by Offshore Systems, Inc. and operated by Northland Services, Inc.

(317)

Anchorages

(318) Anchorage may be had in 17 to 20 fathoms, even bottom of mud and sand, about 0.4 mile east of the northernmost island of the group at the head of Captains Bay. In approaching this anchorage favor the east shore to avoid **Swallow Reef** and the shoal to the south, which is northeast and east of the northernmost island. A lighted buoy is on the east side of Swallow Reef. Small craft may obtain secure shelter in 9 fathoms, sand and mud bottom, at **Port Levashef**, east of the most south of the larger islands.

(319) **Hog Island**, 300 feet high, is off the west side of Amaknak Island in Unalaska Bay. Foul ground, marked by a lighted buoy, extends nearly 0.5 mile north of Hog Island. The reef that extends 0.3 mile from the north point, a part of the foul ground, has numerous rock ledges jutting up from the rocky bottom. Clear passage exists between Hog Island and Amaknak Island. Favor Amaknak Island to avoid a 2¾ fathom shoal that is foul with kelp, 450

yards northeast of the south end of Hog Island, and a 3¾ fathom shoal that is 550 yards east-southeast of the south end of Hog Island. Additionally, a 5-fathom shoal exists 850 yards east-southeast of the south end of Hog Island. A large, thick kelp patch, marked by a lighted buoy on its southwest end, is south of Hog Island and should be avoided.

(320)

Caution

(321) Mariners are advised that low-flying aircraft may be present over Hog Island Channel in the vicinity of Dutch Harbor Airport. The Federal Aviation Administration (FAA) has requested that vessels transit with caution and not anchor within the area.

(322) **Nateekin Bay**, on the southwest side of Unalaska Bay, affords good anchorage, except for northeast winds, for small craft in 3 to 4 fathoms, 490 yards east of the head of the middle bight on the northwest shore. A shoal area covered 1 fathom is southeast of this anchorage.

(323)

Broad Bay to Eider Point

(324) **Broad Bay**, a bight in the west shore of Unalaska Bay 2.5 miles south of Eider Point, affords fair anchorage in 25 fathoms, sandy bottom, 0.5 mile offshore. The anchorage is exposed to northeast weather.

(325) **Wide Bay**, 1.2 miles southwest of Eider Point, also affords fair anchorage in 25 fathoms, mud and sand bottom, 1 mile from the west head of the bight.

(326) **Makushin Valley**, which borders on Broad Bay, is flat, covered with grass and about 15 feet above high water. A sizable stream courses through the valley. The shore along Broad Bay is composed of very coarse sand. A similar valley and shore are found at Wide Bay. The cascade just north of Broad Bay can be seen only in the restricted area to the southeast.

(327) **Eider Point** is at the south end of a rocky bluff-formation of great height that characterizes the coast for several miles along the west side of the entrance to Unalaska Bay. In places along this shore there are massive accumulations of loose rock and earth lying at the base of the bluffs, formed by slides. These accumulations are bordered by flat, smooth, sandy bottom stretches. The bluffs are of horizontal strata and like those about Cape Cheerful have a distinct reddish hue. Eider Point is a comparatively low projection pointing south, and from it a narrow reef extends in the same direction for 0.6 mile into Unalaska Bay and is marked at the southern extent by a lighted buoy. The reef uncovers 2 to 4 feet and usually breaks at high tide but not generally along its outer limit. Although deep water can be carried from seaward to the vicinity of the end of the reef, Eider Point should be given a berth of at least 1 mile when passing south of it.

(328) **Caution** - Unexploded ordnance has been reported along the nearshore waters of Eider Point. The unexploded ordnance are potentially hazardous and mariners are advised against anchoring, dredging, or trawling near Eider Point due to their presence.

(329) A 133-foot-high cascade, 1.5 miles north of Eider Point, is the most distinguishable feature between the point and Cape Cheerful. It is an excellent landmark during a low-ceiling fog when only the lower part of the cascade can be seen. The bluff at the cascade has a remarkably smooth, stratified face, up to an elevation of about 100 feet, where it forms a distinct horizontal line directly above which the upper strata have very irregular surfaces and appear to overhang in places. The cascade emerges from a slight depression at the top to form a comparatively narrow white waterfall to a sea level bench at the foot of the bluff. On either side of the cascade are rockslide and earthslide accumulations.

(330)

Cape Cheerful to Cape Kovrizhka

(331) **Cape Cheerful**, on the north coast of Unalaska Island just west of Unalaska Bay, consists of a main and secondary headland about 1 mile apart, the two headlands being separated by a low grassy valley emerging on the coast. The valley is flat at the base and resembles an amphitheater; it is called The Dry Dock.

(332) The main headland is the west of the two and is adjacent to Reese Bay; it projects farther to seaward and is marked by a peak 1,808 feet high. The peak is close to the extremity of the headland and dominates the end of the cape from most directions of approach. It may, however, merge with the higher elevations back of the secondary headland or be shut out by them when the peak and higher elevations are on range.

(333) **Caution** - Unexploded ordnance has been brought forth within fishing nets at a location approximately 6.5 miles north of Cape Cheerful in the vicinity of 54°06.5'N., 166°38.0'W. The unexploded ordnance are potentially hazardous and mariners are advised against anchoring, dredging, or trawling in this area due to their presence.

(334) **Table Top Mountain**, 2,710 feet high, is the highest summit back of Cape Cheerful, but there are several peaks to the east of it approaching this elevation. The west slope of this mountain descends to the deep valley that extends inland from Reese Bay. The mountain has a wide flat top.

(335) The bluffs about Cape Cheerful present a rugged and almost vertical appearance and rise to 1,000 feet. They are of horizontal strata and have a distinct reddish hue. Large slides of loose rock at the waterline can be seen along the cape. The area outside the base of the bluffs that is at or near the high-water line is very rocky and strewn with boulders. Foul ground extends several hundred yards off the extremity of the secondary headland and its northeast side. Depths of over 20 fathoms are found 0.5 mile off Cape Cheerful.

(336) The currents apparently meet in the vicinity of Cape Cheerful, the flood setting northwest from Unalga Pass and northeast from Point Kadin, creating eddies that set

toward the shore. In rough weather the seas are apparently accentuated in the vicinity of the cape, and it is therefore advisable to give it a wide berth under such conditions.

(337) **Reese Bay**, a cove between Cape Cheerful and Cape Wislow, is about 1 mile wide at the head, which consists of a low, narrow strip of sand with some marsh grass. It indents the shoreline about 1 mile but appears larger because of the pronounced valley or mountain gap that extends inland from the coarse sand beach at the head of the cove. It is a long flat, covered with grass, partly filled by **McLees Lake** and flanked by the side slopes of ridges that terminate at each cape. **Wislow Island** is in the middle of Reese Bay and, although rocky, appears regularly rounded in shape. It is 121 feet high, and the top is grass covered. Wislow Island stands out prominently against the low background and is a good landmark during low visibility. Anchorage in 14 fathoms may be found 0.5 mile northeast from Wislow Island, with some shelter from southeast weather. There are depths of 2 to 3 fathoms south of Wislow Island but no shelter in north weather, and the shape of the bay apparently concentrates the effect of any north swell so that it breaks well off the shore at the head of the bay.

(338) The channel west of Wislow Island is blocked by a detached, rocky shoal, marked by kelp, with a depth of 1¼ fathoms, lying 350 yards west from the south end of Wislow Island.

(339) **Cape Wislow**, 2.5 miles west of Cape Cheerful, is dominated by **Mount Marshall Reese**, 2,545 feet high. This peak is at the north end of the long ridge that parallels the low valley that extends inland from Reese Bay. The land slopes gradually and evenly from Mount Marshall Reese to the end of Cape Wislow where it terminates in a bluff about 600 feet high.

(340) Southwest of Cape Wislow, about 1 and 3 miles, respectively, are two remarkable rocky cliffs about 2,000 feet high. They appear as equilateral triangles from the northwest. A small triangular bluff, 560 feet high, is between them. Several large waterfalls emerge from the gullies between these bluffs; the most prominent of the waterfalls is about 1.7 miles west of Cape Wislow. Emerging from a V-shaped gully, the water makes a vertical drop of 139 feet to the high-water line. Being a spray of white foamy water, it is visible against the dark rocky cliff for some distance and makes a good landmark when viewed from the northeast.

(341) **Irishmans Hat**, a square tower rock 85 feet high, is about 0.2 mile offshore from the foot of the west cliff 3 miles southwest of Cape Wislow. This rock can seldom be identified from any direction except north, where it shows clear of the land. Irishmans Hat is surrounded by a kelp-covered reef.

(342) **Driftwood Bay**, just west of Irishmans Hat and about 6 miles west from Cape Cheerful, is an open bight, with a sand and gravel beach at its head. The lowland inshore from the bay is a large, swampy valley covered with marsh grass. The lowland to the south, separating the mountainous mass of Makushin Volcano from the highland in the vicinity of Mount Marshall Reese, often can be recognized from offshore when the mountains are in clouds.

(343) Anchorage with some shelter from southwest and southeast weather can be found in 11 fathoms 0.5 mile from the west shore, with Point Tebenkof bearing about **275°**. The depths shoal rapidly towards the head of the bay, and depths of 3 fathoms and less are found 600 yards offshore near the southeast part of the bay.

(344) **Point Tebenkof**, the west point of Driftwood Bay, is probably the most readily identifiable of any of the points along this stretch of coast, especially from the southwest. The point terminates in a grassy bluff 800 to 1,000 feet high that overlooks the points to the southwest.

(345) From Point Tebenkof the land rises gradually and evenly to a flat-topped peak or ridge 3,505 feet high, 2.8 miles inland. From the southwest this ridge is seen on the skyline as a straight line slightly inclined to the horizon and terminating at the inshore end in a smoothly rounded peak that is a spur from the higher land about Makushin Volcano.

(346) **Red Cinder Dome**, 1,874 feet high, is 1.1 miles south of Point Tebenkof and to the east of the ridge. This crater peak shows over the ridge to the west as a flat-topped hump appearing as a part of this ridge. It is a useful landmark because it is often clear when all other peaks are obscured. It can be identified readily from northeast as it shows clear over the lower land at the head of Driftwood Bay, while all other points and landmarks merge with the higher land in the background.

(347) Point Tebenkof should be given a berth of at least 0.5 mile. Two rocks awash at high water are 200 yards offshore about 0.4 mile west of the point, and a 2¼-fathoms shoal, marked by heavy kelp, is 375 yards offshore, outside of the rocks awash.

(348) A large slide 1.3 miles west of Point Tebenkof may be identified under certain conditions of light. The bare place has the shape of an enormous keyhole, about 600 feet high.

(349) **Bishop Point** is a level tablelike projection, 254 feet high, about 3 miles southwest from Point Tebenkof. It terminates in a pinnacle 102 feet high. A deep gorge extends 3.5 miles south from the point. Cascades are visible in summer high up on the walls of this gorge.

(350) Temporary anchorage in south weather may be found 0.4 mile from shore in about 16 fathoms 1 mile east-northeast from Bishop Point or 0.5 mile west-southwest from it.

(351) Two large waterfalls, one of which is divided into two cascades about 100 feet high, are 1.6 miles southwest from Bishop Point and are visible to the north and northeast.

(352) **Koriga Point**, 5 miles southwest of Point Tebenkof, is about 140 feet high and is difficult to distinguish except from the southwest. There are a number of rocky islets close to shore east and west of the point. Deep water, 40 fathoms, is found within 0.3 mile of the point.

(353) A round hill, 320 feet high, is about 0.8 mile southwest of Koriga Point and can be identified from the southwest when it is clear of Point Tebenkof but is difficult to distinguish when seen against the higher land.

(354) The shore southwest of Koriga Point is composed of rocky bluffs 100 to 300 feet high. A small cove with a sandy beach, 1.8 miles southwest of the point, has depths of less than 5 fathoms, and the east part of the cove is obstructed by rocks and kelp.

(355) **Point Kadin**, 3 miles southwest of Koriga Point, is an inconspicuous, rounding section of the northwest coast of Unalaska Island. A group of rocks 18 feet high are 250 yards off the cape. About 0.4 mile southwest is another group of rocks 7 feet high, 350 yards offshore from a waterfall about 60 feet high, visible only from the north. Extending northwest and west more than 0.5 mile from these rocks is a rocky bank with depths from 5¼ to 8 fathoms, while depths of 11 fathoms are found about 1 mile west. Tide rips occur in this vicinity, and in heavy weather the seas are perceptibly heavier. It is recommended that Point Kadin be given a wide berth, especially in bad weather.

(356) **Makushin Volcano**, 6,680 feet high, is a flat-topped snow-covered mass with several jagged peaks of about the same elevation surrounding it. It can easily be identified when not covered by clouds. The westernmost of these jagged peaks is particularly sharp and distinct and has an elevation of 5,242 feet. A large glacier covers the entire top of the peak and extends down into the large valleys at its base. Faint clouds of vapor steam from the northeast end of the snow field may be visible.

(357) **Cape Kovrizhka**, 5 miles southwest of Point Kadin, is very prominent and easily distinguished by the dome-shaped rocky hill, 233 feet high, that forms its westernmost extremity. Numerous rocks are found around this cape, and it should be given a berth of 1 mile. Under certain combinations of wind and current comparatively heavy tide rips occur in the vicinity of the cape.

(358) **Round Top**, about 1 mile inland at Cape Kovrizhka, is a massive, round-topped peak, 2,452 feet high, separated from the peaks surrounding Makushin Volcano and higher than any of the nearby peaks. It is a useful landmark.

(359) On the north side of Cape Kovrizhka is a small open bay that affords a temporary anchorage during moderate southeast weather. Differences from normal magnetic variation of as much as 3° have been observed at the cape.

(360)

Volcano Bay to Skan Point

(361) **Volcano Bay**, immediately south and east of Cape Kovrizhka, is small and open to the west and south, forming a fair anchorage for east weather. However, strong winds are to be expected, and with winds shifting to the south and west the bay becomes quite rough and dangerous for small craft.

(362) **Makushin Bay**, indenting the west side of Unalaska Island, is 2.5 miles wide at the entrance and extends in an east direction for 5 miles to the entrance of Anderson, Cannery and Portage Bays.

(363) **Makushin Point**, on the north side of the entrance to Makushin Bay, rises to 762 feet and is grass covered. It is made prominent by a number of small knolls scattered over its top. Just north of the point there is a low valley that extends from Makushin Bay to Volcano Bay.

(364) The abandoned village of **Makushin** is on the east side of Makushin Point. Water is obtainable from a stream nearby.

(365) The north side of the entrance to Makushin Bay is marked by **Rock Islet**, 104 feet high, 0.5 mile southwest of Makushin Point, with several rocks between it and the point. There are no known dangers if the south shore is given a clearance of at least 0.3 mile. An abrupt shoal, with least depth of 16 fathoms, is 1.2 miles southwest from Rock Islet.

(366) A prevailing current sets in a north direction off Makushin Bay. The combined effect of the currents, including tidal currents, and winds causes a very noticeable choppy sea with attending tide rips across the entrance of the bay.

(367) Vessels have anchored in 15 fathoms, mud bottom, about 0.3 mile off the beach in the cove east of Makushin Point with **Priest Rock**, 80 feet high just south of the abandoned village, bearing **230°**. This anchorage is good for west and north weather, but with south weather considerable swell makes in, and in east weather, it becomes quite rough.

(368) **Humpback Bay**, on the northeast side of Makushin Bay, offers good anchorage for large vessels in all but west weather. Enter the bay from the southwest on a course of 055°, keeping Cathedral Rocks about 600 yards to starboard. Anchorage can be had in 25 to 47 fathoms, mud bottom.

(369) **Anderson Bay**, the south arm of Makushin Bay, affords several good anchorages of moderate size and at least one anchorage for one or more larger ships. A gravel spit, forming **Tarasof Point**, on the west side of the entrance, is a distinctive feature. The bay extends about 6 miles in a southeast direction and terminates in two arms, **Naginak Cove** on the west and **Udamak Cove** on the east, with wedge-shaped **Iksiak Point** between them. Four well-rounded, grass-covered islands are in the east half of the bay. These islands are well apart from one another; **Peter Island**, the northernmost, is near **Anderson Point**, the east entrance point of the bay, and the southernmost is well inside the entrance to Udamak Cove.

(370) Anchorage in Anderson Bay is in 20 fathoms, mud bottom, in a bight between the second island from the north and the main shore. The anchorage in Naginak Cove is in a mud bottom north of the narrow pass formed by two opposing points. The pass is about 1.2 miles from Iksiak Point and is obstructed by a dangerous 1½-fathom shoal in midchannel. Anchorage in Udamak Cove is east

of the fourth island in 22 fathoms, mud bottom, on a ridge that extends from the middle of the island to the main east shore.

(371) **Cannery Bay**, 1 mile to the east of Anderson Bay, extends about 3 miles in a southeast and east direction. Near the head and on the south side of the bay is an abandoned wharf and cannery. The only anchorage in the bay is at the east end, about 0.4 mile northeast of the abandoned cannery in 15 to 17 fathoms, soft bottom.

(372) **Portage Bay** extends about 4 miles in an east direction from **Cannery Point**. Two shoals, with least depths of 5¾ and 6½ fathoms, are almost in midentrance. Indifferent anchorage for small vessels may be had in 19 fathoms, sticky bottom, midway between the north shore and the 1½-fathom shoal and rocks near the head of the bay.

(373) A trail to Unalaska begins at the prominent valley about 1 mile from the head and on the north side of Portage Bay. The trip to Unalaska takes about 8 hours.

(374) **Cape Starichkof**, forming the south entrance point to Makushin Bay, is marked by an off-lying rock 27 feet high. Numerous rocks, covered and awash, are found along the shore in this vicinity but are not known to extend more than 0.3 mile from the beach. The mountains rise abruptly from the beach in this vicinity to 1,600 feet.

(375) Two miles south of Cape Starichkof is a deep narrow valley, trending east. Convenient anchorage in southeast weather can be found 0.5 mile from shore off this valley in about 20 fathoms, with the center of the valley bearing about **110°** and a conspicuous small 4-foot rock, 150 yards off the shore at the south edge of the valley, bearing about **150°**. Launches can find more shelter by anchoring closer to shore. A small bank with least depth of 6¼ fathoms is 450 yards west of the rock previously mentioned.

(376) **Skan Bay**, on the west side of Unalaska Island, has its northeast entrance point at the ledge 2 miles south of Cape Starichkof. It is 2 miles wide at the entrance and extends about 4 miles in a southeast direction.

(377) A bank, with a least depth of 3¾ fathoms, is in the bay entrance, 1.4 miles 205° from the point on the northeast side and 0.8 mile north of the southwest entrance point.

(378) The two arms at the head of Skan Bay are separated by **Skan Point**, a high headland. The east arm is too deep for convenient anchorage. The entrance to the south arm is about 0.4 mile wide and choked with heavy kelp but has a least depth of about 5 fathoms in midchannel. This arm extends over 1 mile to the south, has depths over 30 fathoms and provides good shelter from all directions, but the depth is too great in that the length of anchor cable required would not allow sufficient swinging room.

(379) The survey ship used an anchorage just inside the southwest entrance point of Skan Bay, a little less than 0.5 mile from shore in 15 fathoms, where some shelter from west weather was found.

(380)

Spray Cape to Cape Aspid

(381) **Spray Cape**, about 3 miles west of the southwest entrance point of Skan Bay, is conspicuous from the north. A small islet, about 80 feet high, is close to shore off its northwest side, and rocks covered at high water extend southwest from this point.

(382) The shore between Skan Bay and Spray Cape is fringed with pinnacle rocks and islets, and a bank, covered 6¾ fathoms at its outer edge, extends more than 0.5 mile offshore. In 2004, a visible wreck was reported about 0.4 mile offshore in 53°38'04"N., 167°07'30"W.

(383) From Spray Cape the shore trends south for 3.5 miles to the entrance of Pumicestone Bay. It is high and steep, fringed by rocks. An anchorage with good shelter in southeast weather can be found 0.4 mile from shore at the entrance to Pumicestone Bay in 20 fathoms off a small bight.

(384) **Pumicestone Bay**, on the northwest side of the long west extension of Unalaska Island, is 1.5 miles wide at the entrance but narrows rapidly to less than 0.5 mile. The bay extends about 7 miles in an east direction with an abrupt S-turn to the north and east about 4 miles from the entrance. The turn is partially blocked by a small flat-topped island about 30 yards in extent and 36 feet high, leaving a clear channel 300 yards wide.

(385) The north shore of Pumicestone Bay is formed by low, grass-covered hills. The shore is extremely rocky and rugged, the bluffs having a general elevation of 50 feet. The south shore is almost vertical and is characterized by many slides. The bay is divided by the turn into an outer and an inner bay. The inner bay is almost surrounded by high, precipitous mountains, except at the head where the mountains recede from the shore, leaving a narrow, flat grassland some 200 to 400 yards in width.

(386) Two large streams flow into the bay, one on the northeast and the other at the south side of the head of the bay. At the turn of Pumicestone Bay is a strip of shingle beach on the east side, backed by a narrow strip of grassland, that extends to the high bluffs in back of it. A conspicuous waterfall about 800 feet high is at the south end of the beach.

(387) The outer bay is very deep. The water shoals gradually from over 40 fathoms at the entrance to less than 30 fathoms at the turn. There is little shoal water suitable for anchorage and no protection from west weather.

(388) At the head, the inner bay widens, forming a basin 0.5 mile in diameter where good anchorage may be found in 20 fathoms or less. The southeast part of this basin shoals abruptly from 10 fathoms to less than 1 fathom.

(389) **Kashega Point**, on the south side of the entrance to Pumicestone Bay, is 1,447 feet high, and deep water is found close to its north shore.

(390) About 1.5 miles south of Kashega Point is a bold rocky island about 80 feet high, 600 yards from shore.

McIver Bight, about 1 mile in diameter, indents the shore east of this island. Good anchorage can be found in the center of the bay in about 10 fathoms with the island bearing west. The bay is exposed to the west and northwest, but small boats can find some shelter from west weather by anchoring closer to shore. The southeast part of the bay has depths of 2 to 4 fathoms.

(391) **Kashega Bay** is on the northwest side of the long west extension of Unalaska Island and about 25 miles from Umnak Pass. At the southwest side of the entrance is **Buck Island**, low and grassy. About 1.5 miles northwest of Buck Island is a narrow rocky ledge that extends northwest about 0.4 mile on which are the two conspicuous **Kashega Pinnacles**. The outer one is about 95 feet high, the inner one about 35 feet high. These pinnacles are the most conspicuous landmarks in approaching the bay. About 0.3 mile northwest of the higher pinnacle is a small rock 5 feet high.

(392) The bay has a navigable entrance 0.5 mile wide and is about 1.5 miles long in a southeast direction. **Kashega**, a small village at the southeast end, has a school, church, sheep-ranch buildings, and a few houses. The village shows seaward through a small angle and then is not visible until arriving well inside the bay. Neither a post office nor supplies are available. The anchorage in the bay is exposed to the northwest, and the holding bottom is reported none too good. In proceeding to the anchorage, favor the north shore to avoid a kelp-marked 2¼-fathom shoal 250 yards from the south shore and 0.5 mile northwest of the village church; anchor in 6 fathoms with the church bearing about **165°**.

(393) The valley at the head of Kashega Bay leads to Kuliliak Bay on the Pacific Ocean side of Unalaska Island. It is about 4 miles long and 1 mile wide and extends in an east-west direction. The floor of this valley is covered with freshwater lagoons that are fed by small streams. The sides of the valley are bounded by high hills entirely covered with grass. The hills to the north are rolling, while to the south they are steep with a jagged skyline. The streams that empty from the lagoons into Kashega Bay are shallow at their mouths. Local residents of Kashega village report that during heavy northwest weather the tide backs up into the lagoons. The shores of the lagoons are mostly rocky with very few stretches of sand beach.

(394) Just west of Kashega Bay is **Buck Bight.** It is clear, except near the head. The bight is open to the north.

(395) **Sedanka Point**, 175 feet high, is the west extremity of the ridge bordering the south side of Kashega Bay. A conspicuous rocky pinnacle, 43 feet high, is 1.5 miles northwest of the point of the cape, with a smaller pinnacle 200 yards to the southeast. A long ledge extends toward the pinnacles from the point, and a conspicuous flat-topped islet, 105 feet high, is 0.3 mile off the point.

(396) **Kismaliuk Bay** is an irregular-shaped bay that extends roughly southeast for 2 miles, then branching into two arms. The arms are separated by a low broad point from which a chain of bare rocky islets extend about 0.5 mile in a northwest direction. The outer islet is 20 feet high.

(397) The north arm is of little importance and affords little protection from northwest weather. The depth shoals gradually from 17 fathoms at the entrance.

(398) The south arm, protected by the chain of islets, affords excellent protection. The entrance channel is clear and about 500 yards wide, with a midchannel depth of 11 fathoms. The water shoals gradually to the head of the arm.

(399) **Alimuda Bay** is the long bay immediately west of Kismaliuk Bay and separated from it by **Manning Point**, a bold, blunt, precipitous point of land from which an exposed rock ledge makes out some 400 yards in a northwest direction. The bay extends about 3.5 miles southeast, with a width at the entrance of over 1.5 miles.

(400) The water shoals gradually from 20 fathoms at the entrance to the gravel beach at the head. About 1 mile inside the entrance a low, flat reef, with several exposed rocks, makes out some 300 yards from a point on the east shore. About 1 mile farther inside, shoal water that extends some 600 yards off the same shore has a least depth of 1½ fathoms. A bar, covered 4¾ fathoms, extends southwest across the bay about 0.7 mile from the head. Between this bar and the head of the bay, a depth of 8 fathoms is found, where small vessels can anchor. As this bar is exposed to all north and west weather, large swells rolling over it, often breaking there, reform to pile up in breakers at the head of the bay. This bay affords no real protection for any but small boats and then only in the extreme southeast bend behind a small reef making out from the southeast shore.

(401) **Wedge Point**, a bold narrow ridge having remarkable serrations, separates Alimuda and Aspid Bays. **Aspid Bay** extends about 2.2 miles in a south direction and affords little protection from north and northwest weather. The depth at the entrance is about 15 fathoms; from there the water shoals gradually to the head of the bay. The bottom is good for anchoring in 9 to 10 fathoms.

(402) **Cape Aspid**, on the north side of Unalaska Island about 15 miles from its west extremity at Umnak Pass, has a conical hilltop, 901 feet high, near its outer end. The shape of the hill, terminating in bluffs at the shore, is unlike any other land in the vicinity, as all the adjoining hills are flat topped with comparatively gentle slopes. The cape is a useful landmark from all directions except north where the hill merges with the higher land to the south. A ledge extends about 400 yards offshore, terminating in an islet about 24 feet high.

(403) The wide bight southwest of Cape Aspid affords shelter in east and south weather in 12 to 15 fathoms, 0.4 mile from shore. A 4¾-fathom spot, marked by kelp, is 0.6 mile northeast of Ram Point and about 0.4 mile from shore.

(404) At some distance off the coast, between Capes Aspid and Spray, the currents vary in intensity from little or nothing off Spray Cape to about 1 knot off Cape Aspid. The current generally sets east, the flood being stronger

than the ebb. Farther inshore, at Cape Aspid, the currents are stronger and small tide rips appear at the turn of the current. These rips extend as far east as Sedanka Point.

(405)

Ram Point to Chernofski Harbor

(406) **Ram Point**, 2.7 miles southwest of Cape Aspid, is a prominent wedge-shaped rock 240 feet high. Ledges, bare at low water, extend 0.2 mile offshore from the point. To the west of the point there is a stretch of low land over which the masts of vessels anchored in Chernofski Harbor are visible from offshore.

(407) **Chernofski Point**, the east entrance point of Chernofski Harbor, is the extremity of a narrow peninsula composed of several hills, the highest being 315 feet. The seaward face of the peninsula is rugged and broken, and there are rocks that extend seaward on the line of the ridge. A deep, wide cleft across the middle of this peninsula may be identified when bearing south of southeast.

(408) Several small detached banks, covered 10 to 12 fathoms, surrounded by deeper water are to the north of Chernofski Point.

(409) **Chernofski Harbor** is a small, land-locked harbor that in its inner part affords complete shelter from swell and from winds except williwaws. Depths are suitable for anchorage; bottom is mud. With heavy south and southeast winds the harbor experiences a strong sweep from the valleys at the head. the entrance between Chernofski Point and **West Point** is through a narrow canal formed by low promontories, about 4 miles southwest of Cape Aspid.

(410) The entrance to Chernofski Harbor is difficult as there are no conspicuous landmarks. From the entrance, the northeast tangent of Umnak Island (Cape Idak) bears 309°. Wedge-shaped Ram Point, about 1 mile east of Chernofski Point, may help to identify the locality. A shoal with a least depth of 5½ fathoms is almost in the middle of the entrance, about 900 yards southwest of Chernofski Point. A midchannel course should be followed into the harbor because of the projecting ledges that extend on both sides. Several buildings associated with ranching operations exist within the bight of Mailboat Cove. Anchorage can be had in the middle of **Mutton Cove** in 10 to 12 fathoms, mud bottom.

(411) **Caution** - Unexploded ordnance has been reported along the bottom of Mutton Cove. The unexploded ordnance are potentially hazardous and mariners are advised against anchoring, dredging, or trawling within Mutton Cove due to their presence.

(412) A large ruined pier is on the northeast side of the cove; a smaller ruined pier is on the southwest side.

(413) Water can be obtained from a stream in the south part of the bay. The head of the bay, at the southeast end, is shallow and can be used only by small boats.

(414) The north coast of Unalaska Island west of Chernofski Harbor is described in connection with Umnak Pass.

(415)

Sedanka Island to Kayak Cape

(416) **Sedanka Island**, close to the east end of Unalaska Island on the Pacific side and separated from the latter island by narrow, deep Udagak Strait, appears as a part of Unalaska Island. The island is mountainous and covered with tundra. There are numerous peaks, separated by deep valleys, running northwest, but none of the peaks are conspicuous from east. The highest peak, 2,130 feet, is in the southwest part of the island. The outer coast is broken by bays and coves separated by bold, rocky headlands.

(417) **Cape Sedanka**, the east point of the island, terminates in a knoll 375 feet high. Rocks and islets fringe the shore, but deep water is found at a distance of 400 yards. The coast on the southeast side of the cape is unusually steep and reaches an elevation of 1,269 feet.

(418) **Egg Island** is 0.6 mile in diameter, 541 feet high and about 1.5 miles northeast from Cape Sedanka. It is a grassy island with a bluff rocky shore, and has numerous rocks and islets within 200 yards of the shore, but beyond this distance deep water is found all around the island.

(419) **Old Man Rocks**, a group of four, two of which are prominent, are 0.9 mile northwest of Egg Island. The two conspicuous rocks are 100 and 39 feet high. The group is surrounded by deep water at a distance of 200 yards.

(420) **Sedanka Pass** separates Egg Island and Old Man Rocks from Sedanka Island. It is about 1.5 miles wide and has depths of 30 to 40 fathoms. The Sedanka Island shore should be given a berth of 0.5 mile. Strong currents with rips are experienced occasionally around Cape Sedanka and just south of Old Man Rocks.

(421) **The Signals** are three rocks off the east coast of Sedanka Island. **Outer Signal**, 30 feet high, is 3.2 miles south of Egg Island and has a small rock, 10 feet high, 0.3 mile southeast of it. Deep water is found close to these rocks. **Inner Signal** is 3 miles south of Cape Sedanka and 0.8 mile off the nearest Sedanka Island shore; it is 126 feet high and is surrounded by a shoal and reef area 0.4 mile in diameter. A bar, covered 7 to 8 fathoms, reaches from this area to the nearest point of Sedanka Island. The passage between the Inner and Outer Signals is clear.

(422) About 15 miles southeast of Egg Island, after gradual shoaling from the 100-fathom curve to about 45 fathoms, the water deepens to over 60 fathoms, forming an underwater basin about 6 miles wide that leads northwest into Beaver Inlet, furnishing an excellent pathway for vessels equipped with echo sounding apparatus. A crescent-shaped bank of rock formation within the basin of deep water and 2 miles east of Egg Island has general depths of 12 to 14 fathoms and a least depth of 9 fathoms on the west part of the bank. The 50-fathom curve surrounding the bank approximates a circle about 1.5 miles in diameter.

(423) When navigating on soundings in thick weather this bank and the characteristic deep water afford an opportunity to check a vessel's position. The navigator

in finding his way on soundings to the bank must guard against the mischance of nearing Egg Island; the shoaling of the depths in doing so may mislead him in assuming that he is approaching the bank. A definite knowledge from soundings taken regularly along the course from seaward is necessary to avoid this error.

(424) From Cape Sedanka the shore on the Pacific side trends southwest for 3 miles, then turns southeast for 1 mile to a precipitous point, enclosing a small bight where temporary anchorage in west weather can be found. The bottom of fine gray sand slopes gradually from the sand beach at the head of the bight to the 20-fathom curve 1 mile offshore. To enter the bight, pass midway between Outer Signal and Egg Island.

(425) On the southeast side of Sedanka Island, east of Udagak Strait, are three bays separated by bold headlands; the largest bay is 4 miles northeast of the entrance to Udagak Strait and extends 2 miles inland in a northwest direction. Good anchorage may be found 0.5 mile from the head of the bay in 7 fathoms. This bay is protected from all except southeast weather. The two other bays that are nearer Udagak Strait afford protection from the north and west.

(426) The south end of Sedanka Island is a double point. On the east prong is a conspicuous sharp pinnacle rising about 100 feet from a flat ledge.

(427) **Udagak Strait**, between Sedanka and Unalaska Islands, provides a direct passage from the Pacific Ocean to Beaver Inlet. Foul ground extends 300 yards from the west shore of the strait at the entrance, but a midchannel course clears this ground. The narrows at the halfway point in Udagak Strait have a width of 0.25 mile, and the channel is slightly over 0.1 mile wide in a depth over 10 fathoms.

(428) The current velocity is about 2 knots on the flood and about 1 knot on the ebb. At the south entrance of the strait and through the narrows the flood sets from the Pacific.See the Tidal Current prediction service at *tidesandcurrents.noaa.gov* for specific information about times, directions, and velocities of the current at numerous locations throughout the area. Links to a user guide for this service can be found in chapter 1 of this book.

(429) The strait has good water throughout. However, in the narrows, which run east and west, the channel turns around a reef on the south side of the east end and then in a reverse turn passes around a rocky shoal on the north side at the west end. The reef is off the northeast side of a broad gravel spit that forms the south side of the narrows. The reef is marked by kelp and rocks awash at three points. One or more of the rocks are generally visible. The rocky shoal has a least depth of 3¼ fathoms and extends 200 yards from the south side of a pointed, gravel spit which forms the west end of the north side of the narrows. The currents in the narrows necessitate caution as to their sheering effect on a vessel swinging to avoid the dangers. Anchorage in the south entrance of the strait is uncomfortable because of the current.

(430) **Udagak Bay**, an indentation in the west shore of Udagak Strait, affords anchorage in 12 to 19 fathoms, sand and mud bottom, about 0.3 to 0.4 mile from the head of the bay. Small boats may anchor in 6 to 10 fathoms, mud bottom, farther toward the head. The bay affords good protection in any weather.

(431) Light tide rips were frequently observed in the area off the mouth of Udagak Bay, sometimes they extended well into the bay. These rips usually occurred when the wind was contrary to the current. Numerous swirls were also encountered in the same area at all times when the currents were more than 1 knot.

(432) **Beaver Inlet** has its entrance between Brundage Head and Cape Sedanka and extends 17 miles southwest into the east end of Unalaska Island. It has an average width of about 3 miles in its outer reaches, narrowing to about 1.6 miles near its head. The deep water in the bay extends east between Unalga and Egg Islands, making access to the inlet comparatively easy for a vessel equipped with echo sounding apparatus.

(433) Currents in Beaver Inlet are negligible and in the entrance between Egg and Unalga Islands will not ordinarily exceed 2 knots.

(434)

Local magnetic disturbance

(435) Differences of as much as 4° from the normal variation have been observed on Round Island and as much as 3° on the north shore of Erskine Bay.

(436) From Cape Sedanka, the southeast entrance point of Beaver Inlet, the shore trends northwest for 1.6 miles to a point marked by a small natural arch and having a chain of rocky islets that extend north about 200 yards. Just west of this point is an open bight, 1 mile wide and 0.4 mile long, which furnishes convenient temporary anchorage in south weather, well out of any swell. Anchor in the middle of the bight about 0.3 mile from shore, with Old Man Rocks showing between the rocky islets off the point to the east, in about 16 fathoms. Smaller boats can move farther into lesser depths near the west end of the bight.

(437) **Sisek Cove**, about 4 miles southwest from Old Man Rocks, is too deep for anchorage.

(438) **Udamat Bay** makes into Sedanka Island from Beaver Inlet 5.5 miles southwest from Old Man Rocks and just west of **Biorka**, a small native settlement having a conspicuous church. The bay is 1 mile wide to a point 0.8 mile from its head where it narrows to 0.3 mile. A low valley extends southeast from the head of the bay to the outer coast. About 1.4 miles south of the east entrance point, a reef makes out 200 yards from the east shore. With this exception the shores are clear, and a depth of 20 fathoms will be found within 250 yards or less of the shore. If necessary to anchor in the bay, the best places are at the head of the bay or just north of the reef, mentioned above, in a small bight indenting the east shore, but there will be scant swinging room. A small rocky patch, covered 15 to 25 fathoms, is 0.4 mile northwest from the

same reef and may offer anchorage with more swinging room.

(439) **Strait Bay**, about 8 miles southwest from Old Man Rocks, is 1.1 miles long, tapering from 1 mile wide at its entrance to 0.4 mile wide near the head. The bay is clear except for a 5½-fathom spot in the center. Anchorage may be had at the head of the bay in 20 fathoms about 250 yards from shore. A valley extends south and east from its head, and during a blow the wind is funneled into the bay through this valley.

(440) **Amugul Bay** makes south from Beaver Inlet about 3 miles southwest of the entrance to Udagak Strait. **Round Island**, 136 feet high, marks the east side of Amugul Bay entrance. The bay affords fair anchorage for medium-sized craft in 22 fathoms, mud bottom, 0.2 mile from the head of the west bight. The south arm affords excellent anchorage for small craft in 10 fathoms, mud bottom, 0.1 mile from the head.

(441) At the head of Beaver Inlet are four small bays; named in order, following the south shore around to the north shore, they are: **Tanaskan Bay**, **Final Bay**, **Kisselen Bay** and **Erskine Bay**. Temporary anchorage only can be found near the heads of these bays for medium-sized craft. The small bight on the south side of Kisselen Bay affords excellent anchorage for small craft in 5 fathoms, mud bottom, 0.1 mile from the head. In approaching this anchorage, care should be taken to avoid a reef, which uncovers 1 foot, 160 yards south of the south island of a group of four. In Final Bay are heavy williwaws and a strong draw.

(442) **Dushkot Island** is along the north shore of Beaver Inlet near the head.

(443) **Uniktali Bay** makes into the north shore of Beaver Inlet about 15 miles above its entrance. This bay is nearly 3 miles long in a west direction and 0.3 mile wide at its narrowest part near its head. An anchorage, practically landlocked but limited to medium-sized vessels, may be found in 20 fathoms, muddy bottom, 0.5 mile from the head of Uniktali Bay. In entering, keep to midbay as far as the narrows, then favor the south shore to avoid a 6-fathom shoal that is 260 yards off the north shore.

(444) **Small Bay**, east of Uniktali Bay, affords good anchorage in 10 fathoms, 0.3 mile from the head.

(445) **Ugadaga Bay** is an indentation in the north shore of Beaver Inlet 8 miles above the entrance. From the head of Ugadaga Bay a trail leads to Unalaska. Fair anchorage may be found 0.4 mile from the head of the bay in 20 fathoms, even bottom.

(446) **Agamgik Bay**, indenting the north shore of Beaver Inlet, 5.5 miles southwest of its entrance, offers anchorage in good holding ground with fair shelter, except in severe southeast weather. The bay is 1.2 miles wide at the entrance. Opposite a small rocky peninsula jutting out from the west side about 1.4 miles from the west entrance point, the width is reduced to 0.4 mile. The anchorage is in this narrow portion in 16 to 20 fathoms. The bay is comparatively free from williwaws.

(447) **Eagle Rock**, a large, flat-topped pinnacle 75 feet high, is 125 yards off the rounded point on the east side of the entrance to Agamgik Bay. Off the west point of the entrance, covered rocks and rocks awash extend from 0.1 to 0.3 mile into the entrance. A rock, 6 feet high, is outside of this rocky area and 600 yards east of the point.

(448) The north shore of Beaver Inlet extends east from the east entrance point of Agamgik Bay for almost 3 miles to the west entrance point of Deep Bay, where it turns sharply to the north and northwest for 1.2 miles, forming the west shore of Deep Bay, which has been described earlier with Unalga Pass. About halfway between the two bays is a conspicuous waterfall, 350 feet high, with a pinnacle rock 40 feet high just to the west of its base.

(449) The gap between the mountains on either side of the south part of Udagak Strait stands out in a measure, from a southeast direction, against a background of mountains on the west side of the north end of the strait. The 1.5-mile stretch of shore forming the south entrance of the strait on the Unalaska Island side is at the base of a very steep side of a ridge, the summit of which is 1,920 feet high.

(450) Mountain ridges just west of Udagak Strait are normal to the trend of the outer coast, generally ending in deeply eroded cliffs. The mountains appear in confusion and can be identified only by a close study of the chart.

(451) With the exception of Outer Signal, Inner Signal, the reef off Reef Point, and the rocks and ledges close to shore, the south coasts of Sedanka Island and Unalaska Island, as far west as Eagle Point, are free from outlying dangers.

(452) Between Udagak Strait and Kayak Cape the valleys between the headlands have been partially filled with debris, forming a series of bights with shingle beaches at their heads. Behind these beaches are grassy flats and, in most cases, lagoons. The headlands between the bights protrude from the generally high mountain mass. The valleys, with the exception of one that leads through a mountain pass to the head of one of the bays of Beaver Inlet, are in the form of amphitheaters. Numerous rocks and ledges are within 50 to 100 yards from the shores and occasionally as far as 200 to 350 yards. The waters along the shoreline are generally foul with covered and bare boulders.

(453) **Hive Bay**, about 5 miles southwest of Udagak Strait, is the largest of these bights, its two arms affording good protection from north weather. The west arm of the bay affords good anchorage in 8 to 10 fathoms with generally good holding ground. A rock that uncovers 3 feet is on the west side of the entrance to the east arm of Hive Bay. The headland between the two arms is recessive and undistinguished. The headland west of Hive Bay is deeply eroded. It has sharp ridges and three closely spaced summits of nearly equal elevation, with successively lower spurs toward the point. The cliffs are marked by narrow dark strata rising toward the point. The west side of this headland has a very conspicuous boulder slide.

(454) The bight just west of Hive Bay has a short stretch of shingle beach, behind which is a valley leading inland

over gentle slopes to a mountain pass with an estimated elevation of 400 feet. Beyond the pass is Tanaskan Bay, an arm of Beaver Inlet. The headland forming the west side of this bight has a reddish cliff, particularly noticeable from the southwest.

(455) **Staraya Bay**, north of Kayak Cape, is divided into two parts by a bold promontory on which the remnants of volcanic craters are easily seen. Near the outer end of the headland forming the east side of the north arm of the bay is a natural rock bridge arching from the cliff and footing in the shallow water near the shore. This span is about 50 feet, and the height under the arch is about the same. Ledges extend about 200 yards offshore from the outer end of this headland. The west arm of Staraya Bay is a bight that has a shingle beach of unusual length and height, 20 to 25 feet, and a large lagoon behind the beach. In the center of the mouth of this bight is a shoal area with a 1-fathom rock.

(456) **Kayak Cape** is the first prominent point west of Udagak Strait. It is lower than points to the west, bold at the extremity, and its narrow ridge is marked by several prominent humps, 1,000 to 1,400 feet high. Both sides of the cape display a conspicuous black stratum about 400 feet high at the point of the cape. These strata may be seen when the overcast is not too low.

(457)

Protection Bay to Eagle Point

(458) From Kayak Cape west the shoreline trends to the southwest and is deeply indented by several large bays, affording various degrees of protection. Only two of these, Usof Bay and Blueberry Bay, are considered to give adequate protection from all kinds of weather. Raven Bay is landlocked at the head and gives excellent protection for small craft.

(459) **Protection Bay**, just west of Kayak Cape, extends about 2 miles inland. There is a slight hook to the west at the head of the bay, giving some protection for small craft from the south. Rocks extend 500 yards southeast off the point of the hook. This bay has the least shelter of any in the vicinity, but its depth is more convenient for anchoring.

(460) **Cape Yanaliuk**, about 4 miles southwest of Kayak Cape, is easily identified by the mushroom-shaped rock just off the point. Altogether there are two small rock islets just off this point. The cape is narrow and precipitous except for a short distance on the southwest side, which is a grass-covered slope, topped and flanked at each end by rock cliffs. The cape has a markedly jagged appearance. A small bight on the east side of the cape extends 1 mile inland but affords no protection in bad weather.

(461) **Three Island Bay**, west of Cape Yanaliuk, extends inland for about 5 miles in a north-northwest direction; it affords fair protection for small craft in any weather in 8 to 15 fathoms at the head of the bay, behind three small islands that give the bay its name. Deep water carries through to the head of the bay between the islands. Care must be exercised not to anchor too close to the rocks north of the east island, nor to the shoal water at the north end of the bay. Swinging room is restricted for vessels exceeding 100 feet in length, and the area affords only fair anchorage and protection for small craft. It is subject to violent williwaws, and in south weather a rather heavy swell from outside makes it uncomfortable. **Foam Cove**, 1 mile above the west entrance point, provides fair temporary anchorage near the mouth of a stream which shows conspicuously from the bay entrance.

(462) **Blueberry Bay**, the next bay west of Three Island Bay, extends inland in a northwest direction for about 3 miles. A fairly sharp turn to the north for about 1 mile makes the head of the bay landlocked and affords good shelter. The upper half of Blueberry Bay has a rugged shoreline characterized by narrow gravel and boulder beaches, or rocky shoreline with smooth rock slopes. Anchorage may be had in 15 to 20 fathoms in the middle of Blueberry Bay about 0.5 mile below the head in good holding bottom. The swinging room is entirely adequate for small craft and should suffice for ships of moderate size. Being entirely landlocked, there is almost entire freedom from swell. Winds are generally more moderate than in nearby localities and, as far as is known, never blow across the bay. Water is available.

(463) **Whalebone Cape** is characterized by a bare, rocky, 2,000-foot peak that appears as a series of broken rust-colored cliffs from offshore. At the base of the mountain is a gray rockslide about 300 feet high. The foot of the slide extends to the high water line. The shore around the point of the cape is very rugged and broken and dangerous for boat landings because of numerous rock islets, rocks awash and covered rocks close inshore.

(464) **Usof Bay**, just west of Whalebone Cape, extends inland about 8 miles in a north-northwest direction and affords good anchorage at the head in 20 fathoms, sand bottom. The width of the bay narrows to 0.5 mile about 5 miles from the entrance and a slight turn to the north for about 1 mile makes the head of the bay landlocked. The general depth of the bay is over 60 fathoms. A small hanging glacier shows at the head of the bay over the west side of the narrows as seen from the entrance.

(465) Good anchorage for small craft is found in **Johnson Cove**, at the mouth of a canyon on the west side about 5 miles in from the entrance, in 7 to 10 fathoms, mud bottom. The south arm of Johnson Cove should be avoided as it is shallow and filled with rocks. To the north of the canyon is a conspicuous cascade.

(466) The shoreline of Usof Bay is rocky and precipitous except at the heads of several coves or bights that occur at irregular intervals. Thick, long grass covers the flats and ascends the mountains, in some cases covering the slopes as high as 2,000 feet. There are numerous rock islets offshore at short distances and irregular intervals. Kelp is general along the rocky shoreline. A strong west set of the current was noticed on the rising tide off the west side of the entrance to Usof Bay in 1939. This condition was noted by the survey party because it was generally taken

for granted that the set is to the east on a rising tide. There is not sufficient proof that this condition exists on every rising tide.

(467) **Cape Prominence**, the west entrance point of Usof Bay, is marked by a tall cylindrical pinnacle connected at its base with the main point; it shows conspicuously from south-southwest. A flat ledge makes off 200 to 300 yards and may be mistaken for the ledges off Reef Point.

(468) Another cylindrical rock is about 700 yards north on the east side of the cape. It is not so noticeable but is an aid in identifying Cape Prominence. Breakers extend for about 500 yards off the cape.

(469) **Open Bay** is the bight between Cape Prominence and Reef Point. It has anchorage for large or small vessels in 20 to 5 fathoms with good holding ground and sufficient swinging room. It affords limited protection from the southwest and east but none from the south and southeast.

(470) **Reef Point** is easily identified by a conspicuous cathedral rock, 240 feet high, just off the south extremity. A ledge, just a few feet above high water, extends 0.5 mile off the point. No dangers were noted outside of this ledge. All of this ledge is not above high water; the depth is 5 fathoms between the outer end and inner parts. The outer end is a reef which is continually awash, because of the ocean swell, at all stages of the tide, but may actually be 2 feet above low water.

(471) **Raven Bay**, on the west side of Reef Point, is entered on either side of **Ogangen Island** and extends 3.5 miles inland. The island, 1,180 feet high and 2 miles long by 0.5 mile wide, has its longer axis paralleling the west shore of the bay; the passage between is 0.2 to 0.4 mile wide and has depths of 9 to 15 fathoms.

(472) East of Ogangen Island, the bay narrows from a width of 2 miles at the entrance to 0.3 mile at the north end of the island; depths are 25 to 40 fathoms. Northeast of the island, **Crow Arm**, narrow and stocking shaped, extends 1 mile to the north; the arm is too deep for the restricted swinging room and is subject to considerate swell during south weather.

(473) The west arm of Raven Bay narrows to 250 yards 0.6 mile north of Ogangen Island and continues north for another mile; excellent anchorage for small boats may be had in 3 fathoms just south of the prominent islet at the head of the arm. The sandflats at the extreme head are suitable for beaching small craft.

(474) The small cove west of the middle part of the narrows affords anchorage for small boats in 3 to 5 fathoms, but the swinging room is restricted by the reef on the west side. At the head of the cove are abandoned saltery buildings.

(475) A rock that uncovers is 400 yards south of the cove and slightly to the east of midchannel; the best water is west of the rock. Just south of the entrance to the narrows, a 4¾-fathom rocky shoal can be avoided by favoring the shore on either side.

(476) **Eagle Bay**, 3 miles west of Raven Bay, is about 1.3 miles wide at its entrance and extends 2.5 miles in a north direction; it is characterized by a particularly rugged and precipitous shoreline. High rocky cliffs rise directly from the high waterline in most parts of the bay, and even where cliffs do not exist, the rise is very steep and broken. The very rugged country surrounding Eagle Bay causes violent williwaws in northwest, north and east weather. **Snipe Point**, which divides the bay into two arms, is very rugged at its south tip and quite rough and weathered on the top.

(477) The east side of the entrance to the bay is marked by **Spire Rock**, a very sharp pinnacle, 100 feet high and about 100 yards offshore. On the west side of the entrance **Label Reef**, awash at high water, extends about 400 yards offshore from the east side of Eagle Point. This reef is plainly visible at any stage of the tide because of breakers.

(478) Each arm of Eagle Bay is about 1 mile long, and both extend in a northeast direction. The northernmost arm is only 0.4 mile wide at its widest point and has numerous islands near its head. The islands are flat, grass covered on top, with steep rocky sides rising directly from the water, and are used as nesting places by many birds in the summer months. The arm is navigable as far as these islands.

(479) The east arm of Eagle Bay is about 0.5 mile wide for half of its length and affords good shelter in all but extreme south weather about 0.3 mile inside the entrance.

(480) Good anchorage may be had in Eagle Bay, but the south swell is often uncomfortable. Anchorage with protection from all weather is available below the island in the north arm, but swinging room is limited. Depths of 11 fathoms extend into both arms of the bay; however, broken bottom with a 3¼-fathom spot extends from Snipe Point almost halfway across the entrance to the north arm.

(481) A portage at the head of Eagle Bay leads to Pumicestone Bay on the north side of the island.

(482) **Eagle Point** is the prominent headland between Eagle and Kuliliak Bays. The point is very rugged at its south end and is distinguished by two prominent mountain peaks. The south peak, at the extreme south end of the point, is 1,340 feet high; when viewed from the south, it appears conical in shape with a very sharp top, but from the east or west it appears flat on top, with a sharp rock peak at the south end of the flat portion. The north peak, about 1 mile northeast from the south one, is 1,520 feet high and appears pyramidal in shape from all directions, with a bare rock top. The blunt south face of the cape is much weathered, with high rock cliffs, numerous slides and many pinnacle rocks along the shore.

(483) A shoal, with 14 fathoms 0.4 mile from shore, makes out to south from the most south tip of Eagle Point. Passing vessels are advised to stay at least 0.5 mile off the cape in order to keep outside the 20-fathom curve.

(484) Appreciable tidal current was noted for a distance of 1 mile off Eagle Point. The flood sets west and the ebb east. With an appreciable swell running against this current, high, sharp, broken seas, with curling tops resembling tide rips, were noted off the point.

(485)

Kuliliak Bay to Serpent Point

(486) **Kuliliak Bay** indents the southeast coast of Unalaska Island immediately to the west of Eagle Point. The bay is divided by a narrow ridge of land into two parts, forming an outer bay and a well-protected inner bay. The end of this narrow ridge of land, **Repetition Point**, is the east point of the entrance to the inner bay.

(487) A chain of low, black rocks extends 325 yards offshore in a southwest direction from the southwest corner of Eagle Point and marks the east side of the entrance to outer Kuliliak Bay. A shoal, covered 18 fathoms, 0.8 mile from shore, extends southwest from the outer rock of this group.

(488) Outer Kililiak Bay is open to the south. The shores are characterized by rock cliffs, except at the head of the deep bight which forms the northeast part of the outer bay. At the head of this bight is a sand beach and a valley passes north of Eagle Point into Eagle Bay. Anchorage in 13 to 14 fathoms may be had at the opening of the bight, with some protection in southeast weather and good protection in north and northwest weather.

(489) A reef, with the outer part of it awash at half-tide, makes out from the center of the north shore of outer Kililiak Bay, and a shoal covered 8 fathoms extends 330 yards south from the reef. Otherwise the bottom of the outer bay is very even, decreasing in depth very gradually from 30 fathoms at the entrance to 12 fathoms at an average distance of about 200 yards off the north shore.

(490) Inner Kililiak Bay affords good shelter east of Nest Rock in 7 fathoms in all weather. The entrance is about 500 yards wide between the cliffs 200 feet high on the west side and on the steep tip of Repetition Point on the east side.

(491) **Dome Rock**, the outer rock of a conspicuous group that extends 120 yards southwest from Repetition Point, is a good landmark on the east side of the entrance to the inner bay; the rock is about 30 feet wide and 5 feet high.

(492) Along the west shore of the entrance to inner Kuliliak Bay, flat reefs, rocks awash, covered rocks and heavy kelp form a fringe some 200 yards wide. In this area is a large black rock, part of which rises to a sharp point 10 feet above high water, 75 yards out from the base of the shore cliff. About 160 yards northeast from this large, black rock and 180 yards offshore is **Perch Rock**, a small, black rock about 1 foot high and surrounded by kelp.

(493) **Trava Point** is a small, flat, grassy point on the south side of inner Kuliliak Bay and 0.5 mile northeast of the entrance. **Nest Rock** is a small, grass-covered rock island, 15 feet high and 0.9 mile northeast of the entrance. **Williwaw Point** is a low, sandy point 0.3 mile beyond Nest Rock. A cascade is 0.5 mile inland from the head of the bay.

(494) The west shore of the inner bay is a curving, pebble beach fronting a low, grassy bluff. A low, wide valley, through which fog often drifts and winds always draw in north and west weather, extends across Unalaska Island to Kashega Bay. The west and northwest shores of the inner bay, east of Nest Rock, are lined with low reefs, rocks awash and covered, and heavy kelp for a distance of 100 to 300 yards offshore. A rock, awash at half tide and surrounded by kelp, is 300 yards off the north shore directly north of the entrance. A fringe of heavy kelp, 50 yards wide, lines the south shore from the entrance to Trava Point.

(495) Proceeding to sheltered anchorage inside the inner bay, the controlling depth is 4½ fathoms after passing the entrance. A channel with this depth is close to the southeast shore of the bay and just outside a heavy fringe of kelp along the northwest shore of Repetition Point. On the north side of this channel the water shoals very gradually to the opposite side of the bay. Northeast of Trava Point the water deepens and the bottom is flat.

(496) In north and west weather violent williwaws occur in the head of inner Kulikiak Bay, above Williwaw Point. In south weather short seas, almost breaking across the entrance, make it difficult to enter.

(497) West of Kililiak Bay the country is less rugged; the peaks are lower and are separated by wide valleys. In the spring and early summer the snow disappears from all the peaks to the west, while in the area east of Kuliliak Bay many peaks remain snow covered throughout the summer.

(498) From Kulikiak Bay the shore trends southwest for 11 miles to Lance Point. Rocky ledges extend some distance off the intervening points.

(499) **Lance Point**, 12 miles southwest of Eagle Point, is 465 feet high and has the appearance of a low tongue projecting from the higher land north of it. **Huddle Rocks**, four small islands, the largest 170 feet high, are about 1 mile southwest of the point.

(500) About 5 miles west of Lance Point is a small bight that affords shelter for small craft in all but southeast weather. Many rough rocky ledges extend from the shore between Lance Point and this small bight, at the head of which is a broad sand beach divided into two parts by a small rocky point. Three streams flow through the low, grassy valley behind the beach. An islet, 70 feet high, is southeast of the low point that forms the south side of the bight; rocks awash are 300 yards northeast of the islet. A chain of small rocky islets extends across the entrance to the bight, and a broad, flat reef that uncovers 1 foot is northwest of these islets.

(501)

Local magnetic disturbance

(502) Differences of as much as 6° from the normal variation have been observed at Cape Aiak and as much as 3° on Huddle Rocks and at Lance Point.

(503) **Cape Aiak**, on the south coast of Unalaska Island, 8 miles southwest of Lance Point or about 15 miles from Konets Head, is 1,820 feet high and from the northeast at a distance appears like a flat-topped island with a massive

horn or pinnacle on the south slope. Breakers extend 300 yards south from the south end of the point.

(504) Between Cape Aiak and Konets Head, the flood current sets west toward Umnak Pass and increases in velocity as the pass is approached. It is strongest near the shore. The ebb is weaker than the flood.

(505) **Surveyor Bay**, on the west side of Cape Aiak, is 4 miles wide and 2 miles to its head. About 2 miles northwest of Cape Aiak, the **Gargoyle Islands**, a group of fantastically eroded pinnacles about 250 feet high, make out 0.4 mile from a point on the north shore and divide the bay into two bights. A reef, awash at high water, connects the islands to the shore.

(506) A shoal, which has a least depth of 3 fathoms and breaks in heavy weather, is 0.3 mile south from the southwest extremity of the islands; another 3-fathom shoal is 0.6 mile west of the same point and 0.5 mile south of a reef-fringed islet close to shore.

(507) Small-boat anchorage with some shelter from southeast can be found in 5 fathoms 250 yards from the shore in the cove northwest of the Gargoyle Islands. In using the anchorage, care must be taken to avoid a covered rock 400 yards from shore that breaks in moderate weather. The anchorage is not recommended but is the best available shelter between Kuliliak Bay and Umnak Pass.

(508) The west bight of Surveyor Bay has low sand dunes along its north shore; the west shore is fringed with ledges, one of which extends 700 yards off. A 4¾ - fathom rocky patch, 1.5 miles north-northeast from Serpent Point, is about in the center of the bight.

(509) **Serpent Point**, on the west side of the entrance to Surveyor Bay, is a low narrow point projecting southeast. Anchorage with good shelter except from the south and southeast can be found 0.8 mile north of the point and 0.5 mile from the west shore of the bay in 15 fathoms. An 8-fathom shoal is 0.5 mile south of the point.

(510)

Cape Izigan to Umnak Pass

(511) About 1.8 miles west of Serpent Point, a chain of grassy islets projects south from **Cape Izigan** and terminates in **South Rock**, 23 feet high; this is the southernmost land feature of Unalaska Island. South Rock is 6 miles southwest of Cape Aiak and 9 miles southeast of Konets Head, the west end of Unalaska Island. Depths of 20 fathoms are found 300 yards off the south side of the rock.

(512) **Tiderip Point**, 6 miles northwest from South Rock, is marked by a round hill 397 feet high. A chain of rocks, one 25 feet high, extends 0.5 mile south from the point.

(513) **Konets Head**, the west extremity of Unalaska Island, is marked by a conspicuous knoll 127 feet high.

(514) **Lone Peak**, about 3.5 miles northeast of Konets Head, is the top of a long narrow ridge, 1,847 feet high, running roughly parallel to the coast. From northeast and southwest the peak appears like a sharp cone and forms a useful landmark.

(515) The shore between Tiderip Point and Konets Head is fringed by reefs and ledges that extend almost 0.5 mile offshore. Ledges extend about 300 yards west from Konets Head but deep water is found 400 yards west of the ledges. A bank, with a least depth of 8 fathoms surrounded by much deeper water, is 1.8 miles west from Konets Head. Heavy tide rips occur on this bank on the ebb.

(516) About 1.5 miles south of Konets Head is **Emerald Island**, a flat-topped, grassy island 0.3 mile in diameter and 204 feet high. The island is fringed by reefs, and a rock that uncovers 3 feet is 700 yards southeast of it. Another group of rocks, the highest 8 feet, is 0.5 mile to the north of the island. Rocks extend 350 yards off the west side of the island.

(517) By using the channel between Emerald Island and Konets Head the tide rips to the south of Emerald Island can be avoided. The narrowest part of the channel is at the northwest end, where it is less than 0.4 mile in width. The shores bordering the pass are broken with many projecting ledges, but these can be distinguished easily.

(518) Irregular bottom with depths of 6½ to 12 fathoms extends 3.5 miles south of Emerald Island. Tide rips that have the appearance of breakers occur on these spots on the ebb; with a strong ebb and an opposing breeze they attain considerable size. It is advisable to avoid this area.

(519) **Polivnoi Rock**, 17 feet high and 100 yards in diameter, is 5 miles southwest from Konets Head; a breaker is 300 yards southwest of the rock. Sea lions are often seen in the vicinity. In heavy weather, seas wash over the rock. An 8-fathom rocky shoal, marked by heavy tide tips, is 1.2 miles 065° from the rock.

(520) A convenient anchorage in south weather can be found about 1 mile northeast of Konets Head in about 20 fathoms. In approaching this anchorage on the ebb, allowance should be made for the current. The flood is not felt immediately north of Konets Head.

(521) A small bank, with a least depth of 5¼ fathoms, is about 0.5 mile from shore, 2 miles northeast from Konets Head. Northeast of the bank, the shore is steep-to and is exposed to the strong current of Umnak Pass.

(522) **Boulder Bay**, 5 miles northeast from Konets Head, is a small bay with a kelp patch in the middle of its entrance. Two small shacks are in a cove on the east shore.

(523) **No Name Cove**, 3 miles northeast of Boulder Bay and on the west side of **Ranchers Point**, is a small bay about 0.5 mile wide and 0.5 mile to its head. A small indentation on its west side furnishes good shelter for small craft except in severe north weather.

(524) **Station Bay**, on the east side of Ranchers Point, is divided into two arms. The east arm is about 0.3 mile wide and 1.5 miles long in a southeast direction. Near the entrance to this arm is a conspicuous column rock about 94 feet high. **Peacock Point**, separating Station Bay from the unnamed bight to the east, has broken ledges and rocks that extend 700 yards northwest. The west arm of

the bay is about 0.5 mile wide and almost 1 mile long in a south direction.

(525) Chernofski Harbor, 2 miles east of Station Bay, was described earlier in this chapter.

(526) **Umnak Pass**, separating Unalaska Island from Umnak Island, is about 3 miles wide and about 10.5 miles long in a northeast and southwest direction from the vicinity of Polivnoi Rock to that of Pustoi Island. For description of the shore, see various headings previously described in connection with Unalaska Island and those following in connection with Umnak Island.

(527)

Currents

(528) The current in Umnak Pass is similar to that in Unimak Pass. At times of tropic tides the current may set in a flood direction for as much as 18 hours. The current velocity is 3.5 knots on the flood and sets northeast and 2.5 knots on the ebb and sets southwest. Velocities of 4.5 knots have been observed.

(529) The current velocity is 2 knots on the ebb and 3.5 knots on the flood between Konets Head and Emerald Island. Velocities of 4.5 knots have been observed. The flood current causes a set almost at right angles to the course when navigating Umnak Pass.

(530) The current velocity is 2.5 knots near Polivnoi Rock.

(531) See the Tidal Current prediction service at *tidesandcurrents.noaa.gov* for specific information about times, directions, and velocities of the current at numerous locations throughout the area, including Umnak Pass. Links to a user guide for this service can be found in chapter 1 of this book.

(532) The effect of the current in Umnak Pass is felt in a diminishing degree as far as Cape Idak and Cape Aspid on the north side, and on the south side it is felt about 10 miles to the south of Polivnoi Rock.

(533) On the ebb, very pronounced tide rips occur on the south sides of the shoaler banks in Umnak Pass and in the south approach. These tide rips are different from the tide rips encountered in Akutan Pass and Unalga Pass. In smooth weather they look like a line of breakers and may attain a considerable height. In moderate or stormy weather they merge with the seas, increasing their roughness to a considerable extent.

(534) On the flood, light confused tide rips occur in the vicinity of Ship Rock and on the banks to the northeast of it, while the pass, with its countercurrents, resembles a broad, shallow river, the effect being caused by several lanes of currents and countercurrents. Off the points along the Umnak Island shore, tide rips are dangerous for skiffs and small launches, especially between Otter Point and Kettle Cape.

(535) From the south, navigation is more difficult, as Polivnoi Rock is low and Kettle Cape is not easily distinguishable against the higher background. With a heavy, south swell and a strong ebb it might even be found dangerous to attempt the pass because of heavy tide rips. The passage north of Emerald Island might be found preferable under such circumstances.

(536) In the approach to the pass the soundings are confusing as there are numerous banks with depths of 6 to 10 fathoms at distances of 4 to 6 miles from Emerald Island and Polivnoi Rock.

(537)

Routes

(538) The following courses through Umnak Pass will avoid the worst of the tide rips: From a position 1 mile east of Ship Rock make good course **217°** for 5 miles to a position abeam of the rocks north of Emerald Island. After passing Konets Head look out for a strong set from the passage north of Emerald Island. Tide rips will be seen on the 8-fathom bank, 2 miles west of Konets Head, if the current is ebbing. Thence proceed on a course **205°**, with Ship Rock astern, for 3.5 miles, to position abeam of Polivnoi Rock, 1.5 miles distant. If bound southwest, the 6-fathom spot 2.5 miles 195° from Polivnoi Rock can be avoided by continuing course **205°** beyond it.

(539)

Umnak Island

(540) **Umnak Island**, third largest of the Aleutian Islands, is about 65 miles by 15 miles in extreme length and breadth. On the island are reindeer, foxes and a few head of horses and cattle. Mount Vsevidof, a volcano 6,920 feet high, is the summit of the island. It is situated southwest of the center of the island, near the west shore, with no other mountains southwest from it. Several prominent buildings and antennas are on **High Hill**, on the west end of the island.

(541) **Caution**

(542) A former 1947 Ordnance Disposal Area containing unexploded ordnance is located approximately 12 miles north of Reese Bay, Unalaska Island, near location 54º11'N.,166º41'W. Unexploded ordnance has been brought forth within fishing nets at a location approximately 6.5 miles north of Cape Cheerful near location 54º06.5'N.,166º38.0'W. The unexploded ordnance are potentially hazardous and mariners are advised against anchoring, dredging, or trawling in this area due to their presence.

(543)

Tulik Volcano to Cape Idak

(544) **Tulik Volcano**, an enormous crater 7 miles across, is situated in the north part of Umnak Island. Dense smoke may be visible from various parts of the crater.

(545) **Mount Tulik** is a conical peak 4,111 feet high on the southeast rim of the crater; another very sharp peak, 3,519 feet high, is on the opposite side of the rim.

(546) **Kettle Cape**, on the southeast side of Umnak Island and at the south entrance to Umnak Pass, is a jagged rocky ridge about 490 feet high that from certain directions resembles a kettle. It is the first prominent point west

of Umnak Pass. The point is more conspicuous than its height or the configuration of the shore would indicate, as low land surrounds it.

(547) Kettle Cape is fringed by rocks; the outer ones to the southeast are about 0.2 mile offshore and are visible only at about low water. A large area of shoal water, 1.5 miles southeast of Kettle Cape, has a least found depth of 1¾ fathoms. This area breaks heavily in moderate south weather. It is marked by kelp but the kelp is difficult to see except in flat calm weather. Depths of 10 to 14 fathoms are found between this shoal and Kettle Cape. Some shelter can be found east of Kettle Cape from west and north weather.

(548) The shore northeast from Kettle Cape is composed of sections of sand beach backed by low earth bluffs and gulleys from whence it rises gradually to the rim of the enormous crater of Tulik Volcano that occupies the whole north part of Umnak Island. Outside the high water line are several shoals and reefs.

(549) Two miles northeast from Kettle Cape and extending several miles northeast, the shore is fringed by rocks that extend 500 yards offshore, and comparatively shoal water, less than 10 fathoms, extends 1.3 miles offshore. Heavy tide rips, dangerous for small boats, occur in this area.

(550) **Black Rock**, a flat rocky ledge 10 feet high, is 7.6 miles northeast of Kettle Cape and 0.5 mile from shore. Depths of 12 to 20 fathoms are found 0.5 mile south and east of this rock.

(551) About 2.7 miles northeast from Black Rock is a point with a rocky ledge that extends about 350 yards northeast; a landing can be made behind the ledge.

(552) **Otter Point** is 12 miles northeast of Kettle Cape. The intervening shoreline is featureless, and Otter Point, when abreast of it, is only recognizable from the change in direction of the shoreline that turns to the north. From the northeast, a knoll 275 feet high, rising above a comparatively flat area just west of Otter Point, stands out conspicuously.

(553) **Ship Rock**, 1 mile southeast of Otter Point, is one of the most conspicuous landmarks in the vicinity. It is an island about 500 yards long and 200 yards wide with a sharp inaccessible peak 424 feet high at its south end. At its north end is a lower peak ending in an abrupt bluff, giving the island its distinctive shape, but from northeast and southwest only the single higher peak is visible. The channel between Ship Rock and Umnak Island has depths of over 20 fathoms, but because of strong currents and tide rips it should be avoided.

(554) A bank covered 9 fathoms, on which swirls and tide rips occur, extends almost 0.5 mile east of the island, with deep water beyond.

(555) **Pustoi Island** is flat and grassy, 68 feet high and about 500 yards in diameter. It is 0.9 mile northeast of Otter Point. The channel between Pustoi Island and Otter Point has a depth of 8 fathoms. Deep water is close off the east end of the island.

(556) From Otter Point, the shore trends north for 2 miles, then north-northwest for 1 mile, then northeast for 2 miles forming broad **Otter Bight**. Good anchorage can be found with shelter from south, west and north, in 8 to 20 fathoms. The adjoining beach is suitable for landing except in heavy north weather.

(557) A vessel could remain in Otter Bight in moderate southeast weather but not in severe storms. In approaching the anchorage, the depths shoal rapidly from 20 to 10 fathoms about when Pustoi Island comes on range with Ship Rock. Depths of 10 fathoms are found 1 mile from shore, but depths of not less than about 6 fathoms will be found 600 yards from shore.

(558) A reef extends 400 yards from shore at a point 3 miles north of Otter Point. One mile north of the reef, high land begins and extends north to Cape Idak.

(559) The shore northeast of Otter Bight to Cape Idak is composed of steep bluffs, with several rocky islets close to shore. It has no hidden dangers except very close to the land, and the shore can be skirted at a distance of 0.5 mile.

(560) **Cape Idak**, the northeast point of Umnak Island, is the north end of a long, flat ridge about 1,570 feet high, sloping gradually to the north. From the east this point appears as the north end of the island as the land to the west is low, but Cape Tanak extends about 2.7 miles farther north.

(561)

Cape Tanak to Fire Island

(562) Between Cape Idak and Cape Tanak is a flat bight. The shore of the bight is regular and lined with sand, while inland the terrain is low and grassy except in the region about 1.5 miles west of Cape Idak, where a mountain slope terminates in bluffs near the beach. Depths of 20 to 30 fathoms are about 1 to 2 miles off the shore of the bight with the bottom shoaling gradually toward the beach.

(563) **Cape Tanak**, about 7 miles west-northwest from Cape Idak, is a low, rounding point with a number of hummocks about 50 feet high. Depths of over 100 fathoms are within 1 mile of Cape Tanak, though two narrow ledges with depths less than 100 fathoms extend into much greater depths and cause tide rips that may be mistaken for signs of a shoal. Good shelter from south weather can be found east of Cape Tanak.

(564) The flood currents, which set northeast along either side of Umnak Island, unite in the vicinity of Cape Idak, causing tide rips. The ebb divides in the vicinity of Cape Tanak.

(565) **Ashishik Point** is a narrow point about 3 miles west of Cape Tanak. It is low and from offshore blends with the higher land in back of it. The point extends almost as far north as Cape Tanak, and it should be given a berth of more than 0.5 mile. Landing can be made on this point except in north weather, and there is a good supply of water nearby.

(566) The bight between Cape Tanak and Ashishik Point furnishes good anchorage in south weather. Since the prevailing winds in summer are southwest there are frequently long intervals when this bight is comparatively smooth.

(567) From Ashishik Point the coast of Umnak Island trends southwest. **Boiling Pinnacles**, with least depth of 3½ fathoms, are about 3 miles west of Ashishik Point, with the outer end of the point in range with the outer end of Cape Tanak. The shoal is about 1.5 miles from the shore of Reindeer Point. Deep water is found outside of this shoal. It is marked by kelp, and tide rips occur to the north of it. With the exception of this shoal, no indications of dangers have been found along the west coast of Umnak Island as far south as Cape Kigushimkada, and vessels in general may approach 1 mile off the shore.

(568) **Reindeer Point** is 3 miles west of Ashishik Point.

(569) **Cape Chagak**, about 6 miles west-southwest of Ashishik Point, is not conspicuous. On the north side of the cape there is a bold bluff rising about 200 feet. Southwest of Cape Chagak the beach is about 3 miles in length and generally sandy.

(570) **Aguliuk Point** is 5 miles southwest of Cape Chagak and 4.5 miles northeast of Cape Aslik. Northeast of the point, for about 2 miles, the coast is broken and irregular with bluffs, sand beaches, lava outcrops and off-lying rocks, the farthest of the latter being within 125 yards of the high waterline. Rocks are off the lava outcrops forming the foot of Aguliuk Point, and a long, narrow edge of rocks, 100 feet high, extends breakwaterlike for 225 yards into the sea on the south side of the point. A sand beach, beginning at this edge, extends southeast for about 3 miles to Cape Aslik. Back of this beach, for about 3 miles, the terrain is a regular and fairly consistent slope.

(571)

Local magnetic disturbance

(572) Differences from normal variations of as much as 4° have been observed at Aguliuk Point.

(573) **Bogoslof Island** (53°56'N., 168°02'W.) is in the Bering Sea about 22 miles north of Cape Tanak. It is of recent volcanic formation, and eruptions have completely changed the topographic features several times. Accordingly to existing records, eruptions have occurred in 1796, 1883, 1906, 1910 and 1923-27, but it is probable that there have been other eruptions of which there are no records. It now consists of one main island and a rocky islet known as Fire Island. Bogoslof Island forms a useful landfall on a course west from Cape Cheerful.

(574) Bogoslof Island is a Steller sea lion rookery site. There is a 3-mile vessel exclusionary buffer zone around the entire island. (See **50 CFR 224.103**, chapter 2, for limits and regulations.)

(575) The 500-fathom curve around Bogoslof Island approximates a circle about 5 miles in diameter.

(576) The main island, once known as **Castle Island** because of a castle-shaped rock on it, is about 1 mile long and 0.5 mile wide and extends in a northwest and southeast direction. The south end terminates in a low, black sandspit which is now the haul-out place of a large number of sea lions. This point was found to shift its position during the season of 1935. On the northwest part of the island is the volcano crater of recent time from which steam emits occasionally, and adjoining the crater is a pond that is 4 feet below high water; the crater is 141 feet high. The rocky portion of the island is the home of thousands of birds.

(577) **Castle Rock** on the southwest part of the main island no longer resembles a castle. Its outline is ragged and consists of two main pinnacles, 333 feet high.

(578) **Fire Island**, 225 feet high, is 440 yards northwest of the main island and practically connected with it by a rocky ledge that uncovers. It is a steep, rocky island, 220 yards long and 100 yards wide, and has three distinct summits, the middle one being square and resembling a castle. This summit is lower than the adjoining ones. A small islet, 190 feet high, adjoins Fire Island.

(579) Fair-weather anchorage can be had on the northeast side of the island, offshore in 20 fathoms, sandy bottom, and on the northwest side of the island, 800 yards offshore, in 10 fathoms.

(580) A current is often reported setting east in this vicinity; it is variously reported to set toward Cape Cheerful and toward Umnak Pass, with a velocity of 0.1 to 0.4 knot. It is inferred that with a barometric depression near Unimak Pass it sets toward Cape Cheerful, but with a depression in the Pacific Ocean south of Unalaska Island it sets toward Umnak Pass. Vessels coming from west often made Point Kadin ahead instead of to starboard. Maximum northwest currents of 1.3 knots were found on the northeast side of the island. There were also indications of a stronger east current on the north side of the island. A 1-knot current, setting continuously north for 21 hours, was observed at a location 0.5 mile west of Bogoslof Island.

(581)

Cape Aslik to Cape Ilmalianuk

(582) The shore of **Cape Aslik** is the face of an old lava flow. It is very precipitous and irregular, with numerous covered rocks that extend well offshore. Heavy kelp fringes the south side of the cape. The cape is prominent, with vertical cliffs 60 to 150 feet high. Back of the cape, about 2 miles inland, is a conspicuous, conical hill, 865 feet high. This hill is of a dark red color, with a distinct hole in the slope on its southwest side. Farther inland, about 6 miles east of Cape Aslik, a distinctive peak rises to 3,310 feet. It is very ragged with deep slopes and a shoulder 600 feet lower than the summit that extends about 0.5 mile to the northwest. Between Cape Aslik and Cape Kigunak the shore is a beach of fine black sand. Back of this beach is a large, flat valley bordered by mountain ridges on the north and south and having a lone and prominent mountain in the middle. The valley, which extends to the Pacific Ocean side of Umnak Island,

is a swamp land covered with a heavy growth of grass. A large stream flows through this valley.

(583) **Cape Kigunak**, about 5 miles south of Cape Aslik, is easily distinguishable and is a very prominent point on approaches from the north. It has a sharp, conical peak, 1,164 feet high, near its outer end. Its shore consists of a steep beach of boulders and broken rocks, with steep grass slopes rising directly behind. Two rocks about 15 feet high, 300 yards off the west part of the cape, and a third rock, same height, on the low-water line show up very conspicuously. Many boulders and rocks and a band of heavy kelp extend about 400 yards offshore around the cape. The bight north of Cape Kigunak affords some protection in south and east weather but is not recommended in heavy weather.

(584) **Inanudak Bay**, between Capes Kigunak and Ilmalianuk, has depths of 10 to 40 fathoms and affords shelter except from the west and northwest. The shore of the bay is rocky and precipitous except at the heads of the several coves and bights that form part of the bay. Sand and pebble beaches are found at the heads of these coves, and low bluffs, from 5 to 20 feet high, rise abruptly from the beaches. Beyond these bluffs are flat lands or valleys.

(585) From the westernmost point of Cape Kigunak, the shoreline curves sharply southeast and east and the shore of the bay for about 2 miles is along the foot of a ridge almost straight up from the waterline. At the end of the ridge, and at the head of **Izhiga Cove**, is a sand beach that extends to Cinder Point. The water is shallow along the beach, and several lines of breakers make small-boat landing difficult. Back of the beach, beyond the low bluff bordering it, is a flat valley.

(586) **Cinder Point** was formed by a lava flow and is about 150 feet high near the shore, except in the middle where there is a slight draw. A cinder cone 564 feet high is near the center of the point.

(587) **Stepanof Cove**, southeast of Cinder Point, has a sandy beach about 1 mile in length at its head. Shoal water and several lines of breakers make small-boat landing difficult except on the north side of the cove where the water is usually quiet; fresh springs and seepages exist along the beach. A 70-foot pinnacle rock at the south end of the beach is conspicuous from all parts of this cove.

(588) A low, narrow valley with steep sides extends southeast from the head of Stepanof Cove to the Pacific Ocean side of Umnak Island. The buildings on the south side of the valley are stocked and maintained for land-air rescue work. A road extends from Stepanof Cove to Fort Glenn, about 20 miles to the northeast.

(589) **Steeple Point**, forming the south side of Stepanof Cove, has a very prominent, tall pinnacle projecting out of the side of its steep bank and numerous large rocks and boulders off its shore. The pinnacle resembles an inverted carrot and is 200 feet above the beach.

(590) **Hot Springs Cove** has about 1 mile of sand beach at its head with a small stream in the south part. Salmon spawn in a stream about 2 miles back of the beach beneath several small waterfalls. The steam from several small, hot springs at the head of this stream can be seen from the east side of Inanudak Bay.

(591) Between Hot Springs Cove and Cemetery Cove to the west are 1.5 miles of rocky shore. Near and west of the center of this shore, shoal water, marked by kelp, extends 0.4 mile offshore to the 10-fathom curve. Above the beach near the center is an overhanging cliff, 1,000 feet high. The beach in **Cemetery Cove** is rocky and bends north toward Broken Point. Water may be obtained from a small cliff stream on the north part of this beach.

(592) **Broken Point** is not conspicuous. It has a rocky beach with deep water off the point; the 20-fathom curve is about 0.3 mile offshore.

(593) **Geyser Bight**, west of Broken Point, indents the shoreline about 1.5 miles from a line tangent to Broken Point and Cape Ilmalianuk. Its beach is rounded and about 4 miles in length, with the east half sandy while the west half is rocky and bordered with kelp. There are 3 small rock islets 0.3 mile offshore in the center of the bight and another the same distance off the beach in the east part. Some protection may be found in Geyser Bight in south weather but it is not recommended in heavy weather.

(594) **Cape Ilmalianuk**, the south entrance point of Inanudak Bay, is about 500 feet high and conspicuous. It has a rounded shore, with a number of rocks and kelp that extend seaward for about 300 yards. A rock, 0.4 mile northwest of the point is conspicuous at low tide. A shoal area that extends 1.5 miles off the cape is 10 fathoms deep 0.5 mile offshore and 20 fathoms about 1 mile farther off. Ships should keep 1.5 miles off the cape.

(595) Anchorage may be found in any part of Inanudak Bay about 0.4 mile from shore. By shifting, shelter may be had from all directions except the northwest. No anchorage will give protection from severe northwest weather. Good anchorage is available for large ships in 20 fathoms about 1.5 miles from the beaches at the heads of Stepanof Cove and Hot Springs Cove.

(596) Stepanof Cove affords the best shelter from southeast around to north-northwest. Anchorage may be found in 8 fathoms with Cape Kigunak just open of Cinder Point. When the wind gets around to south or southwest, this cove becomes uncomfortable.

(597) Hot Springs Cove affords shelter in south and east weather. Cemetery Cove affords shelter except from winds from the northwest quadrant. Anchorage may be found in Izhiga Cove 0.3 mile from shore in 8 to 10 fathoms, but better shelter from north weather can be found in Stepanof Cove.

(598)

Kshaliuk Point to Cape Kigushimkada

(599) Between Cape Ilmalianuk and Cape Kigushimkada, for nearly 13 miles, there are no known dangers to navigation; ships are advised to keep 1 mile offshore in order to hold a depth of 25 fathoms or more. Kelp extends from 200 to 300 yards off the rocky areas.

(600) The currents off the coast between Cape Ilmalianuk and Cape Kigushimkada are estimated to be from 2 to 3 knots, the strongest being opposite Kshaliuk Point. The current sets northeast on the flood and southwest on the ebb.

(601) The weather along this coast may change after passing Derby Point. When foggy, wet, windy weather prevails southwest of the point, good or comparatively clear weather may be encountered to the northeast and vice versa.

(602) Between Cape Ilmalianuk and Derby Point, for about 10 miles, the coast extends in a general southwest direction. A practically straight sand beach about 3 miles in length begins on the southwest side of Cape Ilmalianuk.

(603) **Kshaliuk Point** is a rounded, prominent point at the southwest end of the beach. This point has grassy bluffs about 400 feet high, except on its north side, which is practically straight up and down with prominent horizontal layers of stratified rock. Southwest of the point, the land back of the shore is low, the beach consisting of short stretches of sand, rock and lava formation. The most conspicuous lava flow is at Twinlava Point, about 4 miles southwest of Kshaliuk Point.

(604) South of Kshaliuk Point, between it and Mount Vsevidof, are three sharp prominent peaks about 2,000 feet high and about 0.5 mile apart. Less than 1 mile from the peak nearest the shore is another prominent peak of about the same elevation. It has a broad, rounded base, rising almost from the shore and has two points on the top; a low saddle connects the points.

(605) **Derby Point**, about 1.5 miles southwest of Twinlava Point and 3 miles north of Cape Kigushimkada, has cliffs and rock outcroppings along its shore. The steep sides of the point are grass covered above the cliffs, but the top is bare and strewn with cinders and small lava boulders. The rounded hill on the point resembles the crown of a derby hat when viewed from seaward, the rocky shoreline forming the brim of the hat. This point is a conspicuous feature of this coast and also serves as a line of demarcation for different weather conditions.

(606)

Local magnetic disturbance

(607) Differences from normal variation of as much as 4° have been observed at Derby Point.

(608) The coast between Derby Point and Cape Kigushimkada has a south direction and consists of a bold, rocky cliff at the base of Mount Vsevidof.

(609) **Mount Vsevidof** is an extinct volcano 6,920 feet high and the highest peak on Umnak Island. It is about halfway between Inanudak Bay and Nikolski Bay and approximately 40 miles southwest of Cape Idak.

(610) The upper reaches of this mountain are usually covered with snow the year round. The west side slopes gradually to the shore between Twinlava Point and the north end of the large open bight south of Cape Kigushimkada.

(611) The peak appears conical from the northwest with a slightly flattened top, but the large crater so plainly visible from the Pacific side of Umnak Island does not show at all. The two small glaciers on the north side of the extinct volcano are not prominent from offshore, but the valley that extends inland on this same side has many bare cinder patches and lava outcrops visible from offshore. This valley goes back toward the large, jagged, saw-toothed mountain range, 6,510 feet high, to the northeast of Mount Vsevidof.

(612) **Cape Kigushimkada** is the north point to a large open bight. This cape, at the base of Mount Vsevidof, is the outer end of a lava flow that forms a rugged, rounded headland having precipitous, rocky bluffs, 80 to 90 feet high, with numerous jagged indentations. Many rocks and pinnacles are adjacent to the shore of this cape. The shelf on top of the cape is covered with many lava outcrops, cinder beds and fissures and rises gradually inland to form part of the west slope of Mount Vsevidof.

(613) On the southeast side of Cape Kigushimkada is a bold headland, prominent from seaward. A broad sand beach, about 1.5 miles south of this headland extends for about 2.5 miles south-southwest. Behind the beach is a broad, grassy valley with three prominent streams, the two northernmost carrying the drainage from the south slopes of Mount Vsevidof.

(614) At the south end of the sand beach is a rocky headland with outlying ledges that are partially awash at high water. A rocky islet is about 0.6 mile west of the headland. About 0.5 mile south of this islet is a covered rock that breaks in heavy weather, and another islet is about 1 mile north of Okee Bay. From the headland the shore runs in a southwest direction and is very irregular, with numerous indentations.

(615) From Cape Kigushimkada to the southwest end of Umnak Island, the land is rolling, with numerous rounded hills. The bottom along the shoreline of both Umnak Island and Ananiuliak Island is very uneven and has some dangers to navigation.

(616)

Okee Bay to Adugak Island

(617) **Okee Bay** is a small, shallow cove on the east side of a small peninsula on the north side of Okee Point. This bay affords some shelter for small craft and has a sand beach where landings can be made in most any weather. Another small, shallow inlet is on the west side of the small peninsula.

(618) **Okee Point** is a headland on the north side of the entrance to Nikolski Bay. It has steep, rocky bluffs back of the high water line and rocky ledges extend offshore.

(619) **Anangula (Ananiuliak) Island**, on the north side of Nikolski Bay and off Okee Point, is a kite-shaped island about 1.4 miles in length and 301 feet high near the center. Bare rock ledges extend 50 to 60 yards from the grass line on the shore of the west side of the island. Passage between this island and Umnak Island through Seaweed

Pass is not advisable as there are no natural ranges that can be recommended. During the summer, kelp may extend across the passage.

(620) **Nikolski Bay**, between Anangula Island and Cape Starr, is about 12 miles south of Mount Vsevidof. It is about 4.5 miles wide and 3 miles long and is open from the west to the north-northwest. The shore of the bay consists mostly of gravel and rock beaches. It is fringed to varying distances offshore by reefs, large boulders and kelp. Many of these reefs actually are above high water but are covered by the heavy swell except on very calm days. The area bordering the reefs along the shore is foul, with numerous covered rocks. It should not be approached too closely.

(621) The bay is surrounded by rolling hills that are covered with a thick mat of grass and frequent marshy areas. **High Hill**, 712 feet high, is near and north of the center of the bay and is a prominent landmark in approaching anchorage. It is cone shaped but flat topped, and the sides, except inland, are steep, rocky and rugged.

(622) Except on very calm days there are few places where safe landings can be made. It is reported by the natives that in the winter when heavy northwesters are blowing, it may be impossible to land even in Nikolski in Mueller Cove. Landing is possible in most any weather in River Cove in the mouth of Sheep Creek.

(623) The currents are strong, especially around Anangula Island, but are not dangerous, as they generally run parallel to the shoreline.

(624) Anchorage with protection from west and north weather is found in the north end of Nikolski Bay behind Anangula Island in 10 to 25 fathoms with good holding ground. A good anchorage in east weather is off **Kelp Point** in 10 to 20 fathoms.

(625) **Eider Rock**, about 1 mile northwest of High Hill, is a small island reef 600 yards offshore in the northeast portion of Nikolski Bay.

(626) The head of Nikolski Bay south of Kelp Point is a rectangular-shaped bight with a large, rocky ledge along the shore at its head. The two coves in this bight are **River Cove** at the northeast corner and Mueller Cove in the south. The large rocky ledge separating the two coves is almost covered at high water.

(627) **Sheep Creek** is the largest stream in the vicinity and empties into River Cove. The creek extends northeast into a broad, marshy valley dotted with numerous ponds.

(628) **Mueller Cove**, the inner anchorage of Nikolski Bay, is the cove in which the village of Nikolski is situated. Only very small fishing boats attempt to enter this cove because of the constricted entrance caused by the reef in midchannel. With any kind of weather from the west or north, seas break across the entrance.

(629) **Rudisell Reef**, at the entrance to Mueller Cove, is practically covered at high water, and in heavy weather the seas break over its narrow outer ledge of rocks that are about 4 feet above high water. This ledge, however, serves as an excellent natural breakwater and protects the beach at the head of Mueller Cove except when heavy northwesters are blowing up the bay.

(630) A rock covered ¾ fathom is 0.1 mile west of Rudisell Reef and in the entrance to the channel into Mueller Cove. The location of this rock nearly always can be determined by the breaker over it. At high water, in west weather, it may break very heavily and cause a dangerous surge across the channel toward Rudisell Reef.

(631) **Nikolski** is one of the most frequented places west of Unalaska. A good shingle beach is in front of the village. The store and the church are painted white and are the most prominent buildings in the village. The church has two crosses, one of which is on the belfry tower. This tower is the most conspicuous point in the village. The store carries a few supplies but is stocked only during the trapping season. Mail is delivered by airplane. The ranch buildings of the Harris Livestock Co. are about 0.3 mile southwest of the village. The buildings of the company consist of living quarters, barns, and storehouses. The largest of these buildings is a landmark looming prominently on the skyline from the anchorage off Kelp Point. The wool-storage building, painted red, also makes a conspicuous landmark.

(632) **Cape Starr**, about 3 miles to the west of Nikolski, is a bold headland with steep rocky bluffs, 150 to 350 feet high, backed by rolling, grass-covered hills. The shoreline is bordered by rough, irregular, rocky ledges and reefs, numerous rocks and extensive kelp beds. Several small islets, reefs and rocks awash are from 0.5 to 3 miles off Cape Starr.

(633) South of Cape Starr is a wide, flat beach of fine white sand, back of which are low, grass-covered, sandy bluffs. Inland a broad valley that extends across the island bends northeast to the chain of lagoons south of Nikolski. The remainder of the Bering Sea coast of Umnak Island is mostly rocky and rugged. Southwest and west from the beach are numerous jagged, rocky projections and rock pinnacles. The area outside the high water line is filled with rocks, small ledges and patches of kelp. The most prominent and highest place on the southwest end of Umnak Island is **Elbow Hill**, 442 feet high, about 4 miles southwest of Cape Starr. It is grass covered and prominent from seaward. **Idaliuk Point** is 2.4 miles west of Elbow Hill.

(634) **Pancake Rock**, about 2.5 miles west of Cape Starr, is a 22-foot islet that sometimes has, from a distance, the appearance of a flat pancake on the surface of the water. This islet is the east end of a low, flat, rocky reef about 500 yards in length.

(635) Several reefs and rocky islets are southeast of Pancake Rock. The farthest from the shore of Umnak Island is a rocky islet, surrounded by ledges and rocks awash, about 1 mile southeast of Pancake Rock and 1.5 miles offshore from Cape Starr.

(636) **Adugak Island**, about 7 miles west of Cape Starr and 4 miles off Idaliuk Point, is 160 feet high.

(637) Adugak Island is a Steller sea lion rookery site. There is a 3-mile vessel exclusionary buffer zone around

the entire island. (See **50 CFR 224.103**, chapter 2, for limits and regulations.)

(638)

Cape Sagak to Thumb Point

(639) **Cape Sagak**, the southwest end of Umnak Island, is long and generally low with rolling grass-covered hills and short stretches of sand beaches.

(640) The passage between Cape Sagak and the northeast point of Samalga Island is dangerous. Foul ground and extremely heavy tide rips extend between the two points of land and for a considerable distance north and south. There are impenetrable patches of kelp, and the current goes through at a very high velocity, probably 7 knots.

(641) Vessels drawing more than 4 feet should avoid this passage. Boats of less draft may go through only during periods of slack water and in fair weather. Such craft should clear Cape Sagak by 0.25 mile on a course **160°**.

(642) **Samalga Island**, the long and narrow island about 2 miles southwest of Cape Sagak, is 4 miles long and 0.5 mile wide at its widest part. The high water line is strewn with rocks and small boulders, and occasional stretches of sand beach are found around the island. Back of the shore the terrain rises abruptly in the form of grassy slopes. The interior is flat and entirely covered with grass. Foxes and sea lions are the only wild life on Samalga Island. It is not inhabited, except for 1 month during the winter when the trappers come to get fox pelts.

(643) The entire island is fringed with a rocky ledge that uncovers and extends from 100 yards to 0.5 mile offshore. On the southwest end of the island this ledge becomes an extensive reef stretching west-southwest along the prolonged axis of the island for nearly 2 miles. In heavy weather there are breakers for a considerable distance over this area.

(644) Landings can be made at various places except in heavy weather when the island is almost surrounded with breakers. The best landing is in a small bight just north of a cabin on the north side of the north end of the island. Vessels may anchor in 10 to 15 fathoms on the bank that extends 160° from the middle of Samalga Island or in not less than 15 fathoms, north of the southwest end of the island. There is no protection in either of these anchorages.

(645) The currents are treacherous in the vicinity of Samalga Island.

(646) The southeast coast of Umnak Island should be navigated with great caution. Southwest of Vsevidof Island, fog appears to be more prevalent than to the north. With west and southwest weather the fog drifts across the low, southwest part of Umnak Island while the high mountains northwest of Mount Vsevidof form a barrier that may cause clear weather in their lee when all the area southwest of Vsevidof Islands is in fog.

(647) West of Samalga Island currents of about 4 knots have been observed setting north when the tide at Dutch Harbor is rising and south when it is falling.

(648) Currents are weak over the bank inside the 100-fathom curve south of Umnak Island.

(649) Northeast from Cape Sagak, the Pacific side of Umnak Island is fringed with rocky ledges and kelp beds. The shallow bight 11 miles from the cape has a sandy beach above the ledges and is backed by low, grassy bluffs about 100 yards inland. A chain of three lagoons is in the low valley that extends north from the bight to the village of Nikolski. On the northeast side of the bight is a bold headland with steep rock bluffs rising to 561 feet.

(650) **Driftwood Bay**, about 40 miles southwest of Konets Head, Unalaska Island, is on the southeast coast of Umnak Island opposite Nikolski. The bay is between Cape Udak and Black Cape. It is about 3.5 miles across the entrance and is divided into two arms by a headland about 435 feet high. Water may be obtained in either arm.

(651) The west arm is clear of dangers and shoals gradually. From its head a trail leads across the island to the village of Nikolski. Good anchorage may be found in 15 fathoms. In southwest weather some shelter may be obtained in the lee of Cape Udak. In south or southeast weather, there is no good anchorage, but in an emergency small boats might find some shelter in the east arm.

(652) The east arm, **Traders Cove**, is more or less foul and should not be entered without local knowledge. Small boats could be hauled out on the sandy beach in the northeast corner of this arm. In this corner is a shack in which fuel and food supplies are kept for sheepherders.

(653) **Cape Udak**, on the west side of Driftwood Bay, appears as a flat plateau about 600 feet high and about 1.2 miles across its seaward face. All sides of the cape are precipitous, rocky cliffs.

(654) **Black Cape**, about 392 feet high, is on the east side of Driftwood Bay. The cape slopes gently down to the water's edge and has a group of rocky islets, about 135 feet high, 175 yards offshore.

(655) **Lookout Point** is 4 miles northeast of Black Cape. From Lookout Point for 6 miles to the point opposite Kigul Island, the shore of Umnak Island trends east-northeast. Numerous rocky islets extend offshore for 1.5 miles. In addition to these visible objects, numerous kelp patches mark depths of 2 to 5 fathoms. The outermost of these is south of Kigul Island and has a depth of 4½ fathoms.

(656) **Amos Bay** is 8 miles northeast of Black Cape and about 3 miles north of Vsevidof Island. It is about 0.7 mile wide and 1 mile long in a north-south direction. The west side of the bay is bordered by reefs that extend about 400 yards offshore, and the head is shoal. Anchorage with shelter from northeast to west can be found 0.3 mile west of the east entrance point, in 7 fathoms.

(657) To approach this anchorage, from a position 0.8 mile west of Vsevidof Island steer 000° for 3.5 miles, passing 0.4 mile west of a rocky islet that is about 1 mile south of the east entrance point. Favor the east shore of the bay to avoid the reefs bordering the west shore. A trail leads from the head of the bay to Nikolski on the west coast.

On the east side of the bay is a cabin in which food and fuel are kept for sheepherders.

(658) **Vsevidof Island**, 280 feet high and about 1 mile across, is the largest of the group of islands on the southeast side of Umnak Island and is southeast of Mount Vsevidof. A small bay indents the south shore of Vsevidof Island. Covered rocks at the entrance prevent anything larger than a small launch from entering and then only when no surf is running. Rocks extend southeast 0.4 mile from the southeast point of the island, terminating in a rocky islet about 30 feet high. Depths of more than 20 fathoms are 0.3 mile east of these rocks.

(659) **Ogchul Island**, 1.7 miles east of Vsevidof Island, is about 0.3 mile across, 180 feet high, and is surrounded by deep water. The island is flat topped. The channel between the two islands has depths of 35 fathoms or more.

(660) Ogchul Island is a Steller sea lion rookery site. There is a 3-mile vessel exclusionary buffer zone around the entire island that also encompasses Vsevidof Island. (See **50 CFR 224.103**, chapter 2, for limits and regulations.)

(661) **Kigul Island**, 3.5 miles north of Vsevidof Island and about 2 miles east of Amos Bay, is the largest of the inshore islands. It is about 0.5 mile in diameter and 219 feet high. The island is 0.5 mile off the coast of Umnak Island, and the channel in the passage between the island and the coast is restricted by shoals to a width of about 150 yards. North of Kigul Island, anchorage with shelter from south and west winds can be found in about 12 fathoms. Anchorage with shelter from east winds can be found west of the island in 7 fathoms. The approach to this anchorage is difficult without local knowledge.

(662) **Lone Rock**, 1.5 miles northeast from Kigul Island and 42 feet high, is the northernmost of the group of rocks and islets in this vicinity.

(663) **Russian Bay**, near the middle of the Pacific Ocean side of Umnak Island, is about 1 mile wide and 2 miles long. A rocky ledge, 16 feet high, is about 1 mile east of the south entrance point. This ledge should be given a wide berth to the southwest to avoid a rock that uncovers 425 yards southwest of the ledge. The point on the northeast side of the entrance should also be given a wide berth to avoid the foul area that extends southwest of the point for about 0.3 mile. At the head of Russian Bay is a sandy beach where a stream of considerable size flows into the bay. This bay offers protection from north weather in 10 fathoms, sandy bottom. In southeast weather the bay is not recommended except in an emergency.

(664) **The Pillars** are a pair of pinnacle rocks, the larger 130 feet high, about 3 miles off the shore of Umnak Island and 15 miles northeast from Vsevidof Island. These rocks stand out prominently from all directions and may be seen many miles on clear days. From the north and south they have the appearance of a single pinnacle. From the east both rocks are visible. A rock awash at high water is about 175 yards east of The Pillars. Depths of more than 14 fathoms can be carried to within 0.3 mile all around these rocks.

(665) **Thumb Point**, about 3 miles west of The Pillars, is a long, narrow point, on the tip of which are three large pinnacles. Two of these, about 150 feet high, are on the beach. The third, 121 feet high, is about 150 yards offshore. From distances less than 5 miles these three pinnacles are very distinct; though several others of like size are in the vicinity, these cannot be mistaken, there being no other group of three.

(666) The broad bight between Thumb Point and Kettle Cape is fringed by off-lying ledges. Two valleys lead across Umnak Island toward Inanudak Bay from the head of this bight.

(667)

Islands of Four Mountains

(668) **Islands of Four Mountains** are a group of five treeless, volcanic islands west of Umnak Island. Their names are Uliaga, Kagamil, Chuginadak, Carlisle and Herbert. The group is about 16 miles from Samalga Island and about 18 by 25 miles in extent.

(669) These islands are high and snowcapped, with some snow remaining throughout the year. Clouds obscure the peaks most of the time. Frequently in the summer, while low fog banks are over the adjacent waters, the peaks stand clear above and are visible away from the fog banks. Fog is often in patches that may be avoided by passing around one of the islands or by moving out of the sweep of wind through a pass. The winds play about the islands with all the vagaries common to williwaws and may sometimes be avoided by making a move of 1 mile or so.

(670) Navigation among the islands is beset by frequent fogs, strong and treacherous currents and tide rips that may be dangerous for small craft. Because of the frequent fogs and strong currents it is emphasized that navigation is safe only by frequent sounding and constant reference to the chart. All waters are clear for large ships beyond about 1 mile from the shores and for small craft beyond 0.25 mile except where obstructions are charted. It is not safe to attempt passage inside any of the off-lying rocks.

(671) In **Samalga Pass**, between Samalga Island and the Four Mountains Group, the waters are deep and 15 miles in width; however, a good berth must be given the shoals that extend southwest from Samalga Island.

(672) A bank, with a minimum depth of 13 fathoms, is about 5.5 miles south of Concord Point, Chuginadak Island. Apparently it is the high spot of a large shoal area rather than a pinnacle.

(673) Among the group, the passes are probably all clear, though they have not been swept with wire drags.

(674) It is strongly recommended that a vessel proceeding along the north side of the Aleutian Islands avoid anchorage in the Four Mountains Group in bad weather. With a heavy sea running in the Bering Sea, dangerous tide rips will be encountered among the islands, and any lee afforded by indentations on the islands' shores is offset by the sudden shifting of the wind that may necessitate

shifting anchorage during thick fog through narrow passes subject to strong tide rips.

(675) **Uliaga Pass**, between Uliaga and Kagamil Islands, has 9 fathoms across almost its entire width, and a midchannel course clears all known dangers. In the middle of the pass is a light growth of kelp; it is towed under and difficult to see except during the periods of slack water.

(676) **Kagamil Pass**, between Kagamil and Chuginadak Islands, is wide and clear; no obstructions northwest of Corwin Rock. The least depth in the pass is 7 fathoms 1.2 miles north of Chuginadak Island.

(677) In **Carlisle Pass**, between Chuginadak and Carlisle Islands, a midchannel course will carry 28 to 32 fathoms in the shoalest part. The depths increase quickly to 80 and 90 fathoms at both ends of the narrowest part of the pass. On either side of midchannel the water shoals rapidly toward land, but no danger exists until about 550 yards from the shoreline. The currents in this channel are strong, and the rips and swirls are of moderate intensity. Small boats should avoid the center of the pass to clear the worst of these.

(678) **Chuginadak Pass**, between Chuginadak and Herbert Islands, is about 3 miles wide, with depths of more than 100 fathoms.

(679) Between Herbert Island and Yunaska Island, to the west of the Four Mountains Group, the passage is 14 miles wide and very deep.

(680)

Currents

(681) Currents observations among the Islands of Four Mountains have not been sufficiently detailed to serve as a basis for precise predictions. The best index to the times of flood and ebb appears to be the information for a location 1 mile east of Yunaska Island is available from the Tidal Current prediction service at *tidesandcurrents.noaa.gov*. Links to a user guide for this service can be found in chapter 1 of this book. Flood sets generally north and ebb south. The duration of slack is usually very short.

(682) Among the islands the water swirls and counters in a highly confused manner, so that rips and eddies may be encountered almost at random. Rips in some cases indicate bottom configurations, but often not. Particularly in bights along the shores, currents counter to those outside may be anticipated.

(683) Strong tidal currents set through all the passes. Velocities exceeding 4 knots have been noted, and it is probable that they reach 5 and 6 knots at times. Heavy tide rips may be anticipated except at slack water. In Uliaga Pass and in Carlisle Pass, the flood sets northeast. Between Herbert Island and Chuginadak Island flood is to the northwest. In Kagamil Pass the currents are confused, and the flood appears to enter the passage from the east, passing to the northwest to mingle with the flood current from Carlisle Pass, and thence turns north along the west side of Kagamil Island. South of Chuginadak Island considerable differences in the direction and strength of the current over short distances may be noticed. Heavy rips, except in calm weather and at slack water, are about 1.5 miles Southeast of Concord Point, the southeast point of Chuginadak Island. Current boils have been noted as far as 7 miles offshore. Inshore, the set appears to be to the east most of the time. Offshore, about the 500- to 1,000-fathom curves, it seems to be principally to the west.

(684)

Anchorages

(685) Anchorages in the group of Four Mountains Islands are few and inadequate. The principal one is in Applegate Cove, a bight on the north shore of Chuginadak Island. Protection from north weather may be found in South Cove on the opposite side of this island from Appellate Cove. About 3.5 miles to the east of South Cove is another anchorage, of small extent but offering excellent protection from the north. An anchorage giving protection from southwest to northwest weather is available in the bight at the northeast corner of Chuginadak Island, about 0.9 mile south of Corwin Rock.

(686) A fair anchorage for medium-sized craft is in a cove on the north side of Kagamil Island. Another anchorage is in a bight on the south side of the extreme east end of Kagamil Island.

(687) No other anchorages about these islands can be recommended and none around Carlisle and Herbert Islands. Small craft may find bights here and there where the depths and swinging room are suitable for anchoring, but the prevalence of strong currents, heavy seas, and bad wind conditions make them unsafe. The bottom in and around this group of islands, where it is not rocky, is essentially cinders and volcanic ash mixed with sand and gravel.

(688) **Uliaga Island**, the northernmost and smallest of the Four Mountains Group, consists of one central mountain cone with a few prominent spurs. On the slopes are several spire like rocks. The crest of the peak, 2,915 feet high, has two points, one sharp and the other flat, larger, and slightly lower. The northwest side of the mountain is very steep and is greatly eroded. A serrated ridge protrudes from the south side of the mountain, and the south one of three peaks on this ridge is a good landmark.

(689) The cove on the north end of the island is filled with kelp and affords poor protection for small boats. The east side of this cove is a cape, formed by a rough, lava outcrop, with a sharp, narrow ridge leading down to it. The west side of the cove is a wall of rock 340 feet high. The largest stream is on the west side of the island. A sharp, needle like pinnacle with two points, the higher 65 feet, is less than 0.5 mile from the northwest shore and about 1.1 miles north of the westernmost point of the island. This point is comparatively long and consists of a narrow ribbon of lava that extends into the sea from one of the mountain ridges. On the south slope of this ridge and about 0.8 mile east of the west point of the island is a sharp spur, 956 feet high.

(690) A rock, which uncovers 3 feet, is about 0.2 mile from the east shore of the island and well outside the thick kelp line. The best landing site on the island is on the east side about 0.5 mile from the southeast corner. This landing is on a boulder beach behind a barrier of kelp and near a trapper's cabin, which is occupied during some winters. A prominent scar is in the low, grass bluff bordering the shore in this vicinity. The small cove south of the landing is marked by a 40-foot pinnacle rock at the south end of a boulder beach.

(691) **Kagamil Island**, between Uliaga and Chuginadak Islands, has a large mountain in the center of its south half. The mountain is 2,930 feet high and has a circular crater on its northwest side. Its upper slopes are steep and rocky, while those nearing the base make a somewhat abrupt change to large, gently sloping or flat areas of grass or tundra that generally terminate in bluffs. Near the southeast end of the island a number of femoralis emit vapor near the tops of the cliffs, and at the south end is a strong steam jet in the cliff a few feet above the sea.

(692) The hills in the north part of the island culminate in a 1,640-foot peak that is close to the north shore. The two largest valleys are on the east side of the island; the northernmost is quite flat, with some grass-covered bluffs, and is drained by two small streams. What is probably the best camp site on the island is in the valley at the head of **North Cove**, the largest of the coves on the north shore. This valley, circular in shape and the smallest on the island, has one permanent stream. North Cove has the only sand beach on the island.

(693) **Candlestick Point**, on the west side of North Cove, has striking topographic features in a long, thin wall of rock with a 75-foot arch to form the point proper, and a group of 10 tall pinnacles close by. The wall of rock is 315 feet high and juts out north into the sea. The pinnacles, the tallest being 156 feet, are grouped slightly offshore about the outer end of the wall. The northwest point of the island is a detached spur, 591 feet high, with a conspicuous smooth, red cliff, about 0.3 mile west of Candlestick Point.

(694) From the red cliff the coastline trends south. High cliffs with a series of gray pinnacles border the shore. South of these cliffs, the only valley on the west side of the island begins at the head of a small cove. This valley is narrow, about 2 miles in length, and is drained by the largest stream on the island. A small lake is reported to exist in this valley. To the south, the cliffs along the shore rise almost vertically from the sea 300 to 500 feet, with no talus or ledge at the waterline. The cliffs at the southeast end of the island are broken in many places by caves. The shore around the south end of the island is of very rough lava and boulders, the lava being most prominent at the southwest corner of the island.

(695) A fair anchorage for medium-sized craft in 10 fathoms, rocky bottom, is on the north shore of Kagamil Island in North Cove. It is subject, however, to violent williwaws. Water may be found in the cove. Entrance is from due north of the center of the cove and well clear of the vicinity of the pinnacles on the west side. Another anchorage may be found in 16 fathoms in a bight just south of the east end of the island. The bottom is reported to be coarse, black sand and fine gravel. This bight is marked by a high ridge, which extends from the mountains, and a Tablelike headland. There are a stream and a cabin in the bight. Williwaws may be encountered here, and the currents are troublesome; nevertheless good shelter from west weather may be had.

(696) **Chuginadak Island**, the largest of the Four Mountains Group, consists of two mountain masses divided by a low, wind-swept valley across a narrow neck of land. The low area of the valley has rolling grassland interspersed with areas of lava flow, cinder patches and conical cinder hills.

(697) The east part of the island is an area of rugged terrain formed by a group of eroded volcanic peaks, the highest being 3,840 feet. Numerous valleys and ridges descend to the rocky bluffs bordering the shore. The peaks, almost constantly hidden by clouds, are covered with snow nearly the year round. The lower levels have a vegetation of thick grass, while the higher altitudes are of barren rocks and lava ash. Many prominent waterfalls may be seen around this part of the island. In about the middle of the east coast are several areas where steam escapes from the top of the shoreline cliffs. On the south side, **Concord Point**, the southeast end of Chuginadak Island, is a high headland of rolling, grassy hills. Immediately to the northwest of this headland, **Black Peak**, the remnant of a large crater, the west rim of which is a distinctive black crag, is a conspicuous landmark from the southeast and southwest. It is 1,525 feet high and is usually visible when the higher peaks inland are hidden by clouds.

(698) The coastline of the east part of the island is indented by many coves and bights. Extensive kelp beds are found in the shoal areas and numerous large boulders and off-lying rocks along the shore. **Corwin Rock**, 56 feet high, stands prominently at the extremity of a submerged reef making out from the northeast shore of the island. The outer limits of Corwin Rock are within about 0.7 mile from the nearest point of Chuginadak Island. Although this rock appears as a single island, it consists of two small islets, separated by a small, narrow strait. On the southwest side of Corwin Rock the kelp extends well out toward the shore of the island. Currents, swirls and tide rips indicate foul waters, and no passage exists between the rock and the island.

(699) The west part of Chuginadak Island consists of a tall, symmetrical cone, known as **Mount Cleveland**, 5,675 feet high. The sides of this volcano are streaked by a series of lava flows, with intervening, grassy patches on the slopes, most of these patches being on the south side. Because of the heat of its active crater, Mount Cleveland loses its snow more rapidly than the other high peaks. A wisp of smoke or vapor issues most of the time from the small crater in the top of Mount Cleveland; a dim glow may be seen at night. An unusual condition consisting of a clear patch of sky in the lee of the volcano has been

observed when all other places were heavily overcast. No waterfalls are on this part of the island, and there may be water only after a rainfall, as the entire cone is apparently so porous that no stream of water from the melting snow reaches the shore. The coastline is more regular than around the east part of the island, and the kelp beds bordering the shores are less extensive. A few rocks awash are found close inshore along most of the beaches and cliffs.

(700) There are no good places to land on the island in unfavorable weather. However, in moderate weather landings may be made in some of the smaller coves indenting the point on the northeast side of Applegate Cove. It is generally possible to land on the south side of the island in South Cove. The landing is on the east side of the cove, at the end of the sand beach or on the adjacent, rocky shore. The best place for a small boat to obtain water is in a small cove about 1 mile east of this landing, near a waterfall with a peculiar white deposit at the top. This deposit can be seen 20 miles offshore on clear days. A small boat can pass inside the 140-foot pinnacle near this waterfall.

(701) No houses are on the island, but a large shallow cave is in the face of the cliff at the head of South Cove. With the exception of Corwin Rock no dangers are very far offshore, the farthest being about 500 yards. Rocks awash and others bare at low water extend about 350 yards from the shore of the southeast side of Concord Point. A 1¾-fathom spot is 0.3 mile off the south end of the point. The kelp around the island is not always visible because of the strong currents.

(702) The anchorages in **Applegate Cove**, the largest bight on the north shore of Chuginadak Island, and in **South Cove** on the opposite side of the narrow neck of land have a most unfavorable weather condition. The fog hangs frequently over them when the two main parts of the island are comparatively clear.

(703) Applegate Cove affords protection from all weather except from the northwest to northeast. However, winds of great intensity are almost constantly encountered. The valley across the narrow neck in the center of the island acts as a draw, causing the winds to be of much greater intensity than would be normally expected. Wind forces double those prevailing outside may be encountered in stormy weather. Bottom is of dark-colored sand and mud, but rocky patches may be found. The bottom holds fairly well in moderate weather, but dragging may be expected during severe blows. Anchorage may be found in the center of the cove in 14 to 20 fathoms. Small craft should anchor well into the cove in 7 to 9 fathoms, from 600 to 800 yards offshore opposite the central part of the sand beach. Both the wind and fog may be avoided to some slight extent by anchoring near the west part of the cove, opposite a prominent, dark, rocky outcrop in the bluff.

(704) An anchorage with good protection from the northwest to southwest is available in a bight about 0.9 mile south of Corwin Rock in about 14 fathoms, rocky bottom.

(705) Protection from north weather may be found in South Cove, the large cove on the south side of the valley between the two mountain masses. Conditions regarding fog and wind correspond exactly with those of Appellate Cove. South Cove is smaller and has a shoal in the west part. The bottom is rocky and anchors may be fouled. The best anchorage is in 9 fathoms northeast from the shoal, and it can be approached from the southeast to southwest bearing in mind the shoal in the west part. The nearest source of water is on the exposed coast, about 1.5 miles east, where small boats may obtain it in favorable weather.

(706) A small anchorage in a bight about 3.5 miles east of South Cove and 3 miles northwest of Concord Point gives excellent protection from north winds. Because of the shielding effect of high cliffs, it may be free from fog when South Cove is not. Several waterfalls mark this bight. Anchorage is in 15 fathoms, with rocky bottom and very limited swinging room.

(707) **Carlisle Island**, about 1.2 miles northwest of Chuginadak Island, is a mountain consisting of a single, extinct volcanic cone 5,283 feet high. The island is somewhat circular in shape, with a diameter of about 4 miles. The upper part of the mountain is snow covered. Below the snow line, the slopes are dark lava, while below 1,500 feet they are covered with grass or tundra. The lower slopes flatten out and generally terminate in rocky cliffs or steep bluffs. On the west and north sides are numerous seepages on the face of the bluffs. The westernmost point of the island is an almost flat, oblong plateau 1,000 by 1,400 yards, with an average elevation of about 160 feet. The only stream on the island that may be flowing continuously is on the southeast side about 1 mile south of a shack.

(708) The most prominent features along the shore are: on the northeast side of the island, a small peninsula 0.4 mile long, formed by a lava-flow jutting out northeast into the sea; on the southeast side, a knoll forming a rocky point; on the south, a peculiar, dragon-shaped, rock dike protruding in the shape of a curving ridge and headland at the extremity forming **Dragon Point**; and off the northwest point, a rock having the appearance of a partly submerged ship when viewed from the east. Also a low, offshore rock is in this vicinity.

(709) **Herbert Island**, the southwesternmost of the Four Mountains Island, is separated from Chuginadak Island by 3-mile wide Chuginadak Pass. The mountain on the island may be likened to a truncated cone, the truncated section being the rim of a crater about 1 mile in diameter. The rim is lower on the north side, and from well offshore to the north the inside of the crater is partly visible. The highest part of the island, 4,235 feet, is the south rim of the crater. The north side of Herbert Island appears fairly flat when approached from the east or west. The north side of the mountain is deeply eroded and the most abrupt. The south and west sides of the island are marked by yellow scars on the cliffs. The island is tundra and grass covered,

with snow from fall to early summer. The lower slopes are regular and in places gentle.

(710) Along the west part of the north side of the island is a low bluff, less than 50 feet high, which gives way on the east side to high, sheer bluffs of from 200 to 400 feet. Under these high bluffs, the shoreline is mainly a boulder beach, 10 to 20 yards wide, with kelp offshore. On the flat part of the north end, however, the beach is fairly wide, and reefs, with many rocks awash, extend well offshore, as well as beds of heavy kelp for some distance outside the reef and foul area line.

(711) East of the northernmost point of the island is a shallow bight that may be used for anchorage in calm weather, though it has a boulder bottom and in south weather is subject to heavy seas coming from the south around the northeast corner of the island. Strong currents tend to form tide rips with any sea that might be running. A cabin, at the northwest end of the bight, is occupied at frequent intervals by fox trappers.

(712) On the west side of the island, near the southwest corner, is a cup-shaped valley, apparently the eroded remains of a crater. The shore at the foot of this valley is a boulder beach with moderate slopes behind it. Northwest of the valley, and about 0.5 mile offshore, is a 60-foot rock that stands out very prominently from both north and south. A small rock is about halfway between it and the shore.

(713) The south shore of the island consists of narrow beaches at the foot of cliffs of varying heights. All offshore rocks are within 200 yards of this shore except off the southeast corner of the island, where a prominent pinnacle rock 135 feet high is about 0.3 mile off the beach. The passage inside this rock is not clear because of a rock awash and another pinnacle 2 feet high. Back of the pinnacle rock is a distinctive reddish headland.

(714)

Yunaska Island to Andreanof Islands

(715) Yunaska, Amukta and Chagulak Islands are a group of islands west-southwest of the Islands of Four Mountains. Yunaska, the nearest, is about 14 miles from Herbert Island, while Chagulak and Amukta Islands are about 3 miles apart and about 10 and 14 miles, respectively, to the west of Yunaska. The pass between Herbert and Yunaska Islands and the pass to the west of the latter are deep and clear of dangers. Navigation about these islands requires caution and frequent soundings during poor visibility.

(716)

Currents

(717) Current observations taken 1 mile east of Yunaska Island indicate velocities of about 2 knots. The greatest velocity observed was nearly 4 knots. The flood sets north and the ebb south. (See the Tidal Current prediction service at *tidesandcurrents.noaa.gov* for specific information about times, directions, and velocities of the current at numerous locations throughout the area. Links to a user guide for this service can be found in chapter 1 of this book.The velocity of the current changes very rapidly around the times of slack water, and the current frequently runs near its maximum flood or ebb velocity for 4 or more hours. Strong currents and dangerous tide rips are reported in the vicinity of Amukta and Chagulak Islands. In a small gale and during spring tides, the tide rips are built up by an opposing swell. A strong ebb against a small swell is reported to cause 10-foot rips in a dead calm. Currents opposing the swell and a little wind may bring about such seas and rips that small vessels are forced to proceed slowly.

(718) **Yunaska Island** is a treeless volcanic island, divided into two parts by a generally flat valley, with gentle slopes from the bluff back of the shoreline to the base of the mountains. The island is mostly grass covered below 1,000 feet, especially in the lower flats where the grass is extremely thick and matted. Weather conditions are similar to those of the Islands of Four Mountains. Yunaska is a wildlife refuge; it has been stocked with blue foxes that are now quite plentiful and tame. Two cabins are on the island. In general, the landing facilities are poor, and there are not many sources of drinking water.

(719) A large crater, about 2 miles in its greatest diameter, is in the east part of the island. The highest point of the crater's rim, 1,968 feet, is found on the northwest side. This point appears as a lone peak from some directions. The crater is surrounded by various conical and ridgelike hills, interspersed with small craters and lava flows. Within the large crater is a small peak, 1,804 feet high, which has its own small crater. Eruptions in this part of the island have been known to occur. A prominent lava flow extends from the southwest rim for about 1 mile to the south; it does not reach the shore. The cliffs along the south shore of this part of the island are honeycombed with caves and marked with many bridges and arches.

(720) Near the northeast shore of Yunaska Island is a prominent saddle-shaped peak, 1,051 to 1,066 feet high. A bold promontory, 747 feet high, adjacent to the shore, is at the end of a ridge leading northwest from the saddle-shaped peak. To the west of this ridge and north of the crater is a broad, smooth valley. The surface is composed of porous ash covered with a moderate growth of grass. The entire area is well drained by a few narrow ditches 4 to 6 feet deep. Through the middle of the valley is a long lava flow, about 20 feet high and very rough. The lava flow extends north-northeast to the shore where it spreads along the water's edge and where, under favorable conditions, landing might be made. A good supply of drinking water can be obtained from an underground stream about 150 yards east of and behind the westernmost corner of the lava flow. The stream flows below and around the boulders of the old beach.

(721) The northeast shore of Yunaska Island is a Steller sea lion rookery site. There is a 3-mile vessel exclusionary buffer zone around the rookery which encompasses East Cove. (See **50 CFR 224.103**, chapter 2, for limits and regulations.)

(722) Along the east and north coast of this part of the island the shore is bordered, in general, by steep rocky cliffs that can be scaled in several places. The most important break in the cliffs is at the foot of the lava flow. **East Cove** is a broad indentation on the extreme east end of the island. Landing sites are found in East Cove and at the head of a bight north of East Cove where some water can be had.

(723) The central valley of the island is composed of flats occasionally broken by hills and knolls and is covered with tundra. No dependable permanent source of drinking water has been found in this valley.

(724) On the west part of the island is the highest peak, 3,119 feet. It is an apparently lifeless volcano, somewhat eroded, with remnants of craters on its side and about its base. From the west, the island appears as having grass-covered hills, with high bluffs on the north and south rising abruptly toward the summit of the two-pointed peak. The points stand out, particularly from the west, when they are not covered by clouds, which is seldom.

(725) A low bluff extends along most of the west coastline. North and south of it much higher bluffs begin and rise 300 to 600 feet in places. A 300-foot bluff, beginning about 1 mile from the northwest corner of the island, extends south for about 0.5 mile. A black sand beach, about 40 yards wide and 600 yards long, is at the foot of the south half of this bluff.

(726) With the exception of this short stretch of sand beach, the west shore is rugged and has many reefs and rocks awash offshore. Many lava points extend outward from the general bluffline. The kelp is thick and extends from 50 to 200 yards outside the rocks. On the north and south ends of this shore, where the bluffline is higher, the beachline becomes a narrow boulder shelf at the foot of the bluff, and boulders extend out into the water for some distance. A large reef extends offshore for over 300 yards from the southwest point of the island. On the east side of the bold southernmost point of the island, for a short distance the cliffs drop immediately into the water without even a shelf at their foot. Several large offshore rocks exist in this locality. A large pinnacle, about 200 feet high, is about 150 yards offshore and about 1.2 miles northeast from this point of the island.

(727) The shoreline around the island is rugged and has many off-lying rocks and pinnacles. Heavy kelp extends several hundred yards offshore, except off the sand beach in the middle of the south shore of the island and a few other places where there is deep water off vertical, lava cliffs. Heavy tide rips and strong currents are encountered off the points, especially those at the northeast and southwest ends of the island. All around the island the bottom breaks off fairly sharp, becoming more even as the 30-fathom curve is approached. Passing ships are advised to keep outside this curve.

(728) Dangerous shoals extend off the east shore of the island in the vicinity of an off-lying rock and on the south side of the island in South Anchorage.

(729) Ships should not approach within 1.5 miles of the island's shore except with extreme caution. Small craft may consider themselves safe at distances beyond 0.3 mile from shore, except where charted obstructions exist. A pinnacle rock 91 feet high is off the southeast shore.

(730) Around Yunaska Island are three or four fair anchorages. **South Anchorage**, the largest bight on the south side of the island, affords protection from north as well as west weather, and to some extent also from the northeast, in 13 to 15 fathoms with even bottom of rocks and cinders. The off-lying reef and low rocks in the west part of the bight must be avoided, as well as the shoal in the east part. A safe entrance may be made by heading for the middle of the long, conspicuous black cinder bluff along the head of the bight on a course **000°**. A tall shaft of rock, leaning slightly, is on the steep slope at the west end off the bight.

(731)

Local magnetic disturbance

(732) Differences from the normal variation of as much as 3° have been observed at South Anchorage.

(733) **East Cove**, indenting the east side of the island, affords fair anchorage in emergency situations, for one ship, in about 10 fathoms with good holding ground of cinders and mud. The cove is small, with a dangerous off-lying ledge and rocks on the south side and with troublesome currents. It affords fairly good protection from west weather; however, it is subject to violent williwaws during west storms, making it inadvisable to anchor there. Heavy swells reach this anchorage during southwest storms. Launches may find good protection inside the kelp behind the rock reef in the south side of the cove.

(734) Protection may be found by small craft in a small but pronounced cove near the middle of the west shore of Yunaska Island, in 52°36'N., in about 3 fathoms, with a bottom of boulders. A narrow channel, about 100 yards wide, leads through the heavy kelp to the head of the cove.

(735)

Anchorages

(736) The best anchorage in emergency situations from south weather is found in a small cove on the north shore of the island in 170°41.5'W., in about 16 fathoms, with rock and mud bottom. A 6-fathom depth is at the east end of the cove. About 0.5 mile to the west is a smaller cove, where launches may find good protection from south weather in 3 fathoms, sandy bottom. A cabin is at the top of the high black bluff at the head of this cove.

(737) **Crater Anchorage**, a bight on the west side of the island, affords fair anchorage with some protection from east and south weather in 18 to 20 fathoms, cinder bottom. The bight is marked by a curved black bluff on its east side, the remnant of a crater. Rocks, covered 7 feet, are encountered a very short distance inside 15 fathoms in 170°46'W., which constitute a serious danger in this anchorage.

(738) **Chagulak Island** is a steep, volcanic mountain having a sharp peak, 3,750 feet high. Its rugged slopes, mainly a series of sharp, steep-descending rocky ridges

marked by numerous pinnacles, terminate generally in rocky cliffs at or near the shore. It is uninhabited and has no good landing places. The island is steep-to on all sides and soundings give little indication of danger. It should be given a clearance of at least 1 mile. The cove on the west side formed by the southwest point offers some protection and a possible landing for small craft during southeast weather; its approach, however, is endangered by violent tide rips.

(739) Great caution should be exercised during thick weather while navigating in the vicinity of Chagulak Island. Very strong currents make it impracticable to use soundings as a guide in thick weather. The 200-fathom curve is dangerously close in places, barring the use of depth curves for rounding the island. There are no recommended ship anchorages near Chagulak. The island is small, steep-to, and affords no protection. The two principal exceptions to the general steepness of the slopes of the ridges are at the southwest and southeast points of the island.

(740) The southwest point is a peninsula formed by a comparatively long and flat, grass-covered ridge some 300 feet high, and the upward continuation of the ridge toward the mountain summit, which has a comparatively regular and moderate slope. By reason of its low elevation, the peninsula is generally not fog- or cloud-covered during the prevailing low visibility. A slight, rounded rise near the shoulder of the ridge at the northwest extremity of the peninsula, and another on the south side of the peninsula, are distinctive as they alone project above the smooth appearing tabletop of the ridge. On the south face of the peninsula below the second rounded rise is a small white scar in the shore bluff.

(741) The southeast point is the extremity of a moderately descending grass-covered ridge projecting seaward to form a peninsula. The rounded northeast end of the island above the rocky cliffs along the shore is grass covered and also has a fairly moderate slope.

(742) On the north part of Chagulak Island, about halfway in distance and elevation along the ridge between the summit and northernmost point, is a pronounced saddle. On the north end of this saddle is a summit, with a pinnacle, 1,905 feet high. A second smaller and lower pinnacle is just to the north. From these pinnacles the ridge slopes in a general convex form to the north point of the island. On the next prominent descending ridge to the east, is a rounded thumblike protrusion, 1,120 feet high, that is visible along the line of the northeast tangent of the island. A similar thumb, 1,495 feet high, is on the west descending ridge that forms the south boundary of a deep valley on the west side of the island. It is seen along the line of the southwest tangent of the island and particularly well when snow is in the locality, as the steep sides of the feature itself are generally bare.

(743) Chagulak Island is a nesting place for whalebirds and small gulls which fly in great numbers around the island within a radius of a few miles and in foggy weather may indicate the proximity of the island.

(744) The shore is either of large boulders, vertical cliffs or outcropping rock. There are several off-lying features. Off the northwest side are two prominent rock ledges; the inshore ledge is 55 feet high. Off the east side is a small rocky islet, steep and roughly rounded in outline at the top and 150 feet high. About 0.6 mile to the north of the rocky islet and farther offshore is a very dangerous detached ledge, it shows 18 feet above the surface and seas sweep over it in moderate weather. Several rocky islets are off the south shore, and there is a low, rocky ledge off the southwest point.

(745) On the south shore is a prominent, smooth, narrow slide of snow and sediment that may be distinguished well out at sea.

(746) On the west side is a 225-foot pinnacle rock. A beach landing may be made on the south side of the pinnacle. About 400 yards north of the pinnacle is a 20-foot dike that extends about 20 yards outside the high water line. Many rocks, awash and covered, are off the point 250 yards north of the dike.

(747) The north shore is very rugged, with precipitous rocky bluffs. In general, the kelp near the shores is thickest along the west shore.

(748) A submerged pinnacle having only 2 fathoms over it is just within the 100-fathom curve, 0.5 mile northwest from the southwest point. In this vicinity are strong, erratic currents and heavy tide rips.

(749) The small, rocky islet close to the south side of the peninsula at the southwest point affords some protection for making a landing on the island. The cove on the north side of the peninsula affords anchorage for small craft in south and east weather.

(750) **Chagulak Pass** is clear except for the 2-fathom shoal mentioned in the description of Chagulak Island. It is about 3 miles wide, but passage should be attempted only with local knowledge or during very clear weather. The flood current sets northwest and the ebb southeast. The current is probably in excess of 3 knots. Tide rips were noted through the entire pass.

(751) **Amukta Island** has a volcanic mountain cone with a crater at the summit. The highest point of the rim of the crater is 3,463 feet at its west end. On its south end is an appreciable depression of the rim. The mountain is closest to the north shore of the island, where its slopes descend directly to the shore. The base of the mountain cone proper is at about the 1,000-foot level, and to the east and west the lower slopes reform into spurs, hills and ridges.

(752) Near the northeast shore a prominent cinder hill 1,486 feet high rises at the side of the cone.

(753) A group of fingerlike pinnacles mark approximately the flattened, 1,000-foot level that appears as a ridge bordering the east shore. This apparent ridge descends to the south and is linked with the prominent ridge forming the peninsula at the southeast end of the island; a low saddle is between them. Rising on the slopes of the mountain halfway between its summit and the southeast peninsula is a group of reddish knolls. A spur projecting

from the mountain toward the northwest shore is marked by two summits, the inner and higher one being a conical peak 1,036 feet high.

(754) A ridge of varying elevation borders practically the entire west coast and terminates in the peninsula forming the southwest end of the island. On this ridge are some distinctive summits, and a decided break occurs about halfway along the west shore. The east slopes of the south part of this ridge border the large cove indenting the south side of the island and the adjacent low lava fields.

(755) A very distinctive feature on the island is a massive rectangular outcrop of rock, crowning one of the summits of the peninsula ridge at the southeast end. This 615-foot-high block-shaped landmark is the highest part of the ridge. Another massive outcrop of rock, peaked in shape, appears on the summit to the north. These remarkable features are dark, in contrast to the grassy surface of the remaining part of the ridge, and may sometimes be recognized well to seaward against the 3-mile distant mountain background of the island.

(756) Amukta Island is generally covered with lava and cinders and is black in general appearance. However, some grassy areas are on the ridges along the west side of the island, in the area to the south of the cone, and on the ridge forming the southeast peninsula.

(757) During low visibility the southwest peninsula of the island may be recognized by a 130-foot rock detached from the headland at its south extremity; it appears as a pointed shaft of rock when viewed from the northwest and the southeast sectors. Against a shore background, the rock is not discernible at a distance.

(758) **High Rock**, off the deep cove indenting the south side of Amukta Island, is a prominent landmark. It appears as a columnar monument rising 68 feet from a rocky ledge base. The top of the column is a smooth, truncated surface facing seaward and with favorable light has a light-gray appearance, making it partly discernible from offshore against the island background.

(759) The easternmost point of Amukta Island is formed by a projecting ledge, and directly off the ledge is a rocky islet; the inshore side rises vertically to 65 feet. In this locality the shore rises abruptly in steps and thence to a jagged, ascending ridge. A prominent rock pinnacle on the ridge about 200 feet above the water level is about 300 yards from the point.

(760) The northeast shore of Amukta Island bordering Chagulak Pass is in general composed of lava bluffs or large boulder beaches. Along this shore are many detached rocks. A good landing place is in the small bight about 1 mile southeast from the northernmost point of the island. A temporary small-boat anchorage and landing may be found in the small and deeply indented bight around the east side of the northernmost point.

(761) The west shore of the island is composed of high bluffs meeting the slopes of the nearby ridges.

(762) A trapper's cabin is on the shore of the bight on the south side of the island; some water is available in this locality.

(763) Almost the entire coast of Amukta Island is fringed with detached rocks and ledges of various description. Off the south coast of the island an area of broken bottom extends from the southwest peninsula for over 1.5 miles in a southeast direction; High Rock is in and near the middle of this area. The section between High Rock and the peninsula is extremely foul, and passage across it should not be attempted. The outlying section has a depth of 3½ fathoms about 0.5 mile southeast of High Rock.

(764) An area of broken bottom also extends in a west direction from the southwest peninsula for about 0.8 mile, in which a 2½-fathom depth was found 0.3 mile west from the south end of the peninsula.

(765) Along the west shore abrupt changes in depth occur within the 20-fathom curve, which approximately parallels the shore at a distance of about 0.5 mile.

(766) From the middle section of the northwest shore an area of irregular bottom extends 0.8 mile to the 20-fathom curve; thence there is an abrupt deepening of several fathoms to seaward.

(767) From the northernmost point, an area of broken bottom with shallow depths less than 5 fathoms extends for about 0.6 mile in a northwest direction. Off each of the several points along the northeast shore are small detached shoals of 1½ to 3 fathoms. Along the east shore broken bottom is within the 20-fathom curve that is 0.8 mile from the shore near the middle of this section. From the southeast peninsula of the island, a shallow area with depths less than 8 fathoms extends in a south direction for about 0.4 mile.

(768) As in the case of Chagulak Island no satisfactory anchorages are found in the vicinity of Amukta Island. During storms, the gales draw around its entire coastline to the lee side, causing violent gusts of wind successively from opposite directions along the shore. Also, no section of the coast is free of strong currents, tide rips and seas that sweep around the island. The bottom, generally of gravel, affords only fair holding ground.

(769)

Anchorages

(770) The best anchorage for southwest weather is in 18 to 20 fathoms, gravel bottom, about 1 mile east of the northernmost point of Amukta Island, off the cove in that locality. Attention is called to the detached 1- to 2-fathom shoals off the several points close to this anchorage. The strength of the current here is less than elsewhere along the northeast coast.

(771) In southeast weather anchor in 18 to 20 fathoms, gravel bottom, about 0.8 mile west of the northernmost point, or in 18 to 20 fathoms off the middle of the cove about 2 miles southeast from the northernmost point. In coming to anchor at the latter location, a strong northeast current may set the vessel toward the foul areas that extend from the point of the north end of the cove, and a range on the slope of the shore ridge should be selected and held in order to avoid this.

(772) In northwest weather anchor in **Traders Cove**, in 24 fathoms about 0.8 mile east from the southeast point of the island. Care must be taken to avoid the dangerous shoals just within the 20-fathom curve.

(773)

Local magnetic disturbance

(774) Differences of as much as 6° from normal variation have been observed in Traders Cove.

(775) Overnight anchorage is not recommended in the large cove on the south side of Amukta Island. Strong winds from the southeast may make up suddenly and the approach and anchorage are bordered by dangers.

(776) A remarkable bottom configuration has been noted in the area to the east of High Rock. With a general depth of some 35 fathoms 1 mile off the south side of the island, the depth may increase rapidly to 70 fathoms as the shore is approached. There is a considerable basin of about 50 fathoms, about 0.8 mile in length from east to west, this depth being found about 200 yards northeast from High Rock. The 3½-fathom shoal in this vicinity is on the southwest rim of this basin.

(777)

Currents

(778) As in all other parts of the Aleutian Islands, currents around Chagulak and Amukta Islands are strong and somewhat erratic in their nature. The general flood direction is to the north and the ebb to the south. Tide rips make up swiftly and furiously at times. While the channel between the two islands is clear, tide rips give the impression of heavy seas in shoal water. On the flood, the current seems to divide on the south side of Amukta Island near the 3½-fathom shoal previously mentioned where the seas are very confused. The currents rejoin near the north point of the island, and the reverse action seems to take place on the ebb.

(779) Similarly, the strongest currents along Chagulak Island are found near the southwest point of the island, the current dividing somewhere near the center of the south shore and rejoining on the north side of the island. The strong currents are particularly noticeable at times along the east side of this island where the general north trend of the current is unobstructed.

(780) The currents vary considerably in velocity, and they probably often exceed 3.5 knots.

(781) Tide rips are conspicuous off all points, their violence being somewhat in the following order: Strongest along the west part of Chagulak Island and in the pass between the two islands, around the southwest point of Amukta Island and near the 2½-fathom shoal, around the north point of Amukta Island, around the southeast point of Amukta Island and around the southeast point of Chagulak Island.

(782) **Andreanof Islands** extend in a 310-mile chain from Amukta Pass to Amchitka Pass.

(783)

Amuktua Pass to Seguam Pass

(784) **Amukta Pass**, often called the **Seventy-second Pass**, is a 35-mile-wide clear passage between Amukta and Seguam Islands; depths are from 55 to 300 fathoms. Both islands may be seen across the full width of the pass in fair weather; their shores should be given a clearance of not less than 1 mile.

(785) **Seguam Island** is rocky and cinder covered, has numerous lava flows and is steep-to on all sides. It has, however, several good landing places and an abundant water supply. Irregular mountain masses are on both the east and west ends of the island, and a saddle is in the east central section. The formation is volcanic, and the peaks are rocky, extinct craters.

(786) The mountains on the west end are higher; **Pyre Peak**, 3,458 feet, in the west central part, is the highest on the island. The highest peak on the east end is a jagged pinnacle on a small crater within a larger crater and is 2,768 feet high. The mountains on the west end of the island are more ragged. The north coast is low rock and grass bluffs. The other coasts are steep and high, with the peaks close to the coast. The two good anchorages are Finch Cove on the north and Lava Cove on the south. Numerous pinnacles are close to shore; the most prominent are those off the northwest point, the highest 98 feet.

(787) The precipitous east end of the island, except for a small peninsula, is at the base of a volcanic mountain having a crater within a crater, 0.5 mile in diameter, at its summit. The summit has a confusing appearance; a pronounced rise along the north rim of the main crater is 1,930 feet high and appears as a sharp peak when viewed endwise. Also a pronounced rise is along the north rim of the inner crater, which is 1,934 feet high. The south rim of the inner crater merges with that of the main crater and is 1,820 feet high.

(788) Relatively shoal-water areas extend off all the principal points of Seguam Island and are usually marked by breakers in bad weather. Kelp grows profusely in most of these areas.

(789)

Currents

(790) Currents around Seguam Island are strong and very erratic. As around Amukta and Chagulak Islands, the general flood direction is north, with the ebb south. On the flood, the current seems to divide somewhere near Turf Point and to rejoin near Finch Point on the north. The reverse appears to take place on the ebb.

(791) Tide rips are severe off many points; they make up suddenly and furiously and are dangerous to small craft. Passage through the rips by small boats should not be attempted unless the operator is familiar with the danger. The worst rips are found along the west end, with lesser ones off Moundhill Point and Finch Point. These are all conspicuous, and while they seem to indicate shallow

water by their whiteness, they make in deep water and so are no menace to navigation for the larger ship.

(792) Strong currents and tide rips occur around the east end of the island.

(793) On the south end of the east coast is **Moundhill Point**, a small, rounded peninsula that forms a very important landmark during the prevailing low visibility. The peninsula is a mound-shaped hill, 465 feet high, and has four small, rounded protuberances at its summit. The easternmost of these is separated from the remainder of the group by an appreciable distance and by an apparent depression in the top. Rounded protuberances also characterize the slopes of the hill. The hill is separated from the mountainous mainland by a draw about 100 feet high at the neck of the peninsula. At the water's edge, the hill slopes descend to form almost vertical cliffs of rock. A fair landing is on the north side of the neck. Fair anchorage for small craft is in the cove on the south side, which is marked by three tall pinnacles near its southwest end.

(794) Several lumps of about 3 fathoms are in the shallow area 0.2 to 0.5 mile east of Moundhill Point. It is advisable to round the cape by at least 1.5 miles.

(795) At the north end of the east coast the land projects to seaward forming prominent **Wharf Point**, which resembles a wharf or pier from a distance. The point has a more or less flat top, 50 feet high, and the bluffs on its three sides are approximately rectangular, forming two distinctive corners at the extremity.

(796) **Finch Cove** is an indentation 2 miles in extent along the northeast side of Seguam Island; its north extremity is Finch Point. A long, rocky point formed by a spur divides the cove into two parts. At the head of the cove, north of the dividing point of land, is a 0.8-mile stretch of sand beach providing good landing. The approach to the middle section of this beach is apparently free of rocks, and the depths decrease gradually, making this a favorable site for beaching a vessel in an extreme emergency. The north half of this part of the cove is foul with rocks of various description, among which is a 58-foot elevated, block-shaped rock. Along the shore of the cove east and west of the dividing point of land are stretches of high, prominent cliffs. The west stretch is about 0.3 mile long and 300 feet high, and the east rounding stretch of cliff is about 0.5 mile long and 500 feet high. To the east of the latter is a deep valley that extends inland. A cone-shaped peak 1,447 feet high is 1.5 miles inland from the cove.

(797) Near the center of Finch Cove, an area of extremely broken bottom with shoal depths of about 4 fathoms extends out from the dividing point for more than 0.3 mile. In the south part of Finch Cove, along the shore east of the dividing point, are heavy kelp beds.

(798) Finch Cove offers good protection in southwest weather. The survey ship EXPLORER remained at anchor in Finch Cove during a storm in 1952, with south winds up to force 12. The ship anchorage is in 14 to 17 fathoms off the center of the north bight. Enter on course **274°**, heading for the 58-foot elevated, block-shaped rock. Anchor on this bearing (a cross current may be experienced) and on cross bearing **191°** to the left tangent of the dividing point of land. Tidal currents setting northwest and southeast have been observed. The northwest current has a velocity of about 2 knots. The southeast current has a velocity of about 0.5 knot. A 4-fathom spot is 0.3 mile south from this anchorage.

(799)

Local magnetic disturbance

(800) Differences of as much as 7° from normal variation have been observed in Finch Cove.

(801) **Finch Point** is the dividing point between the north and northeast sides of Seguam Island. It is formed by a broad, gently sloping ridge, the shore extremities of which break off into cliffs and ledges. Detached rocks of various descriptions lie about the point, and these are particularly numerous at its north extremity. Directly at the north extremity, an 80-foot elevated, massive rock is a prominent landmark when viewed along the line of the northeast tangent. In this direction it appears vertical at the sides, and its irregular top is roughly in the form of a gable. The outermost rock to the north is lime-covered, but it is small and only a few feet high.

(802) At the northernmost part of Seguam Island just west of Finch Point a large area of broken bottom extends more than 1 mile offshore. Several lumpy spots of about 8 fathoms are well offshore in this area.

(803) The north shore of Seguam Island is irregular; the beaches are principally of lava or boulders, and in general cliffs or grass-covered bluffs are directly back of the beaches. The cliffs are comparatively low. The slopes from the clifftops are covered with a heavy growth of grass and rise gently toward the high interior regions. Numerous gullies break up the terrain and are approximately normal to the general trend of the coast. Several waterfalls are along this coast.

(804) A dangerous 2½-fathom pinnacle rock with surrounding depths of 23 fathoms close-to is about 1 mile off the north shore of Seguam Island. The danger is not marked by kelp.

(805) **Saddleridge Point** is the northwesternmost point of Seguam Island. The small rise directly inshore from the saddle is a definite summit from all offshore directions but not particularly prominent. A rocky islet 98 feet high, about 0.2 mile northeast from the point, and several smaller intervening rocks obscure the extremity of the point when viewed from the northeast. A narrow cliff 231 feet high, facing seaward and topped by a small grass-covered mound, rises at the inshore end of a long, narrow, projecting ledge 1.7 miles east from Saddleridge Point.

(806) A mound 80 feet high, resembling a haystack, is 3.7 miles northeast from Saddleridge Point. The mound has the appearance of an island but is connected to the shore. A 1-mile stretch of sand and cinder beach extends to the southwest from this vicinity, and there is a waterfall about 0.2 mile northeast from the mound.

(807) From the north rock off Saddleridge Point, foul ground extends north for 0.2 mile.

(808) Very favorable anchorage for south weather may be had along the north central section of the coast of Seguam Island 1.5 to 3 miles east of Saddleridge Point. The ship anchorage is 0.5 to 0.6 mile offshore in 16 to 18 fathoms, sand and gravel bottom. In coming from the east care must be taken to avoid the 2½-fathom pinnacle 1 mile offshore; passage between the pinnacle and the shore is not recommended.

(809) Saddleridge Point is a Steller sea lion rookery site. There is a 3-mile vessel exclusionary buffer zone around the point. (See **50 CFR 224.103**, chapter 2, for limits and regulations.)

(810) **Camel Islet** is about 0.5 mile off the middle of the northwest shore of Seguam Island. It is a massive rock, 53 feet high, and its top from the north or south resembles a camel's hump.

(811) The northwest coast, from Saddleridge Point to the west end of the island, a stretch of 5.5 miles, is in general a boulder beach directly in front of irregular cliffs ranging from 200 to 600 feet high. In some places the cliffs rise abruptly from the water's edge. The slopes from the tops of the cliffs to the mountainous interior are decidedly steeper than those east of Saddleridge Point; also, the draws and valleys are steeper and occur at less frequent intervals. About 1.2 miles north from the westernmost point of the island, the slope is very steep and the cliffs are especially high. The waterfalls go dry in late summer. Numerous detached rocks are found off this coastal stretch.

(812) Between the westernmost point of Seguam Island and a high, dome-shaped, detached rock about 1 mile to the north is a deep valley with gentle ascending lower slopes that extend inland 1 or 2 miles.

(813) Along the west end of Seguam Island very irregular bottom is within the 20-fathom curve, which follows the coast at a distance of about 0.5 mile. A reef is about 0.3 mile off this end, which is marked by a low rock, 4 feet high, discernible for some distance with a quiet sea. A depth of 3¾ fathoms was found 0.2 mile northwest of the reef. Strong currents and tide rips occur in this locality.

(814) From the west end of the island the coast trends southeast for about 1.5 miles to **Rue Ledge**. This offshore rocky ledge, 36 feet high, is conspicuous when viewed along the southwest tangent of the island. The inshore side of the elevated part of the ledge has vertical corners; from here the top slopes to the offshore end. Halfway between this ledge and Turf Point, 2.6 miles to the east, is an off-lying rocky islet that is marked near its offshore end by a cylindrical pinnacle rounded at the top. A waterfall over the shore cliff is about 0.2 mile northeast from this pinnacle.

(815) **Turf Point**, the southernmost point of Seguam Island, is a comparatively low, broad, and extensive grass-covered projection terminating in a rounding bluff. The top of the point is flat and then rises gently to the steeper inland slopes, which on either side of the point terminate in bold rocky bluffs, making the point conspicuously low by contrast. A foul area fringes the rounding point. West of Turf Point, the south shore of Seguam Island is high and precipitous. The cliffs are close to the rocky beach and in places overhang it. The bordering mountains are high; grass extends from the cliffs to about 1,100 feet.

(816) From Turf Point an area of broken bottom extends south for 0.7 mile to the 20-fathom curve, thence abruptly deepening to over 40 fathoms.

(817) On the south shore about 5 miles northeast from Turf Point is **Lava Point**, a broad, jagged, and comparatively low point forming the terminus of an extensive lava flow. A narrow bight but deep in extent, indents the middle of the extremity of the point. **Lava Cove**, immediately west of Lava Point, extends for 2.5 miles to a rounded gravel point fringed with covered and detached rocks. The gravel point is formed by a short broad spur 196 feet high, projecting from a regular, grass-covered mountain slope that descends to shore cliffs on either side of the point. At the head of Lava Cove is a decided indentation in which are several streams and a 0.8-mile stretch of sand beach. An ocean swell generally makes landing difficult. The remaining shore of the cove is composed mainly of jagged projections of rock or lava cliffs of moderate elevation. Curtains of waterfall at two places about 0.2 mile inland from the east end of the sand beach are visible from the cove. A row of pinnacle projections marks the near-shore ridge, 335 feet high, between Lava Point and the curtains of waterfall.

(818) From the point at the west end of Lava Cove an area of broken bottom extends southeast for 0.7 mile, with a depth of only 1¾ fathoms 0.4 mile off the southeast side of the point.

(819) On the south side of Seguam Island, Lava Cove and the next large cove to the west offer good protection in north weather. The anchorage in Lava Cove is in 14 to 17 fathoms, cinder and gravel bottom, off the indentation at the head of the cove. It has little or no current. Enter on the north course heading for the east half of the sand beach at the head. In coming from the west, the broad gravel point at the west end of the cove should be given a wide berth.

(820) The southeast coast of Seguam Island from a point about 1 mile east of Lava Point for about 4 miles to Moundhill Point is dominated by a chain of three mountain peaks over 2,000 feet high and a very distinctive mountain 1,410 feet high, close to the shore in 172°23'W. The shore slopes of these mountains generally terminate in steep, rocky cliffs, and the coast has a bold appearance. A steep bluff rising to 690 feet marks the promontory near the three high pinnacles in the southeast part of the cove at the east end of this mountainous stretch. The upper reach of this bluff overlooks the draw back of Moundhill Point.

(821) Off the middle part of this bold coastal stretch is a group of five rocky islets; the outer islet is 55 feet high near its inshore end where it drops almost vertically to form its northwest side. The area between this group of islets and the shore is foul.

(822) The 1,410-foot peak, close to the shore about 1.5 miles west of the group of islets, has a steep and rugged seaward face and a definite peak. With north winds this mountain may be free of clouds while those in the background are covered. A small cave about 5 feet deep with an almost rectangular entrance is at the foot of this mountain near the shore. The cave is prominent when the light illuminates the surrounding yellow portion of the rocky cliff.

(823) About 0.2 mile southwest from the cave, a chain of rocks extend offshore for a distance of about 230 yards. The inshore rock is 110 feet high while the offshore rocks are low in comparison.

(824) An area of broken bottom with shallow depths is within 0.3 mile of the section of the southeast shore of the island 0.6 mile to 1.4 miles from Moundhill Point.

(825) **Seguam Pass** is between Seguam and Amlia Islands. It has been regarded with suspicion, and a sailing vessel has been lost on Agligadak Reefs, on the southwest side. The pass is about 12 miles wide, and it is reported to have strong currents, rips and overfalls but no offshore dangers.

(826) Vessels have reported high breaking seas in Seguam Pass. The bottom is irregular, the currents strong, and tide rips may be encountered at any place but particularly near the shore. The flood current sets to the north-northwest and the ebb to the south-southeast; probable velocity exceeds 4 knots. The pass is not recommended.

(827)

Amlia Island to Chalugas Bay

(828) **Amlia Island**, on the west side of Seguam Pass, is 40 miles long and has a greatest width of about 8 miles. On the island are a few small lakes. A chain of sharp peaks extend the length of the island, but none is especially distinctive. The east end of the island is visible for a considerable distance and is a good landmark in fair weather; it has a straight profile at a moderate elevation and drops to the sea in a precipice. The point should be given a berth of several miles because of the rocks and reefs to the east and south. The unsurveyed areas around the island should be approached with caution.

(829) **Agligadak Reefs** extend about 4 miles from the east extremity of the island.

(830) **Agligadak Island**, **Tanadak Island** and **Sagigik Island** are small islets off the E end of Amlia Island.

(831) Agligadak Island is a Steller sea lion rookery site. There is a 3-mile vessel exclusionary buffer zone around the entire island that encompasses Tanadak and Sagigik Islands. (See **50 CFR 224.103**, chapter 2, for limits and regulations.)

(832) **Sviechnikof Harbor** is on the south shore of Amlia Island about 15 miles from the east point. The entrance is about 0.2 mile wide and is difficult to make out and should be attempted only in clear weather. Sagigik Island, about 9 miles east, and the pyramid peak to the right of the entrance may be recognized. The harbor extends about 2 miles in a north-northwest direction and has an average width of about 0.3 mile. It can be entered without difficulty, is well sheltered and has good holding ground. Excellent anchorage is available in the north end of the harbor in 10 fathoms, soft bottom. The west side of the entrance should be favored until past the long island and the rocks and reefs on the east side.

(833) **Chalugas Bay**, just west of **Cape Idalug** on the north coast of Amlia Island, is a small harbor reported suitable for small boats only; however, the anchorage for small vessels in 20 to 22 feet is just off the entrance.

(834) The bight on the east side of Cape Idalug offers a lee in south weather for vessels of all sizes. The recommended anchorage for deep-draft vessels is in 9 fathoms, soft bottom, at the entrance to the inner basin.

(835)

Amlia Pass

(836) **Amlia Pass**, a 1-mile-wide strait between Amlia Island and Atka Island, has depths of 5 to 22 fathoms through a narrow 400-yard passage restricted by a reef that extends 1 mile off the Atka Island shore. The pass should be used only by small light-draft vessels at slack water because of the strong and complex currents.

(837) **Mid Reef**, a high part of the reef that extends from Atka Island shore, shows at all times but is awash in extremely heavy weather. Other small areas may occasionally appear at extreme low water.

(838) The shores on both sides of Amlia Pass are steep rock bluffs rising to low hills. Kelp grows along the shores. A ledge extends 100 yards outside the bluff line at **Eddy Point**, the westernmost point on Amlia Island. Deep water is outside this ledge and off the shore at **Swift Point**, Amlia Island. At **Pinnacle Point**, Amlia Island, is a prominent pinnacle on the shore with an 80-foot off-lying pinnacle immediately southeast.

(839)

Currents

(840) A current of 10 knots has been observed in Amlia Pass; when the current is strong large tide rips usually occur. The current floods north and ebbs south. In general, tide rips exist in and outside of the north end of the pass during the flood and in and outside of the south end during the ebb. When the current is running, small tide rips exist over the reef. During strong currents, heavy swirls exist in the pass and its approaches, the greatest intensity being near Eddy Point.

(841) North of Eddy Point the current floods northeast and ebbs southwest, setting a vessel off course just north of the pass. Duration of slack is about 10 minutes; however, there is often a period of 1 to 3 hours when the current is not strong, and there are practically no tide rips.

(842) Heavy tide rips that extend several miles northeast of Amlia Pass have been observed with a moderately heavy swell from the northeast. A pinnacle, covered 4½ fathoms, is 1.5 miles northeast of Eddy Point and 0.6 mile

from the north shore of Amlia Island. There are probably other dangerous pinnacles in this area.

(843) In approaching Amlia Pass from south or north vessels should stay in the area of charted soundings to avoid reported dangers off the islands. Courses through Amlia Pass should pass 0.5 mile off Pinnacle Point, 200 yards off Swift Point, and 400 yards off Eddy Point to avoid the reef on the west side of the pass. Extreme caution is necessary to avoid the 2½-fathom reef 500 yards west of Swift Point.

(844)

Atka Island to Sergief Bay

(845) **Atka Island**, separated from Amlia Island by Amlia Pass, is 10 by 50 miles in extent and the largest of the Andreanof group. **Korovin Volcano**, 4,852 feet high, is 3 miles inland from the north end of the island. The formation of the island is volcanic and similar to the other islands of the Aleutian Chain. Many species of birds frequent the island, but the island and adjacent islets are reported to be overrun with rats.

(846) Several peaks varying in elevation to 3,200 feet extend along the interior of Atka Island. These peaks are seldom visible because of fog, mist and low ceiling. A 1,100-foot-high peak at the west end of the island is frequently clear. Because of the prevalent weather conditions, extreme caution should be exercised in approaching the land. There is considerably less fog and mist during the colder months when the higher peaks show more frequently. Currents are weak, except at the passes east and west of the island.

(847) There are several anchorages along the south coast of Atka Island, but care should be exercised in approaching the coast because of the numerous rocks and shoals and currents. A rock, 3.5 miles offshore and 18 miles from the west end, is covered ¾ fathom and breaks in moderate seas. Several shoals with least depth of 10 fathoms, as much as 5 miles offshore south of Vasilief and Kobakof Bays, show current boils, slicks and tide rips during calm weather. Other shoals with lesser depths are farther inshore. Fairly strong east-west currents have been observed south of Sagchudak Island to south of Cape Tadluk.

(848) There is a suitable small-craft anchorage at the east end of Atka Island, 3 miles west of Amlia Pass in 52°06.7'N., 174°09.3'W., in 18 to 20 fathoms, sand and shell bottom, but the swinging room is limited and the water is quite deep. The off-lying islands and rocks give protection from southeast seas, but the anchorage is open to south and southwest weather. To reach the anchorage from 52°05.0'N., 174°08.3'W., make good a course of **000°** for 1.7 miles, then change course to **270°** for 0.7 mile to anchorage.

(849) **Vasilief Bay**, on the south side of Atka Island 10 miles west of Amlia Pass, offers anchorage in 25 to 30 fathoms, fine sand with broken shell bottom, at 52°06.0'N., 174°20.0'W. The offshore islands offer some protection from south seas. This anchorage should be entered from the southeast, keeping 0.5 mile east of the offshore islands. There is a rock awash in 52°02.4'N., 174°21.0'W.

(850) **Kobakof Bay**, 15 miles west of Amlia Pass, offers excellent anchorage in all but moderate to heavy seas. Anchorage in 25 to 30 fathoms, mud and sand bottom, is available at 52°03.7'N., 174°28.6'W. The northwest arm of the bay offers protection from south seas in 20 to 30 fathoms but is limited in swinging room. In entering the bay from a point midway between **Sagchudak Island** and **Amtagis Island**, steer a midchannel course of **347°** until the point of land ahead is 0.7 mile distant, thence a course of **293°** to the anchorage. Some fairly strong rotary currents may be encountered along the east side of Sagchudak Island.

(851) The pass on the north side of Sagchudak Island is generally foul, containing kelp and shoal areas that break in a moderate swell. Only small craft having local knowledge should use this pass.

(852) **Explorer Bay**, 18 miles west of Amlia Pass, offers a protected anchorage in any weather in 11 to 13 fathoms, fine sand bottom. However, there is limited swinging room, and the entrance is through a narrow channel between dangerous rocks and shoals. In entering from a position at 52°00.0'N., 174°30.4'W., steer a course of **000°** until the north end of Sagchudak Island bears 090°, then shape course to **327°**, keeping 0.3 mile off the point of land on the west side of the bay, until the southeast point of the west arm of the bay bears 216°, distant 0.5 mile, thence on course **277°** for 0.4 mile to the anchorage. This course passes over or just north of an 8-fathom shoal, 0.2 mile south of a 4-fathom shoal, and 0.1 mile north of a 6-fathom shoal. The area outside the channel, on the west side of Sagchudak Island, is very broken with scattered rocks that generally are apparent to the navigator.

(853) **Beaver Bay**, 23 miles west of Amlia Pass, offers anchorage for small craft in the outer and west arm. Protection from all except southeast seas is available in 15 to 20 fathoms, fine sand with broken shell bottom. Entrance to the anchorage must be made by keeping to the southwest of the small islands in the entrance.

(854) The small bays between Explorer Bay and Beaver Bay offer some protection for small vessels, but the bottom is generally broken and the lee afforded from onshore winds in negligible.

(855) **Tillamook Cove**, 30 miles west of Amlia Pass, is of little value as an anchorage because it is open to the sea and has poor holding ground. A more comfortable anchorage is in 13 fathoms just outside the cove. A 40-foot pinnacle rock marks the seaward end of the west side. A shoal extends some distance seaward of the point of land marking the east side of the entrance. The west side of the cove is practically vertical to about 100 feet, then slopes steeply to over 1,000 feet. At the head of the bay is a black sand and volcanic ash beach. The east shore is characterized by rocky ledges; the land rises to about 300 feet from the water to a relatively level shelf before rising

to the mountains farther inland. There is considerable surf with only a slight swell setting into the cove.

(856) **Sergief Bay**, 35 miles west of Amlia Pass and 13 miles east of Cape Kigun, is a suitable anchorage except during strong south winds; holding ground is probably poor. The gently sloping beach at the head of the bay is black sand or volcanic ash. In entering the bay from a position in 51°59'N., 175°00'W., hold a course of **000°** until the end of the west entrance point is abeam, then shape course to pass 300 yards off the rock awash in 52°01.6'N., and after passing this rock steer **315°** for the head of the bay.

(857) Anchorage in 20 fathoms, fine sand bottom, is near the center of the small bight 10 miles east of Cape Kigun, the west end of Atka Island. A point and off-lying reefs offer some protection from west seas. Vessels can also anchor in 17 to 20 fathoms, sand with broken shell bottom, 0.5 mile offshore near the center of a small bight 3 miles east of Cape Kigun.

(858)

Nazan Bay

(859) **Nazan Bay**, indenting the east coast of Atka Island north of Amlia Pass, provides good anchorage. The greater part of the outer harbor is partially protected, but strong winds draw through the low land between Nazan and Korovin Bays. The bay is subject to heavy swells and is at times unsafe for small boats.

(860) **Cape Kudugnak**, the north point of Nazan Bay entrance, is a 200-foot rounded, grassy knoll rising abruptly from the shore. The island behind the cape rises uniformly for 2.5 miles to a 2,687-foot mountain. **Uyak Island**, 3.5 miles west-southwest from Cape Kudugnak, is 100 feet high, rounded with grass top and rocky bluffs. Five silver-colored radio masts about 0.2 mile north of the cape are reported to be conspicuous landmarks.

(861) **Palisades Point**, 3.5 miles west of Cape Kudugnak, has rocky bluffs with a 375-foot plateau that extends inland to the mountains. A 60-foot-high rock is close to shore just west of the south end of the point.

(862) **Cone Island**, near the west part of Nazan Bay, is 83 feet high; the northernmost of the three islands has three remarkable pinnacles on it.

(863) **Bolshoi Islands** are a group of grass-covered islands along the south shore of Nazan Bay. The westernmost and largest forms the east side of the inner harbor at Atka. A waterfall on the south shore of the bay, 1.7 miles southeast of Atka, is prominent.

(864) Anchorage for large vessels is available in the outer harbor west of Palisades Point in 35 to 17 fathoms; vessels can also anchor close to the north shore of the bay east of the point. Anchorage west of Bolshoi Islands in the inner harbor in 6 to 12 fathoms is sheltered but is limited in area to only small vessels. A submerged wreck is in the east side of the harbor in 52°11'59"N., 174°11'18"W.

(865) The harbor in the west part of the bay will often be clear when there is fog in the entrance.

(866)

Local magnetic disturbance

(867) Differences of as much as 5° from normal variation have been observed in Nazan Bay.

(868) Vessels proceeding to anchorage in the west part of Nazan Bay should pass north of Uyak Island taking care to avoid the 5-fathom rock 0.7 mile east of the island. Small vessels continuing to the inner anchorage should pass midway between the highest part of the south islet south of Cone Island and the high-water rocks at the northwest point of Bolshoi Island.

(869) Trading vessels bound through Amlia Pass use a channel south of the Bolshoi Islands, but this route is not recommended without local knowledge because it is near many covered and uncovered rocks.

(870) **Atka**, at the west end of Nazan Bay behind Bolshoi Islands, is not visible until after the largest island is passed. Mail is delivered by air from Anchorage. Water is available from a stream near the village. Small boats can be beached on a well-sheltered tide flat behind Bolshoi Islands, 0.4 mile southeast of the village.

(871)

Pilotage, Nazan Bay

(872) Pilotage, except for certain exempted vessels, is compulsory for all vessels navigating the waters of the State of Alaska.

(873) Nazan Bay is served by the Alaska Marine Pilots. (See **Pilotage, General** (indexed), chapter 3, for the pilot pickup stations and other details.)

(874) The north coast of Atka Island is indented by numerous small bays. Most of the points are bold headlands rising to sheer 300- to 800-foot knobs or heads, and then rising more gradually to the peaks farther inland. The land area is treeless and is covered with tundra to about 1,000 feet, above which there is little vegetation. Bluffs generally extend into the bays and bights, but as a rule the heads of the bays are low, with sand, gravel or small boulder beaches, back of which valleys carry into the interior. A low pass crosses the island between Nazan Bay and Korovin Bay. Southwest of the pass the island is lower and runs off to the narrow west end.

(875) A high conical peak is near **Cape Shaw**, the east extremity of Atka Island. The slopes of the Korovin Volcano mountain break off in a rocky escarpment at **North Cape**, the north end of the island.

(876)

Korovin Bay to Wolf Bay

(877) **Korovin Bay**, on the north side of Atka Island across a low pass from Nazan Bay, is a good anchorage except in heavy west weather. The shores are bold, sheer cliffs bordered by numerous pinnacles, except for the low gravel beach at the head and low land near a lagoon on the north shore. The entrance points, **Cape Korovin** on the north and **Egg Point** on the south, are bold headlands rising abruptly to mountain ranges. Egg Point terminates in a prominent 135-foot-high pinnacle rock at the shore.

(878) Korovin Bay has depths of 80 to 10 fathoms to within 0.6 mile of the shore, except for rocks about 2 miles from the east end. The higher of these two rocks bares 2 feet and can be used as a navigational aid. A prominent 100-foot-high pyramidal-shaped pinnacle rock is near the head of the bay about 0.2 mile off the south shore.

(879)

Anchorages

(880) Anchorage is available in the northeast part of Korovin Bay in 40 to 10 fathoms with gray sand bottom, fair holding ground. The small coves on the south shore provide shelter for very small vessels, but the swinging room is limited. The bay is not sheltered from the southeast or southwest because strong winds howl through the draws and ravines that cut the hogback on Atka Island; caution is necessary to avoid being forced onto the north shore. Oftentimes, when it seems as though the winds coming out of the draws in a southeast direction are the prevailing winds, it will be found that outside the bay the general winds are southwest.

(881) **Sarana Cove**, indenting the south shore of Korovin Bay 4 miles east of Egg Point, is foul and should not be attempted by any craft without local knowledge. **Martin Harbor**, 6 miles east of Egg Point, is small but offers good protection for small craft in all weather at the head in 11 fathoms with mud and sand bottom.

(882) **Egg Bay** is separated from Korovin Bay by the rugged cape that terminates in Egg Point. The shores of Egg Bay are mountainous, with humpy, grass-covered slopes. At the head of the bay is **Egg Island**, steep sided, round topped and grass covered.

(883) **Starichkof Reef** is 1.5 miles west of Egg Point. The easternmost and largest islet is a vertical-sided block of rock 61 feet high. The second most conspicuous rock is a spurlike pinnacle about 0.5 mile northwest of the block-like rock. There are several other rocky islets, as well as a number of reefs or shoals in this area.

(884) A dangerous 2½-fathom shoal is 0.3 mile north of the islets and 1.6 miles west of Egg Point.

(885) Two shoals southwest of Starichkof Reef make it inadvisable to enter Egg Bay from the west side of the reef. One shoal, having a least depth of 2¼ fathoms, is 0.5 mile southwest from the west group of islets. The other shoal, having a least depth of 3¾ fathoms, is 0.8 mile southwest from the same islets.

(886) A 4½-fathom shoal is 0.3 mile offshore on the east side of the bay, 0.8 mile south of the entrance at Egg Point.

(887) Several other shoals having least depths of 8 to 12 fathoms are near or in the bay. They should be avoided.

(888) Numerous rocks and reefs border the shores of Egg Bay. The east shore for the first 2 miles south of Egg Point is especially dangerous and should not be approached closer than 0.3 mile.

(889) A pinnacle rock with a least depth of 3 feet is 250 yards off the northeast shore of Egg Island.

(890) Approach Egg Bay on a course of **180°** to pass 0.5 mile east of the easternmost islet in Starichkof Reef. When this islet is slightly abaft the beam, change course to **134°**, heading for the left tangent of Egg Island. When 0.5 mile from Egg Island, haul to the left and round the island, keeping approximately in midchannel.

(891)

Anchorages

(892) Anchorage for medium-draft vessels is found northeast of Egg Island in 20 to 25 fathoms. The bottom is soft, fine, green sand, with rather poor holding ground. The lower end of Egg Bay offers fair protection in both north and south weather. The least swell is found south of Egg Island.

(893) From Egg Bay to Banner Bay the shoreline is irregular and has several small bights. The bights, as well as the approaches to them, are foul. This area should be avoided.

(894) **Banner Point**, on the northeast side of the entrance to Banner Bay, is lined by bluffs. Above the bluffs the land slopes upward to a 1,590-foot peak about 1 mile from the outer end of the point. A grass-covered islet, 165 feet high, is 0.3 mile northeast of Banner Point.

(895) A rock that uncovers is 0.5 mile north of Banner Point; 0.1 mile north of the rock is a 3-fathom shoal; 0.2 mile northwest of the rock is a 5-fathom shoal. Kelp grows on both shoals.

(896) **Banner Bay** is about 3 miles long and 0.8 mile wide. The trend of the bay is east and west. The shores are bold but free of dangers except for two groups of rocks, 2 and 25 feet high, in the northeast half of the entrance, and for an 8-fathom spot 0.3 mile off the south shore, 1 mile inside the entrance. Anchorage is available 0.6 mile from the head of the bay in 33 fathoms, which is the general depth in this part of the bay. Strong winds pull through this bay and as a rule are diverted to blow in or out of the bay.

(897) Approaching Banner Bay, a large group of rocks, from which a foul area extends 0.8 mile south, are about 1 mile north of the entrance and 0.6 mile off the shore of Atka Island. The highest of these rocks, 57 feet and grayish in color, serves as an aid in reaching the bay.

(898) To enter, from a position with the northeast point of Salt Island bearing **290°**, distant 0.5 mile, steer **156°**, heading for the highest bluff (also the highest nob on a ridge of low hills) at the south point of the entrance to Banner Bay. Hold this course until the group of rocks in the entrance to the bay bears 090°, then haul to the port into the bay on midchannel courses.

(899) **Salt Island**, about 2.5 miles west of Banner Point, is a valuable aid to the navigator in approaching Atka Island. This island is 1.3 miles long in a northeast and southwest direction and about 0.5 mile wide. The highest point of the island, 543 feet, is in the northeast half. All shores are rocky and bold, the northwest shore and northeast and southwest points being particularly so, with sheer cliffs over most of the shoreline, which is fringed by high pinnacle rocks. These pinnacles are particularly evident when the island is viewed from the southwest or

northeast. The island is covered with grass and tundra. A small cabin is near the east end of the south shore.

(900) A group of bare rocks are 0.5 to 1 mile southeast of Salt Island. The highest of these is a light-colored, gray pinnacle of 38 feet. A reef covered with heavy kelp obstructs the passage between Salt Island and these rocks and then continues southeast. A small-boat passage is about 0.3 mile off the shore of Atka Island. It has a least depth of 6 fathoms and scattered kelp over most of the passage. Foul ground extends 300 yards offshore, and heavy kelp may be encountered 0.5 mile off the Atka shore.

(901) A 2-fathom shoal is 1.3 miles south of Salt Island and 1.4 miles west by north from the nearby prominent point of Atka Island.

(902) Several reefs extend offshore from the north side of Salt Island, up to a distance of 0.3 mile.

(903)

Anchorages

(904) Anchorage in 22 to 24 fathoms, sand bottom, is available south of Salt Island, affording protection from north and east weather. Anchor with the trend of the east shore of Salt Island in range and bearing **020°** and the 38-foot pinnacle in the group of rocks off Salt Island bearing **090°**. Small vessels may anchor close inshore. Considerable shelter is afforded by the reef and kelp patch that extend out from Salt Island.

(905) In west weather suitable anchorage is available in 20 fathoms, sand bottom, about 0.5 mile off the east shore of Salt Island, with the 38-foot pinnacle bearing **200°**.

(906) Anchorage for large vessels is available in the bight of Atka Island to the south and southwest of Salt Island, in 20 to 25 fathoms, hard bottom, with protection from east to southwest weather. The approaches to the shores and anchorage are free of dangers except for scattered off-lying rocks that are well within the 20-fathom curve.

(907) **Deep Bay**, about 3 miles south of Salt Island, is about 2 miles long and averages 0.3 mile wide, making into Atka Island shore in a southeast direction. General depths range from 20 to 26 fathoms. From the northwest a long flat ridge can be seen at the south side of the entrance to the bay. The shores are bold but clear of dangers, except for several rocks at the middle of the entrance and adjacent foul ground and rocks 100 to 200 yards off the entrance points. The most prominent rock in the middle of the entrance is 6 feet high. Anchorage in this bay is not suitable for large craft because of insufficient swinging room. Medium-sized craft may anchor in 20 fathoms about 0.5 mile inside the entrance, or in suitable depths at the head of the bay. Bottom in the bay is hard. About 0.5 mile inside the entrance to the bay, a small inner bay makes into the south shore. This small bay is about 0.3 mile long, and depths range from 2 to 5 fathoms. It is suitable for small craft. To enter Deep Bay, pass 200 to 300 yards west to southwest of the 6-foot rock in the middle of the entrance.

(908) **Island Point**, 4 miles southwest of Salt Island, is an irregular-topped, grassy headland 515 feet high. Because of the low valley between the headland and the main shore, this point may appear as an island to ships approaching from the west. Rocks and reefs fringe Island Point from 200 to 500 yards offshore. A conspicuous rock 22 feet high is 0.2 mile northeast of the point.

(909) The bight in the shoreline between Island Point and Kovurof Point is about 1.5 miles to its head. Three inner bays open into this bight.

(910) **Bluefox Bay** is the open bight that extends for several miles west of Island Point. Two arms extend to the east and the south. A conspicuous, rugged hill 1,495 feet high is west of these arms. The shoreline of Bluefox Bay, especially in the arms, is irregular and broken, with many inshore reefs and pinnacles.

(911) The east arm is open and easy to approach. It offers some protection from east weather. Anchorage is in 16 to 20 fathoms, the bottom irregular and rocky and offering poor holding ground.

(912) A rock awash is at the entrance to the south arm, 0.2 mile west of the east shore. This south arm has a hard bottom and is an indifferent anchorage for shallow-draft craft. A 3½-fathom shoal is in the middle of the entrance to the bay, south of the rock awash. The west shore should be favored in entering the arm.

(913) A small unnamed bay about 2.5 miles west of Bluefox Bay is behind a chain of rocky islets making out from the shore in a northeast direction. The larger and closer inshore islets are flat topped and grass covered; the outer islets are bare, black rock and of lesser height, the outermost being 20 feet high. A number of kelp patches on 3- to 5-fathom shoals are from 0.1 to 0.5 mile offshore northwest of these rocks. The offshore point of these rocks should be given a berth of at least 0.8 mile.

(914) The shoreline between the chain of rock islets and Wall Bay has two indentations or inlets. At the head of these, as well as at the heads of the two first-mentioned arms, are small beaches where pulling boats can land.

(915) The bottom in the area between Bluefox Bay and Wall Bay is irregular and spotted with rocky patches.

(916) **Wall Bay** is on the east side of Kovurof Point. It is a small bay that may be used as an anchorage by medium-draft vessels. This bay is about 1.5 miles long in the north and south direction and about 0.3 mile wide. High hills and bluffs border the west side of the bay, and moderate hills are on the east side. A valley leads off to the south from the head of the bay. In south weather strong winds sweep out from this valley into the bay, making the bay an indifferent anchorage. The point on the east side of the bay appears as a long, broken, sloping ridge terminating in detached rock reefs at the waterline.

(917) A 9-fathom shoal is on the east side of the entrance to the bay, about 0.6 mile east of the Kovurof Point shoreline and about 0.3 mile north of the rocks on the east side of the bay entrance.

(918) A small dome-shaped, rocky islet 14 feet high is 0.1 mile off the west shore of the bay about 1 mile south of

Kovurof Point. A 3-fathom shoal is 270 yards 115° from the rocky islet; a 2½-fathom shoal is 550 yards 175° from the islet.

(919) A reef that uncovers 1 foot is in the lower part of the bay 0.1 mile off the east shoreline and 0.5 mile southeast from the islet. A covered reef, marked by kelp, extends 200 yards northwest from the 1-foot reef. Because of these various shoals it is not advisable for vessels to proceed south of the islet.

(920) Approach Wall Bay on a heading of **180°**, passing the Kovurof Point shoreline at a distance of 0.3 mile. When the rocks on the east side of the entrance are 1 point forward of the port beam, anchor in 17 fathoms, gray sand bottom.

(921) Small boats can land on the sand beaches at the head of the bay.

(922)

Kovurof Point to Kasatochi Island

(923) **Kovurof Point** is the most prominent point west of Salt Island along the north shore of Atka Island. It is a double point, both parts of which slope gradually to a common peak 1,320 feet high. This peak is quite prominent on the few days out of the summer when it can be seen. The east point is the more prominent of the two and makes out farther to the north. It is distinguished by four flat-topped pinnacles directly off the point. Two of these pinnacles blend in together from certain directions and only three can be seen. The pinnacles identify this point.

(924) Between Kovurof and Bechevin Points is a bight 1 mile in depth. Two small inner bays open into this bight, Kovurof Bay and Podsopochni Bay. They are separated by a peak 1,225 feet high, which stands alone. The summit is a sloping ridge as seen from offshore; a sharp peak as seen from the east and west.

(925) **Kovurof Bay** is suitable as a small-boat refuge. There are numerous islands and rocky islets at its entrance. The passage west of these islands into the head of the bay is free of all dangers, except close alongshore. Anchorage for small craft is available in 4 to 10 fathoms, sand bottom.

(926) **Podsopochni Bay**, between Bechevin Point and **Podsopochni Point**, has a general depth greater than 10 fathoms and may be used as an emergency anchorage for small- and medium-sized craft in any but north weather. The bay is free of dangers to within 0.3 mile of the shore. Enter the bay midway between the small, grass-covered island, 40 feet high, off Podsopochni Point, and the kelp-marked 6-fathom shoal 0.7 mile northeast of Bechevin Point.

(927) **Bechevin Point**, 5 miles southwest of Kovurof Point, is also a double point, with a small bight in the shoreline between. The bluffs at the ends of these points rise to about 250 feet and are brown in color, streaked with gulleys and studded with pinnacles. The east part of the point rises abruptly to a sharp peak of 710 feet; the west part rises to a head of 615 feet and then drops to a saddle before rising to the 1,000-foot-ridge behind.

(928) North of the west part of Bechevin Point at a distance of 0.7 mile is a rocky 14-foot islet that is the most conspicuous and dangerous menace to navigation in this locality. Matted kelp and submerged reefs make out from the point and surround this rocky islet for some distance. Passage between the islet and the point should not be attempted, except by small craft; a low, flat reef that uncovers 2 feet is 400 yards off the point.

(929) The deep bight between Bechevin Point and White Point contains two small inside bays. The bay to the east, **Portage Lagoon**, is marked by numerous bare, black, rocky islets at its entrance and by a high, steep-sloped peak directly west of the entrance. This lagoon, which extends from Bechevin Bay across Atka Island almost to the Pacific side of the island, when seen from the northwest, appears as a low pass through Atka Island. Small boats can enter Portage Lagoon as heavy seas do not enter this lagoon because of the string of reefs and islets across the entrance that act as a breakwater. Passages between these reefs are narrow and dangerous, especially in heavy weather, and should not be attempted by strangers. One passage is between the southwesternmost reef and the west shoreline. Several kelp-covered reefs are in this passage. A second passage is east of the grass-topped islets and about midway in the line of reefs. This passage is about 50 yards wide and has covered rocks on both sides.

(930) **Bechevin Bay**, when approached from the north, is identified by the aforementioned low pass or valley cutting through the mountainous coast of Atka Island to the Pacific. The rocky islet 0.7 mile off Bechevin Point helps to identify the bay. The southwest side of the entrance to the bay is marked by a rugged hill with deeply eroded scars and slides. The base of the hill is fringed with whitish-gray rock along the shore. Farther in, a low, grassy headland is rounded when entering the inner part of the bay.

(931) Bechevin Bay is about 4 miles long and 1 mile wide. It is fairly open and exposed. Strong, gusty winds drawing through the mountain passes are common. Large ships anchoring in the outer bay will find less wind in the lee of the prominent 1,510-foot hill just southwest of Portage Lagoon. The survey ship frequently anchored 0.5 mile off the shore under this hill in 20 fathoms, with the north tangent of the hill bearing **090°** and the low, grassy headland on the north side of the entrance to the inner bay bearing **250°**. The bottom is even and consists of coarse, dark sand with broken shell.

(932) The inner bay offers good anchorage to shallow-draft craft. The north side is shoal and has a boulder bottom; it should be avoided. A broad, sandy beach stretches across the head of this bay. Anchorage in 3 to 5 fathoms with sandy bottom is found off this beach, which is a good landing place for small boats.

(933) Medium-draft vessels will find anchorage in 11 fathoms at the entrance to the inner bay midway between

the south shore and the low, grassy headland on the north side. This grassy headland and the whitish, gray cape beyond should be on range. The bottom is sand and is fair holding ground.

(934) The peninsula to the north and west of Bechevin Bay consists of two rounding points, White Point and Stripe Point. Between the east and west points is a low valley where there is a lake, the overflow of which empties into the Bering Sea at a waterfall. This waterfall can be distinguished well offshore. To the east, **White Point**, which is the west shore in approaching Bechevin Bay, is identified by light-colored gray bluffs. **Stripe Point** consists of two ridges that rise gradually to a common peak. Conspicuous gray-colored rock slides mark this point with a striped effect that identifies it. Between the two heads at Stripe Point is a light-colored boulder beach.

(935) **Crescent Bay**, southwest from Stripe Point, is a bight in the shoreline of 1 mile depth. The head of this bight shows a low pass across the island. The shores are rocky except at the west end of the head of the bight which is sand and gravel. Two inner bays are suitable for small craft. One, at the east end of the head of the bay, is 0.5 mile long and 0.2 mile wide with anchorage in 3 fathoms and is open to the west. The other is a small lagoon, at the middle of the head of the bay, suitable only for the smallest launches.

(936) **Slope Point**, the west side of Crescent Bay, is a grassy sloping ridge, rising gradually to a hill 865 feet high. Several rocky islets 1 to 5 feet high extend from the end of this point.

(937) **Kigun Bay**, the bight between Slope Point and Cape Kigun, is backed by low hills appearing as a low pass through the island. Depths of 10 to 15 fathoms are in the outer part of the bay, decreasing to about 3 fathoms within 0.2 mile of the shore. The head of the bay is light-colored sand that is evident from seaward. In the east half of the bight, a low point of scattered, rocky islets makes out from the shore; the point is surrounded by kelp. Foul ground is near the shore around most of the bay.

(938) **Cape Kigun**, the west extremity of Atka Island, is a bold point of brownish cliff with close, alongshore reefs. The ridges making up from the several small points converge on a round-topped peak, about 1,130 feet high, that is prominent in clear weather. It is a single peak 0.6 mile east from the extreme west end of the island.

(939) **Koniuji Island**, 14 miles northeast from Cape Kigun, is volcanic, and all sides, except the south and southeast, are sheer and precipitous, rising to two sharp summits of 896 feet and 790 feet. The south side of the island, above lower bluffs at the shore, slopes gradually to a ridge about 0.2 mile north and drops off again into a ravine that passes through the island at some elevation. The slope up from the south side is grass covered. The northwest end of the island is a low, flat, rocky point about 200 yards long. About 75 yards off the north shore is a detached rock, 8 feet high, that is distinguishable from certain directions. An extensive kelp patch makes out to the south of the island. Also, in the summer, heavy kelp is found along and well off the west shore. The island is clear of dangers at a distance of 0.5 mile from the shoreline.

(940) This island is the nesting place of thousands of sea fowl that make their nests among the grass-covered, volcanic boulders that cover many parts of the island.

(941)

Local magnetic disturbance

(942) Differences of as much as 10° from the normal variation have been observed on Koniuji Island and as much as 7° at a distance of 2 miles in all directions around the island.

(943) **Kasatochi Island**, 10 miles northwest from Cape Kigun, is an extinct volcanic crater rising to 1,038 feet. The south and southeast sides are grassy slopes; the west and southwest sides are high, rocky bluffs. There is a small islet adjacent to the southwest side. As seen from the south and southwest, the sides are gradual slopes, and the summit (rim of the crater) shows as a ridge with several nobs of varying heights. The north side, as seen from the east and west, appears abrupt and sheer, with the north part of the crater rim showing as a sharp nob. As one proceeds to the north or south of the island, these nobs, being parts of the crater rim, change to ridges.

(944) The island can be approached by deep-draft vessels to within 1 mile. An exposed anchorage is available in an emergency on the south side in 15 to 20 fathoms, hard bottom. A trapper's cabin is on the slope on this side.

(945) The north half of Kasatochi Island is a Steller sea lion rookery site. There is a 3-mile vessel exclusionary buffer zone around the rookery that encompasses the whole island. (See **50 CFR 224.103**, chapter 2, for limits and regulations.)

(946)

Oglodak Island to Tagalak Pass

(947) **Oglodak Island** is about 4.5 miles southwest of Cape Kigun, the west extremity of Atka Island. It is about 1.3 miles long and 0.7 mile wide and is steep and mountainous. The shores are precipitous and rocky and fringed with off-lying islets and rocks.

(948) **Atka Pass**, 4 miles wide between Atka Island and Oglodak Island, has depths of 10 fathoms or more to within 0.5 mile of each shore. A shoal with a least depth of 2 fathoms is 0.5 mile north of Oglodak Island; broken ground with depths of 7 to 9 fathoms extends 0.8 mile southeast of the island. There are heavy tide rips and strong currents in the pass. Atka Pass is one of the best passages in the Andreanof Islands between the Bering Sea and the Pacific.

(949) **Ikiginak Island**, 1 mile west of Oglodak Island, consists of an almost cone-shaped mountain, 872 feet high. The island is 700 yards in diameter with detached islets at the east and west ends. The shores are steep, rocky, and fringed in places by off-lying rocks.

(950) The pass between Oglodak Island and Ikiginak Island has rocks that extend from both shores; it is not recommended without local knowledge.

(951) **Fenimore Rock** is 1.7 miles west of Ikiginak Island and 1.6 miles northeast of the easternmost of the rocky islets that extend east of Tagalak Island. The rock is about 300 yards long and 220 feet high. There are several off-lying rocks covered 2 to 4 fathoms.

(952) **Fenimore Pass**, west of Fenimore Rock, has depths of 13 to 27 fathoms. Tide rips are found in several parts of the pass, and currents in excess of 4 knots have been observed.

(953) **Tagalak Island**, about 6 miles west of Ikiginak Island, is mountainous, roughly triangular in shape, and about 3.2 miles long and 2.5 miles wide. From the east point of Tagalak Island, a chain of small rocky islets, fringed by foul ground, extends to the east about 2.7 miles. The highest peak on Tagalak Island is 1,761 feet. The shores in general are steep and rocky with a few small beaches. The shoreline in most places is fringed by detached rocks.

(954) On the north side of the island chain is a bight that affords temporary anchorage in good weather with fair protection from the south and west in 10 to 15 fathoms, sand bottom; holding ground is fair. Currents are quite strong.

(955) **Tagalak Pass**, 1 mile wide in its narrowest part between Tagalak Island and Chugul Island, has depths of 5 fathoms or more to within 0.3 mile of the shores. The pass has the strongest tide rips and overfalls encountered in the Andreanof area. The pass is not highly recommended, but if used, midpass courses should be followed.

(956)

Chugui Island to Chugui Pass

(957) **Chugul Island** is 4.5 miles long from northwest to southeast and 2.5 miles wide from north to south. The highest summit reaches 1,668 feet. There are several small lakes and streams on the island. The coast is generally steep and rocky, but there are indentations with sandy beaches at the heads. **Cape Kagalus** marks the southeast extremity of the island.

(958) **Igitkin Island**, about 1 mile northwest of Chugul Island, is 5.5 miles long and quite narrow. It is divided into two parts, connected by a low isthmus about 0.3 mile wide. Aside from this isthmus, the island is mountainous and rocky. North of this isthmus is a small cove, Igitkin Bight, and to the south is a somewhat larger indentation, Shelter Cove. The coast of Igitkin Island is in general steep and rocky and fringed with islets and detached rocks.

(959) **Igitkin Bank**, with depths of 1 to 10 fathoms, extends 2 miles west of **Igitkin Point**, the west extremity of the island.

(960) **Shelter Cove** is a small cove opening on Igitkin Pass. It is not recommended as an anchorage due to its size and rock bottom and its exposure to draw winds from north and south.

(961) **Igitkin Bight** probably affords partly sheltered anchorage for small vessels; it is presumably subject to the same draw winds that prevail at Shelter Cove. It is about 0.8 mile long and has an entrance about 0.3 mile wide with black sand bottom. Depths inside range from 6 to 2 fathoms, but there are rocks and foul ground varying distances offshore. The bight is open to the north.

(962) **Igitkin Pass**, separating Chugul and Igitkin Islands, is clear and deep and perhaps the best pass from the north and east to Kuluk Bay. It is 3.5 miles long and the navigable channel is about 0.5 mile wide at the narrowest point at the west end. A midchannel course of **248°** leads directly into the pass north of Umak Island through which entrance into Kuluk Bay can easily be made. Tide rips have been reported between **Kingfisher Point**, on Igitkin Island, and the northwest point of Tagalak Island, between Kingfisher Point and the east end of Chugul Island, and at the west end of Igitkin Pass. When the current is setting west through Igitkin Pass there is a strong south set near the west end of the pass.

(963) **Chugul Pass**, between Chugul Island on the east and Anagaksik and Umak Islands on the west, is about 4 miles wide and is deep and clear.

(964) Next to Atka Pass, Chugul Pass, in combination with Asuksak Pass, is considered the best passage from the Bering Sea to the Pacific between Seguam Pass and Adak Strait. It is the best passage to Kuluk Bay from the southeast. Prominent landmarks that can be used during the approach from south and east are the island of Anagaksik; Cape Azamis, the southeast tip of Little Tanaga; the prominent, two-fingered pinnacle near the southeast end of Chugul; and the conical-shaped island of Ikiginak. From a position 3 miles east of Anagaksik, a course made good of **303°** will pass Cape Ruin, the northeast tip of Umak, at a distance of 1 mile. From this point, making good a course of **263°** will lead down the middle of Asuksak Pass, passing 1.5 miles off Cape Chakik, the west tip of Umak. Throughout Chugul Pass are strong tidal currents. In thick weather, dead reckoning is difficult because of these currents. See the Tidal Current prediction service at *tidesandcurrents.noaa.gov* for specific information about times, directions, and velocities of the current at numerous locations throughout the area, including Chugul Pass. Links to a user guide for this service can be found in chapter 1 of this book.

(965)

Great Sitkin Island

(966) **Great Sitkin Island**, about 24 miles west of Atka Island, is about 10 miles long and 8 miles wide. It is volcanic and extremely mountainous; the highest summit, an active volcano, is 5,710 feet. Much of the shore is steep and rocky but with considerable stretches of sandy beach. It has some off-lying rocks both exposed and covered.

Two large indentations are Sand Bay, on the southwest side, and Yoke Bay, on the southeast side.

(967) **Teapot Rock** is a large teapot-shaped rock about 150 yards off the northeast extremity of Great Sitkin Island.

(968)

Ulak Island to Sand Bay

(969) **Ulak Island** is about 2.3 miles east of Bugle Point, the east extremity of Great Sitkin Island, and about 2.5 miles north of Igitkin Island. It is a barren rock, about 0.9 mile long, 0.2 mile wide and 675 feet high. Deep water is close to the island on all sides, except the southwest point where rocks extend out 300 yards.

(970) Yoke Bay, on the southeast coast of Great Sitkin Island, has three arms. The best anchorage of the three is the middle or **West Arm**; it is about 1,500 yards in extent and affords anchorage in about 20 fathoms. The bottom is sticky hard mud, affording good holding ground. Limited anchorage space is available in both **North Arm** and **South Arm**. The bay is subject to williwaws, but their effect is not serious on ships equipped with good ground tackle. Yoke Bay is open to swells from the Pacific Ocean from the southwest, although they are somewhat broken in their approach by nearby islands; it is entirely open in a northeast direction to the Bering Sea.

(971) **Great Sitkin Pass** is between the south peninsula of Great Sitkin Island and the islands of Igitkin, Tagadak, Kanu and Tanaklak. The pass has depths of 7 fathoms or more. Between **Zaliva Point** and **Passage Point** currents of 2.5 knots have been observed and greater velocities are to be expected. **Yoke Pass** is at the north entrance to Great Sitkin Pass, between Igitkin Bank and Rip Point. Because of tide rips, currents and the frequent changes of course required, Great Sitkin Pass is not recommended, but if used, clear Rip Point by 0.6 mile and Igitkin Point by 1.2 miles to avoid the covered rocks that extend from the points; thence change course to pass 0.2 mile north of Box Island, thence a midchannel course between Tanaklak Island and Great Sitkin Island.

(972) **Tagadak Island**, about 2 miles southwest of Igitkin Island, is small and roughly triangular in shape. The island is very rugged; the shores are steep and rocky except part of the west side, which has a sandy beach. The coast in most places is fringed with reefs or shoals. It has been reported that Tagadak Island is used as a breeding ground by geese and ducks.

(973) **Kanu Island**, 1,055 feet high, is about 0.5 mile southwest of Tagadak Island. The island is rocky and mountainous and about 1.5 miles long and 1 mile wide. The shores in general are steep and rocky, except on the west side where there is a sand or gravel landing beach about 0.5 mile long protected by other islands from all except southwest winds. The coasts are mostly fringed with reefs and exposed and covered rocks. A relatively shoal area extends to the north for nearly 0.7 mile. Near the north end of this area is **Box Island**, a small rocky islet about 40 feet high. A small cove on the east side of Kanu Island might afford some shelter for small craft.

(974) **Tanaklak Island**, about 1.5 miles west of Kanu Island, is about 1.8 miles long and 0.5 mile wide and is rocky and rugged. The island is one of low relief and rolling hills.

(975) The channels between Tanaklak Island and Kanu Island and between Tanaklak Island and Asuksak Island are deep and clear.

(976) **Asuksak Island**, 0.5 mile south of Tanaklak Island, is steep and rocky and consists mainly of one mountain 955 feet high. The island is about 0.7 mile long and about 0.5 mile wide. On the northeast end of the island is a low point with a gravel beach on each side.

(977) **Aziak Island**, 765 feet high, 0.5 mile west of Tanaklak Island, is about 1 mile long and 0.6 mile wide and is rocky and hilly.

(978) **Sand Bay**, on the southwest coast of Great Sitkin Island, provides suitable anchorage in 12 to 15 fathoms about 1,000 yards offshore. The bay is protected on the north and east but is subject to heavy seas during a west gale. Strong tidal currents run in the bay.

(979) In 1964, the outer section of the long pier in **Northeast Cove**, Sand Bay, was reported uprooted and washed ashore; the inshore section was in poor condition.

(980)

Anagaksik Island to Round Cove

(981) **Anagaksik Island** is about 2 miles east of the east end of Umak Island and on the south side of the entrance to Chugul Pass. The islet is a precipitous rock about 1 mile long, 0.5 mile wide, and 890 feet high. It has a few off-lying rocks, but in most places deep water extends close to the shore.

(982) **Umak Island**, about 5 miles southwest of Chugul Island, is a mountainous, irregularly shaped island about 6 miles long and 3 miles wide with a deep bight indenting the northeast coast. From this bight a low pass extends to the opposite side of the island. The shores are in general steep and rocky with occasional stretches of sandy beach. The north coast is foul, with many detached rocks, exposed and submerged. A number of islets are off the east coast. The south coast is in general clear, with few off-lying rocks, except toward **Cape Chakik**, the west extremity, where there are stretches of fringing reefs. Birds of many species frequent the island; there are also seals on the island.

(983) **Umak Bight** is about 2 miles in extent, and its principal arm is about 0.6 mile wide at its entrance. The bight is open on the east to Chugul Pass, and considerable swell from the ocean may be expected in heavy east weather. In all other weather the bight is one of the better anchorages in this area, with depths of 26 fathoms and excellent holding ground of green mud near the head of the bight. Stray winds sweep over the bight from the low pass to the west of Umak Bight. A sand beach is at the head of the bight.

(984) **Asuksak Pass**, separating Umak Island from Kanu and Asuksak Islands, is 1.3 miles wide at its narrowest point and is deep and clear, but the currents are strong between Kanu and Umak Islands. It is inadvisable to attempt the pass in thick weather.

(985) **Umak Pass**, between Umak Island and Little Tanaga Island, is 0.6 mile wide at its narrowest point and 7 miles long with depths of 7½ to over 50 fathoms.

(986) Currents of 3 knots have been observed in the pass and greater velocities probably occur. The changes of current are accompanied by erratic movements and tide rips. See the Tidal Current prediction service at *tidesandcurrents.noaa.gov* for specific information about times, directions, and velocities of the current at numerous locations throughout the area, including Umak Pass. Links to a user guide for this service can be found in chapter 1 of this book. A rock awash is 0.5 mile southeast of Cape Chakik and 500 yards offshore. In clear weather a midpass course can be taken through the pass. In thick weather the north side should be favored, entering the pass from east, until west of the narrows, then it is best to favor the south side.

(987) **Little Tanaga Island** is about 8 miles long and has a greatest width of about 7 miles. The island is extremely irregular in form. Two long bays, separated by a narrow isthmus, nearly cut it into two parts. The island is very rocky and mountainous; the highest peak is 1,747 feet. The shores in general are steep and rocky, and the coast generally is fringed with reefs, islets and detached rocks. Several streams and small lakes are on the island.

(988) **Scripps Bay**, on the north coast of Little Tanaga Island, is a well-protected anchorage though subject to williwaws. The bottom is coarse sand with pebbles but appears to hold fairly well. A sandy beach intersected by a stream is at the head of the bay. Scripps Bay is subject to fog and reduced visibility; it is frequently thick here when the west and north sections of Kuluk Bay (Adak Island) are clear. In entering the bay, pass 400 yards off the rocky islet 0.3 mile inside the east shore to avoid the 2¼-fathom spot off the west point at the entrance. Anchor in 18 fathoms 750 yards southwest of the islet. Small vessels can anchor in shallow water near the shore.

(989) **Chisak Bay**, on the south coast of Little Tanaga Island, is about 2.5 miles long and 0.8 mile wide. Depths are suitable for anchorage, but only small vessels may find swinging room, which is reduced by numerous small islands. A 3-fathom depth is 0.4 mile southeast and a 2¾-fathom shoal is 0.2 mile east of Chisak Island. The upper end of the bay is clear, but the channel, close west of Chisak Island, leading to it is very narrow. The bay is almost landlocked but is reported to be exposed to swells and seas from the Pacific Ocean. A stream enters at the head of the cove. The shores of Chisak Bay consist of narrow rocky beaches.

(990) **Azamis Cove**, on the south coast of Little Tanaga Island, is about 2 miles long and 1 mile wide at the entrance. Depths are suitable for anchorage, but it is not recommended. The bay provides shelter from the north and west but is open to seas and swells from the Pacific Ocean.

(991) **Round Cove**, east of Azamis Cove, is about 1 mile in diameter, open to the south and southwest, and moderately subject to heavy seas and ground swells. The depths are not too great; therefore anchorage is not recommended.

(992)

Little Tanaga Strait to Kagalaska Strait

(993) **Little Tanaga Strait**, between Little Tanaga and Kagalaska Islands, is about 7 miles long and at its narrowest point about 1.2 miles wide; however, the navigable channel between Little Tanaga and Silak Islands has a width at one point of less than 0.5 mile. Tidal currents attain a maximum velocity of 5 knots through the pass east of Silak Island, producing swirls and heavy tide rips north and south of the island. The heaviest rips observed were in the middle of the pass about 1 mile north of Silak Island.

(994) The waters west of Silak Island are foul except for a passage about 0.2 mile wide along the shore of Kagalaska Island, which is recommended only for small boats. Large vessels must pass east of Silak Island. **Rip Rock**, at the southeast end of the strait, covered 1½ fathoms, is marked by breakers in moderate swells.

(995) To pass through the strait from a position 2.8 miles 270° from Cape Chisak, make good a course of **000°**, keeping Silak Island a little on the port bow and heading for Tana Point on Little Tanaga Island. Hold the north course until abeam of Silak Island, then change to **330°** and pass through the channel. When abeam of Cemetery Point, a course of **000°** may be shaped to pass clear of the strait.

(996) **Piper Cove**, on the west side of Little Tanaga Island, about 1.8 miles north of Cape Chisak, is open to the west and southwest but affords temporary anchorage for small vessels.

(997) **Tana Bight**, an indentation on the west coast of Little Tanaga Island about 1 mile north of Tana Point, affords temporary anchorage for medium-sized vessels and fair shelter in south weather. The bottom is rocky and irregular. Currents in the bight are slight and usually flow in a direction opposite to that of the mainstream current through the strait.

(998) **Kagalaska Island**, 8 miles long and 5 miles wide, is extremely rugged and mountainous; the highest peak, 2,331 feet, is in the northwest part. The shores are, in general, steep and rocky except on the west coast, where they have a more gradual slope, becoming steeper inland. The south shore consists of jagged cliffs. The east and north coasts are also steep in many places. The brief stretches of sand or gravel beach are often backed by vertical cliffs. The coasts are generally clear except the south and southeast coasts and part of the north coast, which are fringed by islets and detached rocks. Several lakes and streams are on the island.

(999) **Cabin Cove**, opening into Little Tanaga Strait, is a two-armed bay that indents the east coast of Kagalaska Island for 2.5 miles. **Upper Arm**, 1.5 miles long and 0.5 miles wide, is bordered by steep, sloping hills on all sides; it is free of dangers. Approaching the entrance, the 10-fathom curve makes out from the north shore 200 yards and 100 yards off the low gravel point on the north shore at the entrance. Anchorage can be had in 30 to 40 fathoms in the upper part of the arm. The shores are free of off-lying rocks and shoals. **Lower Arm**, 1 mile long with an entrance width of 800 yards, is smaller than Upper Arm, but most of it is suitable for anchorage. The surrounding terrain, especially at the head, rises in gentler slopes than in Upper Arm, but the summits are over 1,000 feet high. A stream flows into the head of the arm.

(1000) **Crater Cove**, on the east shore of Kagalaska Island and 1.7 miles north of Ragged Point, affords temporary anchorage in 30 fathoms, sand and gravel bottom. High bluffs and hills on the nearby shore provide good shelter from north and west winds.

(1001) **Quail Bay**, on the south coast of Kagalaska Island, is fringed by steep cliffs to east and west with many rocks along the beach. The bay is deep and clear of dangers to a point about 1.2 miles northwest of Ragged Point. Temporary anchorage for small vessels may be had in 20 fathoms, sand bottom.

(1002) **Kagalaska Strait** separates Adak and Kagalaska Islands. Although narrow, it can be navigated by moderate-sized vessels without difficulty at or near slack water. An 8¾-fathom shoal is in midchannel 1.6 miles inside the south entrance. South winds with ebb currents cause heavy tide rips from the south entrance north as far as Adak Bight and are apt to cause a vessel approaching from the south to yaw badly. Because of strong currents, rips and whirlpools are encountered in the narrow parts of the strait except at slack water.

(1003) Both north and south entrances are clear, with deep water close to the shores. Care must be taken not to mistake Blind Cove for the north entrance since the former is about 1 mile west of the strait and has a much wider appearance. The shores of the north entrance are bold and precipitous while those of the south entrance are relatively low, with outlying rocks. Navigators not familiar with the area are cautioned against attempting an entrance in any but clear weather.

(1004)

Local magnetic disturbance

(1005) Differences of as much as 11° from normal variation have been observed in Kagalaska Strait near the north entrance.

(1006) **Ragged Point**, the southeast extremity of Kagalaska Island, is 4.5 miles east of Kagalaska Strait and is an unmistakable landmark for the south approaches to the strait because of its serrated ridge forming the summit of the point. A natural arch in the tip of Ragged Point is noticeable when the point bears 017°.

(1007) **Adak Bight**, about 2 miles from the south entrance to Kagalaska Strait, affords good shelter for vessels up to about 100 feet in length. A 3-fathom shoal, marked with kelp, is 0.3 mile southeast from the north point of the bight. Vessels approaching from the north should clear this shoal 0.3 mile before turning to enter. Either arm of the bight is suitable for anchoring, but the northernmost affords more swinging room. A shoal is just off the point between the two arms. In entering either arm, a vessel should keep in midchannel.

(1008) **Campers Cove**, just north of Adak Bight, is suitable only for small boats because of the narrow, shallow entrance. Relatively small vessels can anchor in about 10 fathoms in the indentation just north of **Campers Point** and thus avoid currents and rips in the strait.

(1009) **Laska Cove**, on the east side of Kagalaska Strait, is deep and well protected. Small vessels usually anchor in the northeast portion of the cove.

(1010)

Adak Island

(1011) **Adak Island**, the most important of the Andreanof Group, is about 30 miles long and 20 miles wide at its widest part. The island is rugged and mountainous and has numerous small bays and indentations. **Mount Moffett**, 3,900 feet high, near the northwest end, is the highest point of the island; it is snow covered the greater part of the year. The island is grass covered on the lower levels; the higher levels have a heavy growth of moss. Small lakes are numerous and there are many small streams.

(1012)

Boot Bay to Clam Lagoon

(1013) **Boot Bay** is on the south coast of Adak Island about 3 miles west of Kagalaska Strait. The inner harbor has depths of 11 to 35 fathoms over bottom varying from rock to mud; the mud bottom is in the deeper water. Seas and swells from the Pacific Ocean are broken up by the islands in the bay; however, the islands offer little protection from south winds. As the land to the north is mountainous there is a probability of williwaws with north winds.

(1014) **Blind Cove**, indenting Adak Island just west of the north entrance to Kagalaska Strait, is suitable for temporary anchorage only; it is exposed to the north and is subject to williwaws from the south. A midchannel course is clear for small vessels to an anchorage in 16 fathoms in the south end of the cove. Caution is necessary to avoid the shoal spots covered 1½ to 6 fathoms off the entrance points.

(1015) **Kuluk Bay**, on the northeast side of Adak Island, is about 4 miles long and 4 miles wide and is one of the best natural harbors in the Aleutians. It is entered between Zeto Point on the north and **Thunder Point** on the south and includes Kuluk Bay proper, Clam Lagoon, Sweeper Cove, Finger Bay and Scabbard Bay. Tidal currents in the bay are weak, and the flow appears to depend mainly upon the winds.

(1016) **Zeto Point** is a prominent butte rising well above the surrounding land and has several jagged pinnacles along its south face. About 1.5 miles northeast of the point is **Head Rock**, which is large and bare.

(1017) **Kuluk Shoal**, consisting of several rocks covered 1¼ to 9 fathoms and marked by kelp, is about 0.8 mile south of Head Rock and 1 mile east of Zeto Point. A lighted bell buoy is about 0.6 mile east of the shoal.

(1018) A 9-fathom shoal with rocky bottom is 0.5 mile 012° from the Head Rock; a 17-fathom bank with rocky bottom is 2 miles 096° from the rock.

(1019) **Clam Lagoon**, 0.5 mile northwest of Zeto Point, can be entered only by small boats. A fixed bridge with an unknown clearance crosses the entrance. In the south part of the lagoon and outside the entrance are mudflats. The ruins of a long pier are 0.5 mile west of the lagoon entrance.

(1020) A **naval restricted area** is in the northwest part of Kuluk Bay beginning at Zeto Point. (See **33 CFR 334.1320**, chapter 2, for limits and regulations.) An **army restrictive area** is within the naval restricted area and has a radius of 1,000 yards from 51°53'05.4"N., 176°33'47.4"W. (See **33 334.1325**, chapter 2, for limits and regulations.)

(1021)

Sweeper Cove to Scabbard Bay

(1022) **Sweeper Cove**, on the southwest side of Kuluk Bay, provides good shelter in 7 to 19 fathoms, gray sand, inside a breakwater that extends from the north side of the entrance. The breakwater is marked by a light on the outer end. The cove is marked by lights and a **253°** lighted range. A fuel tank at the west end of the cove is prominent.

(1023) **Sweeper Cove Entrance Light 5** (51°51'28"N., 176°35'31"W.), 55 feet above the water, is shown from a skeleton tower with a square green daymark on the northwest side of Lucky Point.

(1024) **Gannet Rocks**, on the north side of the entrance to Sweeper Cove, are bare and surrounded by shoal water. A detached shoal, covered 3½ fathoms, and a group of small islets, surrounded by shoals, are between Gannet Rocks and the shore. **Gannet Rocks Light 4** (51°52'01"N., 176°36'32"W.), 45 feet above the water, is shown from a skeleton tower with a triangular red daymark on the south end of the largest rock. Two water tanks, red and blue, are on the high ground at the head of Kuluk Bay about 1.2 miles northwest of Gannet Rocks Light 4.

(1025) **Pit Rock**, the southernmost of the two large rocks on the southeast side of the entrance to Sweeper Cove, is bare and surrounded by foul ground. **Finger Shoal**, 0.4 mile east of Pit Rock, has a rock that uncovers in the detached shoal area. A lighted bell buoy is about 300 yards northeast of the shoal.

(1026) During severe weather, a surge may be experienced inside the cove, making it difficult at times to remain alongside any of the piers. Heavy float fenders should be used, and vessels should be prepared to get underway.

(1027)

Harbor regulations

(1028) Sweeper Cove, a former U.S. naval air station, is administered by the Aleut Enterprise Corporation that can be contacted by telephone 907-592-0185, by FAX 907-592-0184 or by calling ADAK PORT OPERATIONS on 4125 kHz or VHF channel 16.

(1029)

Pilotage, Adak

(1030) Pilotage, except for certain exempted vessels, is compulsory for all vessels navigating the waters of the State of Alaska.

(1031) Aleutian Islands are served by the Alaska Marine Pilots. (See **Pilotage, General** (indexed), chapter 3, for the pilot pickup stations and other details.)

(1032)

Wharves

(1033) **Piers 3 and 5**, on the north side of Sweeper Cove, are used by vessels drawing up to 30 feet. Pier 3 is a 616-foot wood dock without utilities or berthing. A short barge pier is east of Pier 3. Pier 5 is a 725-foot year-round all-purpose concrete dock. Pier 5 has utilities and berthing and is reinforced for crane operation. Pier 10 is a T-head fuel pier at the west end of Sweeper Cove with a least depth of 35 feet alongside. A black tank with a red light on top is inshore of Pier 10.

(1034) A small-boat basin is at the southwest end of the cove. In 1978, most of the piers in the basin were reported to be in poor condition. In 1983, it was reported that the entrance channel to the basin was marked by private buoys, had a depth of 4 feet and had kelp along the south side. In 1984, a submerged obstruction was reported in the northwest end of the basin in about 51°51'06"N., 176°39'14"W.

(1035) **Finger Bay**, on the south side of Kuluk Bay, is about 1 mile long and 1 mile wide and has two narrow arms that extend in south and southwest directions. Both arms are open to the northeast, but no sea penetrates their narrow entrances. In the outer part of the bay depths are generally too deep for suitable anchorage, although temporary anchorage may be found in about 30 fathoms 400 yards southwest of Lucky Point and in 24 fathoms off the entrances to the two arms.

(1036) The southwest arm is narrow but clear in midchannel, with a least depth of 5 fathoms. Submerged pier ruins and pilings extend up to about 180 yards from the north shore between 51°50'04"N., 176°37'14"W and 51°49'53"N., 176°37'36"W. Holding ground near the head of the arm is good. Winds through Finger Bay tend to be very strong because of the high bluffs on each side. Wind direction is along the axis of the piers, and vessels should have little trouble holding alongside. Surge in Finger Bay is at a minimum.

(1037) **Scabbard Bay**, just east of Finger Bay, is open to the north. Anchorage can be had near the entrance in 20 fathoms, gray sand and broken shell bottom. At the south end of the bay is good shelter in 15 to 20 fathoms, brown

mud bottom. Water is obtainable. Midchannel courses will avoid all dangers.

(1038)

Cape Adagdak to Shagak Bay

(1039) **Cape Adagdak**, the northernmost point of Adak Island, is a bold headland 2,072 feet high. From Cape Adagdak, the coast trends southwest and then curves west to form 3-mile-wide Andrew Bay. A 20-foot-high rocky dike separates the head of the bay from freshwater Andrew Lake.

(1040) **Acorn Rock** is 0.2 mile off the north coast of Adak Island, 5.5 miles SW of Cape Adagdak. A shoal covered 1 fathom is 0.4 mile offshore 0.6 mile west of the rock.

(1041) **Cape Moffett**, 8 miles southwest of Cape Adagdak, is a cliff 600 feet high behind which the land rises gradually to Mount Moffett. The cape is the northwest headland of Adak Island and is prominent for entering Adak Strait. **Cape Kiguga**, 2 miles south of Cape Moffett, is the westernmost projection of Adak Island at the north entrance to Adak Strait; it is a very steep eroded slope rising abruptly from the water. The 30-fathom curve extends about 1 mile off Cape Moffett and Cape Kiguga; there are no off-lying dangers.

(1042) **Adak Strait**, between Adak Island and Kanaga Island, is 16 miles long and from 6 to 8 miles wide; depths are from 30 to over 100 fathoms. The only dangers are the rocks and reefs off **Eddy Island** and **Argonne Point** on the east side and **Shoal Point** and **Naga Point** on the west side. Vessels should clear both shores of the strait by not less than 1 mile. Since the current velocity may reach 4 knots, passage in heavy fog without radar is not recommended. See the Tidal Current prediction service at *tidesandcurrents.noaa.gov* for specific information about times, directions, and velocities of the current at numerous locations throughout the area, including Adak Strait. Links to a user guide for this service can be found in chapter 1 of this book.

(1043) The coast of Adak Island along the east side of Adak Strait is bordered by steep bluffs and rocky cliffs; islands, rocks and reefs are close to shore. Eddy Island, at the north entrance, is prominent. **Whirlpool Rock**, 1 mile east of Eddy Island, is small, flat on top, and awash at extreme high tides; kelp grows close to it. Currents are strong and erratic in this area. **Wedge Point**, a rocky bluff 7.5 miles south of Eddy Island, is prominent. A good anchorage for small vessels in south weather is 0.8 mile east of Wedge Point, 0.3 mile offshore in 17 fathoms, sand bottom. The point 9.5 miles south of Eddy Island resembles the head of a huge gorilla.

(1044) The coast of Kanaga Island along the west side of Adak Strait is fringed by kelp beds, islets and rocks. There are several anchorages that provide protection from west weather. One is in the cove between **Round Head** and Shoal Point; another is midway between Shoal Point and Naga Point in 17 fathoms, gray sand bottom. A reef covered 6 fathoms is 1 mile northeast of Naga Point and 0.8 mile offshore; another reef covered 13 fathoms is 0.7 mile east of the point. When the current is ebbing heavy tide rips occur on these reefs in south weather.

(1045) **Cape Chlanak**, on the west side of the south entrance to Adak Strait, is low and rocky. Shallow water marked by kelp is close to the shoreline. Currents are strong, and medium tide rips occur off the point.

(1046) **Shagak Bay**, 3 miles southeast of Cape Kiguga, has depths of 20 fathoms or more, but only 4 feet can be carried through the 400-yard-wide entrance between grass-covered sandspits. A band of very heavy kelp extends across the entrance; the bar is relatively smooth rock. The bay is well protected from swells; the bottom is mud and probably fair holding ground. Violent williwaws and gales are encountered in east and southeast weather. A good weather anchorage is indicated 1 mile northwest of the entrance and 0.7 mile offshore in 17 fathoms, flat sand bottom.

(1047)

Bay of Islands

(1048) **Bay of Islands**, on the northwest side of Adak Island, is protected by the many islands at the entrance; wire-drag depths of 34 feet or more are in the main passages. The bay is about 6 miles in a southeast direction and varies in width from 3 miles at the entrance to less than 1 mile at the southeast end. Although the bay is protected from sea swells, violent and severe gales occur, especially with winds from east and south.

(1049) The approaches to Bay of Islands are clear to within 500 yards of **North Island** on the E and **Careful Point** on the west. Currents are strong near Careful Point. **Cascade Rock**, in about the middle of the entrance, is only 2 feet high and breaks in heavy weather; shoal water surrounds the rock.

(1050) The preferred passage to **Expedition Harbor**, in the southeast part of Bay of Islands, is west of **Green Island** through **The Race** between the west end of **Ringgold Island** and **Plum Island Rocks**, thence through **Ringgold Sound** and **Hell Gate**.

(1051) The Race is dangerous because vessels must pass close to Plum Island Rocks. A speed of 8 to 10 knots is essential for a large single-screw vessel to make the necessary changes in course.

(1052) Hell Gate narrows to about 70 yards and is dangerous for a large vessel in case of strong beam winds or mechanical failure.

(1053) At the east end of Hell Gate, the kelp-covered rocks on the south side and **Eaglet Rocks** on the north narrow side of the channel, makes it particularly difficult for an outgoing vessel because it is necessary to head for Eaglet Rocks and, when the rocks are close at hand, make a sharp turn in order to pass through the deep and narrow part of Hell Gate.

(1054) Expedition Harbor can be reached through **Argonne Channel**, north of Ringgold Island, but this passage is

dangerous because the reefs at the turn north of **Black Island** narrow the channel width to 90 yards.

(1055) Vessels can anchor in the west or east parts of Expedition Harbor. The main part of the harbor, with depths of 30 to 85 fathoms, is too deep for anchorage.

(1056) There are **anchorage areas** in **Unalga Bight**, at the west end, in 16 to 25 fathoms, mud bottom; **Gannet Cove**, at the east end, in 16 to 25 fathoms, mud bottom; and **Beverly Cove**, north of Gannet Cove, in 10 to 18 fathoms.

(1057) An excellent anchorage for small vessels is in **Fisherman Cove**, on the south side of Ringgold Sound, in 10 to 22 fathoms, mud bottom.

(1058) Anchorage can also be had on the south side of North Island in 20 fathoms or more, mud and rock bottom. The area can be reached by passing west of North Island until past **North Rocks**, thence a **110°** course between shoal spots of 3¾ fathoms on the north and 4 fathoms on the south to the anchorage.

(1059) Water can be obtained from several waterfalls in the Bay of Islands. The waterfall 0.3 mile southeast of **Vincennes Point** has the most accessible natural water supply in the bay.

(1060)

Three Arm Bay to Hidden Bay

(1061) **Three Arm Bay**, on the west side of Adak Island, has depths of 19 fathoms or more in the outer part, but the depths decrease to less than 5 fathoms in the arms. Most of the covered dangers are within 300 yards of the shore. In south weather small vessels can anchor 0.3 mile east of **Three Sisters Island** in 17 fathoms, sandy bottom. **North Arm**, 0.2 mile wide with steep sides, extends 2 miles inshore to a low draw. A short overland trail leads from the upper end of the arm to the south shore of Unalga Bight in the Bay of Islands. In southwest and west weather, swells from Adak Strait enter North Arm; in east or west weather, winds draw through this arm. Anchorage is suitable only for small craft in good weather. A fair anchorage for small vessels is in **Middle Arm**, 0.5 mile north of **Split Point**, and rock bottom is poor holding ground. **South Arm** is well sheltered, but the holding ground was reported poor in 1973. It is entered from Middle Arm through a 6-fathom passage between the west shore of the small island off Split Point and the shoreline to the west. The passage is foul between Split Point and the island off the point.

(1062) **Lake Point**, the southwesternmost point of Adak Island, is a Steller sea lion rookery site. There is a 3-mile vessel exclusionary buffer zone around the rookery which encompasses most of Cape Yakak. (See **50 CFR 224.103**, chapter 2, for limits and regulations.)

(1063) **Bay of Waterfalls**, on the south side of Adak Island just east of Adak Strait, is 8 miles long and 5 miles wide at the entrance but narrows to 0.5 mile at the north end. Depths of 10 fathoms or more are within 0.3 mile of the shore, except for a pinnacle rock, covered 1½ fathoms, 5.5 miles inside the bay at a point 0.5 mile west of **Low Point**. Most of the bay is too deep for anchorage; it is exposed to the seas and swells of the Pacific Ocean and to heavy gusts sweeping through the mountain passes of Adak Island. Vessels can anchor in 16 fathoms within 0.5 mile of the head.

(1064) **Cape Yakak**, on the west side of the entrance to Bay of Waterfalls, is a long, flat tableland, well defined and easily recognized because it has no high peaks on it.

(1065) **Chapel Roads**, the east arm of Bay of Waterfalls, offers anchorage in 20 fathoms, rocky bottom, but is also exposed. **Chapel Cove**, the inner bight of Chapel Roads, affords temporary anchorage in 10 fathoms, hard to soft gray sand bottom. The entrance is narrow, being restricted by **McCulloch Rock**, a pinnacle covered 2½ fathoms, on the north side of the cove. **Pulpit Rocks**, inside the cove, are a ledge of bare rocks.

(1066) **Cataract Bight**, on the east side of Bay of Waterfalls near its head, affords anchorage in 24 fathoms 200 yards off the beach; water can be obtained. A perceptible swell reaches the bight with south winds.

(1067) **Hidden Bay**, 12 miles northeast of Cape Yakak, is a 0.1-mile-wide inlet 1.2 miles long with depths of 10 fathoms or more in midchannel; high hills are on both sides. Small boats will find good shelter in the west arm at the north end of the bay in 11 fathoms, mud bottom. A 6-foot-high rock, 0.6 mile south of the entrance, marks a foul ground area with deep channels on either side; boats should keep well clear of the east entrance point.

(1068)

Kanaga Island

(1069) **Kanaga Island**, across Adak Strait from Adak Island, is roughly right angled and extends 18 miles north and south and 28 miles east and west and has a maximum width of 7 miles. **Kanaga Volcano**, at the north end of the island, is cone shaped, rising directly from the water to 4,416 feet; steam may emit near the summit. In clear weather this excellent landmark is visible from all directions. There are several lesser peaks south of the volcano from which the land slopes down abruptly to rolling tundra-covered hills, 600 to 100 feet high, interspersed with numerous streams and lakes.

(1070) The Bering Sea Aerological Unit stationed at Kanaga Bay found that the Kanaga Volcano could be utilized as a means for forecasting bad weather. The volcano peak is seldom absolutely clear of clouds. During April 1934, it was observed that invariably the day or night before a gale the peak made its appearance, shorn of all clouds and with wisps of steam around the crater. During the summer of 1953, the phenomenon was noted on several occasions, but it is not infallible, as evidenced at other times when bad weather did not follow clear visibility of the peak.

(1071)

Cape Miga to Kanaga Bay

(1072) Most of the north coast of Kanaga Island between **Cape Miga** and Round Head is fringed by kelp beds, islets and rocks. Depths of 100 fathoms reach within 0.5 mile of shore from Cape Miga for 2 miles east, where the shoreline trends southeast for 4 miles to Round Head, and depths of 30 fathoms reach within 1 mile of shore. The water over this relatively shoal area appears much disturbed, and currents are strong and erratic.

(1073) **False Bay** (51°43'N., 177°09'W.), 0.5 mile north of Cape Chlanak, has landing places protected from all but heavy southeast swells on the sand beaches at the head of its two arms. The bay may be used as an emergency anchorage for very small vessels, in 8 fathoms, sand bottom, and affords protection from west and north winds.

(1074) **Kanaga Bay**, on the south coast of Kanaga Island 2 miles west of Cape Chlanak, is 2 miles long and 0.4 mile wide with depths of 10 to 3 fathoms, except for the shallow north part which nearly dries in places. The hazardous entrance channel is only 130 yards wide between reefs plainly marked by kelp.

(1075) The shoreline of Kanaga Bay consists of rocky cliffs or steep grassy bluffs, with a sand beach and low ground at the head. Good anchorage is afforded medium-sized vessels in shallow water, with excellent holding ground of sticky mud mixed with black sand. The anchorage is protected from all winds except southeast, and the bay is apparently not subject to williwaws, the heaviest gusts coming from northeast. With heavy swells from south through southeast, the entrance is impassable, and it should never be attempted without good visibility.

(1076) The wreck of the USS SWALLOW on the west side of the entrance to Kanaga Bay is prominent and appears red in color from offshore. If any appreciable swell is running, the sea breaks on both sides of the entrance channel near the wreck.

(1077) In 1954, the outer part of the dock at the abandoned site, 1.4 miles above the entrance of Kanaga Bay, was in fair condition; small vessels could berth along its face where the depth is 13 feet. The dock has been gutted by fire near the beach end, and buildings along the waterfront have been burned. A prominent radio mast on a hill 175 yards northeast of the inner end of the dock is visible throughout the bay. A cabin is across the bay northwest of the dock.

(1078)

Cape Tusik

(1079) The south coast of Kanaga Island is low, rocky and very broken with numerous offshore rocks and reefs marked by kelp fringing the shore. The coast should be cleared by at least 2 miles to avoid the dangers.

(1080) The waters off **Cape Tusik**, 3 miles west of Kanaga Bay, appear much disturbed with strong currents. A dangerous shoal extends south-southwest for 2 miles off the prominent headland 2 miles northwest of Cape Tusik. Depths of 16 fathoms are on the outer part, decreasing to much shoaler depths closer inshore.

(1081)

Sentry Rock to Village Reef

(1082) **Sentry Rock**, 9 miles west of Cape Tusik and 1 mile off the south coast of Kanaga Island, is 94 feet high and prominent. Passage between the rock and the shore should not be attempted.

(1083) **Cape Chunu**, the southwest end of Kanaga Island, has grassy bluffs and rocky cliffs 100 to 200 feet high; rolling grassland is in the interior with hills up to 345 feet high. The shoreline is ragged and rocky; rocky reefs and prominent rock islets and pinnacles fringe the shore. **Castle Island**, a small grass-covered rocky islet off **West Chunu Point**, is 165 feet high and prominent from the southeast and northwest. Vessels are cautioned to pass at least 1.5 miles off Cape Chunu to avoid the shoal area of very irregular rocky bottom with depths of 2 to 6 fathoms. The waters for several miles south of the cape are usually much disturbed, indicating strong currents.

(1084) **Kanaga Pass**, between Kanaga Island and Tanaga Island, is 3.8 miles wide at its narrowest part, but it is full of small rock islets, dangerous reefs and strong currents; passage is not recommended except during periods of good visibility and calm seas.

(1085) Foul ground extends into Kanaga Pass for over 1 mile from the west side of Cape Chunu to more than 3 miles off **Western Point**, Kanaga Island, thence over 1.5 miles offshore along the north coast of Kanaga Island. **Eddy Rock, Goose Rocks** and **Annoy Rock**, a part of the foul ground, are prominent. A dangerous reef, covered 5 feet to 3 fathoms, is 0.4 mile north of Annoy Rock. The dangerous area from this reef east to Kanaga Island is rocky and very irregular; many underwater pinnacles exist. The kelp that marks the area during the summer is towed under by the current except at slack water and cannot be relied upon to indicate the shoals.

(1086) **Cape Sasmik**, the south end of Tanaga Island on the west side of Kanaga Pass, is a relatively flat grassland with steep grassy bluffs and rock cliffs rising abruptly from the shoreline to 100 feet. Rocky islets and reefs border the coast close inshore. **Herd Rock**, a 20-foot detached black rock on the southwest side of the cape, is conspicuous from the southeast and northwest. The cape should be cleared by at least 1 mile.

(1087) Foul ground extends up to 1 mile off the Tanaga Island shore on the west side of Kanaga Pass, except in the approach to Twin Bays. The bottom is very broken and irregular, and the shoreline is made up of low cliffs.

(1088) A good anchorage in west weather is 3 miles north of Cape Sasmik and 0.8 mile offshore in 18 fathoms, sand bottom; Twin Bay is also a good anchorage.

(1089) **Trunk Point**, 11 miles northeast of Cape Sasmik, shows as a low rounded knoll.

(1090) **Cape Sudak**, the long finger-shaped easternmost point of Tanaga Island on the north side of the north entrance to Kanaga Pass, terminates in a small flat-topped, steep-sided 70-foot-high promontory that appears detached from offshore. A dangerous shoal, with bare rocks, extensive heavy kelp and underwater pinnacles, extends 2 miles northeast from the cape. The waters from the shoal to the 100-fathom curve appear greatly disturbed. The cape should be cleared by over 2 miles.

(1091) Anchorage protected from west and north swells is 1 mile southeast of the end of Cape Sudak in 20 fathoms, flat cinder bottom.

(1092) The current velocity may reach 4 knots in the narrow part of Kanaga Pass. In calm weather, tide rips are visible among the covered reefs between Annoy Rock and Kanaga Island. With a heavy south swell and the current ebbing south, seas break across the entire pass. See the Tidal Current prediction service at *tidesandcurrents.noaa.gov* for specific information about times, directions, and velocities of the current at numerous locations throughout the area, including Kanaga Pass. Links to a user guide for this service can be found in chapter 1 of this book.

(1093) The recommended routes through Kanaga Pass with depths of 10 fathoms or more are through **Explorer Passage**, between Annoy Rock and **Hazard Point**, Tanaga Island, thence either midchannel between Kanaga Island and Tanaga Island, or the 0.3-mile-wide passage through **The Ditch** between dangerous **Eider Reef**, awash in places at half tide, and Trunk Point, Tanaga Island.

(1094) **Twin Bays**, 5 miles north of Cape Sasmik, is a good small-boat anchorage in west and north weather; larger vessels may anchor just off the entrance. A 75-foot-high distinctive rock resembling a Christmas tree in profile outline, undercut by surf action to balance on a small pedestal, is on the beach at **Christmas Tree Point**, on the west side of the entrance. The shores on both sides of the entrance to the bay are 100-foot-high vertical cliffs with reefs that extend more than 0.1 mile into the bay; the surrounding country is rolling grassland. Foul ground extends 0.7 mile south of Christmas Tree Point.

(1095) A boulder beach, with a very shallow valley beyond, is at the head of the northeast arm of Twin Bays; a sand beach backed by a narrow, deep valley is at the head of the northwest arm. A trapper's cabin is near the beach in the northwest arm, and a stream empties into this arm about 150 yards east of the cabin.

(1096) Small vessels can anchor in Twin Bays in 8 fathoms, flat sand bottom, when the Christmas tree rock bears **242°**. Larger vessels should anchor in 16 fathoms, flat sand bottom, 0.6 mile off the rock when it bears **310°**.

(1097) **Hot Springs Bay**, on the Tanaga shore of Kanaga Pass 12 miles north of Cape Sasmik, is small but offers good protection from west weather. Low bluffs line the south shore with a rise at the head to a high ridge. Warm springs are along the central part of the south shore. The north shore is lined by steep bluffs rising toward the mountains; a prominent waterfall is 0.3 mile from the head. A good sand beach is at the foot of a low valley; a stream enters the bay at the south end of the beach. Two cabins are just in back of the beach near its north end.

(1098) The only off-lying danger in Hot Springs Bay is **Village Reef**, 600 yards off the south shore 1 mile northwest of Trunk Point. Good anchorage is found in 13 to 17 fathoms, sand bottom; small craft may anchor in shoaler water close to the beach.

(1099)

Belleview Beach to The Signals

(1100) The north coast of Kanaga Island west of Cape Miga trends south for 7 miles, then southwest for 20 miles to Kanaga Pass. From Cape Miga for 7 miles south to **Belleview Beach**, the coast is steep-to with off-lying dangers within 0.5 mile of the shore. The 2-mile sand beach is backed by low ground and dunes. Good anchorage is afforded in southeast weather off the beach; avoid the several detached offshore rocks. Landings can be made on the beach.

(1101) The coast between Belleview Beach and Kanaga Pass is generally rocky and irregular, with a wide band of kelp and rocks parallel to the shore. Most of the points of land are low rocky cliffs; steep grass bluffs between the points rise to the relatively flat and rolling interior. The coast should be given a clearance of 1.5 miles to avoid the dangers.

(1102) **Ship Rock**, 1 mile offshore and 5 miles west of Belleview Beach, is 49 feet high and resembles a ship; foul ground is between the rocky islet and the shore. Good anchorage in south weather can be had 4.5 miles west of Ship Rock in the cove west of **Cabin Point** in 18 fathoms, smooth sand bottom; approach with caution to avoid the covered rocks and pinnacles off Cabin Point and Pincer Point. A trapper's cabin is on the west side of Cabin Point. A group of pinnacles, covered 7 to 25 feet and marked by kelp, is 0.4 mile off double-ended **Pincer Point**, 5.2 miles west of Ship Rock.

(1103) **Hive Rock**, 7.5 miles west of Ship Rock and 0.4 mile offshore, is an 80-foot-high hive-shaped pinnacle. Heavy kelp is between the rock and the shore. Good anchorage is afforded in south weather 0.6 mile northeast of the rock in 20 fathoms, smooth sand bottom; approach should be made from the north. A rock that uncovers and marked by kelp is 1.3 miles offshore, 8.7 miles west of Ship Rock; foul ground is between the rock and the shore.

(1104) **The Signals**, a prominent 60-foot-high twin-pinnacled rock is 0.3 mile off **Northwest Point**, 10.2 miles west of Ship Rock. **Coolie Hat**, 1.3 miles southeast of Northwest Point, is a prominent 284-foot black cinder hill shaped like the crown of a hat.

(1105)

Bobrof Island

(1106) **Bobrof Island**, 6 miles northeast of Cape Sudak, Tanaga Island, is more than 2 miles long and almost 2

miles wide. The shoreline on all sides except the north is rocky and precipitous, with steep slopes rising abruptly to 2,419-foot **Bobrof Volcano**. The north point of the island, connected by a low grassy area to the base of the volcano, consists of a very prominent flat-topped 402-foot-high cylinder-shaped peak of black lava having bare vertical sides. It appears to be separated from the rest of the island when viewed offshore from the east or west.

(1107) Currents are strong on all sides of Bobrof Island, and the waters appear disturbed for 1 mile offshore. Dangers are within 0.2 mile of the shore; the 10-fathom curve is less than 0.5 mile offshore. A band of impenetrable kelp parallels the northwest coast to 0.3 mile offshore.

(1108)

Tanaga Island

(1109) **Tanaga Island**, across Kanaga Pass from Kanaga Island, is irregular in shape with greatest north-south length of 20 miles and east-west width of 23 miles. The north part of the island is high and mountainous, while the south part is low with many streams and small lakes or ponds. The north shore has precipitous rocky cliffs or very steep slopes that rise to the interior mountains. The other shores are rocky cliffs or reefs with numerous along shore pinnacles, except for beaches in Tanaga Bay and a few other places. The south coast and much of the east coast of Tanaga Island is fringed with detached rocks, reefs and foul ground. Extensive kelp patches are in the foul areas. The dangers can be avoided by clearing the coast by over 2 miles.

(1110)

Gage Point to Pillbox Rock

(1111) The first 12 miles of the north coast of Tanaga Island between Cape Sudak and **Gage Point** are indented with coves that provide anchorage. The 30-fathom curve is 1 mile or less offshore; all dangers are within 0.5 mile of the shore.

(1112) **Portage Bight**, 5 miles west of Cape Sudak, affords a good weather anchorage in 18 fathoms, sandy bottom.

(1113) **Rough Bay**, 8 miles west of Cape Sudak, is not recommended as an anchorage because of violent williwaws in south and west weather. A dangerous rock, 0.4 mile northeast of the west entrance point, is awash at low water. A large shoal area, marked by kelp, makes out from the southeast shore to the middle of the bay. A sand beach is at the head and a deep valley extends inland.

(1114) **Gusty Bay**, 10 miles west of Cape Sudak, affords good anchorage in south weather. The gusty winds frequently encountered do not, as a rule, impair safe anchorage. Two shallow valleys, separated by a bold headland, are at the head of the bay.

(1115) **Pillbox Rock**, 0.1 mile off the steep-sided, square-faced east entrance point to Gusty Bay, is a 150-foot-high conspicuous dome-shaped pinnacle with grass on top; a 50-foot-high sharp-pointed pinnacle is just north of it. All dangers are within 0.5 mile of the shore. Anchor in the center of the bay with the sharp pinnacle bearing **118°**, in 16 fathoms, sand bottom.

(1116)

Cape Sajaka to South Bay

(1117) The north coast of Tanaga Island between Gage Point and **Cape Sajaka** is very irregular with many vertical lava cliffs. A large waterfall, 2.5 miles west of **Bumpy Point**, is 348 feet high and pours from the top of a vertical cliff. Dangers are within 0.5 mile of the shore. Currents are strong along this stretch of coast.

(1118) The two prominent peaks in the interior are connected by a saddle; the east one is about 4,600 feet high and the west, **Tanaga Volcano**, is 5,925 feet high.

(1119) From Cape Sajaka southeast to Tanaga Bay several shallow valleys with black sand or gravel beaches across them indent the otherwise mountainous interior. **Blackface Point**, 7 miles southeast of Cape Sajaka, is a prominent headland with black rock cliffs near the top of steep grassy bluffs. Dangers are within 0.5 mile of the shore. In good weather vessels may anchor 3 miles northwest of **Cape Agamsik**, 0.8 mile off the sand beach, in 15 fathoms, flat sand bottom.

(1120) **Tanaga Bay**, on the west side of Tanaga Island, affords protection from all except west weather. The bay is a good anchorage for large and small vessels; depths and places can be selected as desired. The bottom is uniformly fine, black, hard sand with only fair holding qualities in heavy weather. The head of the bay shoals gradually from 2 miles out to a sand beach. The south shore is irregular with reefs and kelp beds. Dangers are within 0.7 mile of the bay shore. Several visible rocks on **Middle Ledge** that extend almost 0.5 mile offshore at the head of the bay are of some assistance when anchoring near the head.

(1121) **Cable Bay**, a small cove on the north side of Tanaga Bay east of prominent Cape Agamsik, affords protection to small craft in west weather. Water is available at the head of the bay.

(1122) **Cape Amagalik**, on the south side of the entrance to Tanaga Bay, is low but backed by higher grassy hills. A shoal extends 1.5 miles west of the cape. A dangerous reef, marked with heavy kelp and rocks, is inside the shoal area. Tide rips are severe off the cape. All vessels should clear the cape by at least 4 miles when a moderate swell is running against the current. Small vessels should not attempt passage with a heavy swell running. Seas 12 to 14 feet high have been encountered in the area in moderate weather. A flood current of 3 knots has been observed; larger velocities probably occur. The flood sets north and the ebb south.

(1123) Tide rips have been observed on the 26-fathom bank 4 miles northwest of Cape Amagalik.

(1124)

Pilotage, Tanaga Bay

(1125) Pilotage, except for certain exempted vessels, is compulsory for all vessels navigating the waters of the State of Alaska.

(1126) Tanga Bay is served by the Alaska Marine Pilots. (See **Pilotage, General** (indexed), chapter 3, for the pilot pickup stations and other details.)

(1127) A skeleton tower on top of a 145-foot bluff on the south side of Cape Amagalik, and **Harem Rock**, 0.6 mile southwest of the tower, and usually marked by heavy breakers, are prominent.

(1128) **Lash Bay**, 3 miles east by south of Cape Amagalik, is the site of an abandoned World War II military installation. Only small craft should enter the bay, and then with caution under favorable weather conditions. The inshore part of a 600-foot wharf remains at the head of the bay; a depth of 8 feet is off its outer end. Broken piling of the outer section of the wharf is covered and constitutes a real danger. Two diamond-shaped targets set on a hill just west of the wharf form an entrance range on course **002°**. A shoal covered less than 3 fathoms is in the approach on the range line extended; dangerous covered rocks are near both sides of the range line approaching the head. The bay is useful only as a temporary anchorage because of limited swinging room and shoal water.

(1129) **Scarab Rock**, 0.6 mile west-southwest of **Tidgituk Island**, is 50 feet high and prominent.

(1130) **South Bay**, on the south coast of Tanaga Island just west of Cape Sasmik, affords anchorage during north and east weather. A reef that uncovers extends 0.5 mile south from the center of the head of the bay; a shoal with depths of 7 to 2 fathoms continues south for another 0.5 mile. A trapper's cabin is near the mouth of a stream northeast of the reef. Anchor in the east half of the bay, 0.5 mile off the east shore, in 12 fathoms, flat sand bottom.

(1131)

Tanaga Pass to Amchitka Pass

(1132) **Tanaga Pass**, between Tanaga Island and the Delarof Islands, is 13 miles wide at its narrowest part. Depths of 50 fathoms or more can be carried through the pass by keeping 6 miles off Cape Amagalik, Tanaga Island, and 3 miles off the Delarof Islands.

(1133)

Currents

(1134) The direction and velocity of the current is radically affected by the land areas and the banks. It appears that the flood is diverted by the chain of islands---Skagul to Unalga---and the relatively shoal water between them to an east and west direction in moving around this chain. It was observed that south of Skagul Island the flood sets about northeast, east of this island it sets north, and north of the island it sets north to northwest.

(1135) With erratic currents of this nature, dead reckoning cannot be depended on, and the navigator may find his vessel 1 mile or more off his reckoning after a run of 1 hour.

(1136) During observations made 4.5 miles southwest of Cape Amagalik, the current was rotary, turning clockwise, and followed a definite pattern. A minimum current averaging about 0.8 knot sets north to northeast. As the current turned through east to south the velocity built up rapidly until it reached 3 knots. The velocity decreased to about 2 knots and at time of low water set west-southwest. The current turned northwest, and the velocity increased to a maximum of 3 knots. The current continued northwest to north until the velocity averaged about 0.8 knot. The current then set northwest at a velocity of 2 knots. The current turned through north to northeast and decreased in velocity to a minimum of 0.8 knot.

(1137) On the opposite side of the pass, 4 miles east of Ugidak Island, velocities of over 3 knots were observed.

(1138) Between Kavalga and Ulak Islands, the flood was observed to set to the northwest.

(1139) Tide rips and swirls may be encountered in any part of this area, except well off the land areas in deep water. Generally they will be encountered where a radical change in depth deflects the natural flow of the current or where land masses affect this flow. The ebb appears to produce the heaviest rips, and they are most pronounced during the greatest range of tides. Also, strong winds and heavy seas, opposing the flow of the current, cause large rips.

(1140) Rips and swirls were observed by survey vessels to be particularly heavy to a distance of approximately 4 miles west of Cape Amagalik. This area is dangerous to small craft except in favorable weather and should be avoided by medium-sized craft under adverse conditions of current and sea or swell. Under unfavorable weather conditions, it is advisable to round this cape outside the 50-fathom curve.

(1141) Heavy tide rips have been observed off Cape Sajaka, on the bank between Skagul and Ilak Islands and on the shoal that extends west from Unalga Island.

(1142) See the Tidal Current prediction service at *tidesandcurrents.noaa.gov* for specific information about times, directions, and velocities of the current at numerous locations throughout the area. Links to a user guide for this service can be found in chapter 1 of this book.

(1143) The **Delarof Islands**, between Tanaga Pass and Amchitka Pass, are a group of nine islands and several small islets and rocks covering an area of 38 miles north-south and 33 miles east-west.

(1144) **Ilak Island**, the easternmost in the Delarof group, is 188 feet high on a ridge near the northeast shore. The highest bluffs are on the north and east sides. From offshore the island appears tablelike; the top slopes gently from east toward the west shore. The shoreline is broken and surrounded by detached islets, rocks and reefs up to 2 miles west of the island and 0.5 mile on the other sides. **Gramp Rock**, 1.5 miles west of Ilak Island, is the breeding ground for sea lions. The 15-foot-high pinnacle

0.5 mile off the north shore of the island is prominent. Strong currents and tide rips are near the island.

(1145) Gramp Rock is a Steller sea lion rookery site. There is a 3-mile vessel exclusionary buffer zone around the entire island. (See **50 CFR 224.103**, chapter 2, for limits and regulations.)

(1146) **Ugidak Island**, the easternmost of a chain of four islands in the central part of the Delarof group, is 75 feet high, small, and rocky. The waters around the island are deep; currents are strong and tide rips, dangerous to small boats, may be encountered.

(1147) **Skagul Island** and **Ogliuga Island**, 2.5 to 7 miles west of Ugidak Island, are surrounded by numerous rocks, reefs and kelp beds. An emergency landing field and buildings are on Ogliuga Island; a tower near the north shore is prominent.

(1148) **Skagul Pass**, between Skagul and Ogliuga Islands, is only for small craft. Currents in the pass are very strong, and tide rips develop when sea and current are opposed. Kelp in the pass is towed under when the current is running.

(1149) A good anchorage from north weather is 1.2 miles south of Skagul Pass in 17 fathoms, sand and gravel bottom.

(1150) **Tag Islands**, a group of rocky islets 3 miles southwest of Ugidak Island, are the breeding grounds for sea lions; the highest point is 75 feet. Several rocky islets are between these islets and Skagul Island.

(1151) Tag Islands are a Steller sea lion rookery site. There is a 3-mile vessel exclusionary buffer zone around the islands that also encompasses Skagul Island. (See **50 CFR 224.103**, chapter 2, for limits and regulations.)

(1152) **Kavalga Island**, 10 miles west of Ugidak Island, is 5 miles long with greatest width of 1.5 miles; the highest point is 315 feet. The 1-mile-long prominent headland at the west end of the island is 180 feet high and connected to the mainland by a low gravel beach. Most of the island is covered with tundra. The shores are fringed with prominent rocks and reefs.

(1153) There are several reefs and rocks, large kelp beds and winding channels 2 to 5 fathoms deep between Ogliuga Island and Kavalga Island. Large numbers of sea otter have been seen in this area. **Ogliuga Pass**, close to Ogliuga Island, is only for small craft.

(1154) **Sea Otter Pass**, 0.7 mile northeast of Kavalga Island, has depths of 5 fathoms in the 0.4 mile-wide channel. The pass is fringed with heavy kelp and prominent 3-foot-high rocky islets; some kelp grows in the channel. Currents in the pass are moderate.

(1155) A good anchorage during south gales is 1-mile north of Kavalga Island in 22 fathoms, sand and gravel bottom.

(1156) A bank with a least depth of 18 fathoms is between Kavalga Island and Unalga Island. Currents in this area are very strong; dangerous tide rips develop when the sea or wind and current are opposed. The waters are extremely dangerous for small boats; under extreme conditions the area may also be dangerous for larger vessels. Vessels using the pass should clear Kavalga Island and Unalga Island by not less than 2 miles.

(1157) **Unalga Island**, the westernmost of the central Delarof group, is 240 feet high, grass covered, rimmed with steep bluffs, and flat on top. The shore is fringed by rocks and reefs. Prominent are a 50-foot-high rock 0.5 mile northwest of the island and **Dinkum Rocks**, 0.8 mile southwest of the island.

(1158) **Gareloi Island**, the northernmost of the Delarof group and 20 miles west of Tanaga Island, is almost circular and about 5 miles in diameter. **Mount Gareloi**, a 5,160-foot active volcanic crater, is near the center at the summit of the island; a smaller peak is south of the summit. The land slopes steeply to the summit, except near the northwest side where the slopes are more gradual. The island consists of lava rock, black lava, eroded lava and ashes; the lower slopes and valleys are covered with grass and tundra in many places. The shores have steep cliffs with rocks and boulders at the base; boulders, pinnacles and rocks awash extend around the shoreline. Heavy kelp surrounds most of the island and extends offshore to 10 fathoms. Depths of 10 fathoms or more are within 0.5 mile of the island.

(1159) A trapper's hut is on the beach above the north shore of Gareloi Island. In moderate weather the survey ship anchored off the lee shore in the bight on the southeast side, 800 to 1,000 yards offshore, in 25 to 35 fathoms. The current velocity is about 0.5 knot off the southeast shore and sets northeast and southwest.

(1160)

Local magnetic disturbance

(1161) Differences of as much as 7° from normal variation have been observed on Gareloi Island southeast of Mount Gareloi.

(1162) **Ulak Island** and **Amatignak Island**, 3 miles apart, are the southernmost of the Delarof group.

(1163) Ulak Island is irregular in shape, 6 miles long, and over 3 miles wide at the center. There are two high points on the island, one on the ridge near the north shore and the other toward the south part of the island. Numerous rocks and islets border the island; several reefs are close to shore and near the off-lying rocky islets. Strong currents and tide rips have been observed as far as 3 miles southeast of the island. **Pratt Cove**, on the west side of the island, can be used as an emergency anchorage; currents are noticeable and the bottom is rocky. **Patton Cove**, on the south coast, is a good anchorage for north and northwest weather; there is very little current and the bottom is sandy.

(1164) The southeast shore of **Hasgox Point** on Ulak Island is a Steller sea lion rookery site. There is a 3-mile vessel exclusionary buffer zone around the rookery that encompasses all except the north half of the island. (See **50 CFR 224.103**, chapter 2, for limits and regulations.)

(1165) **Tanadak Island**, 1 mile off the west coast of Ulak Island, is low and not prominent. A prominent 30-foot

rock is 0.2 mile northwest of the island. The survey ship used an anchorage 0.7 mile east of the island.

(1166) **Ulak Pass**, between Ulak and Amatignak Islands, is 3 miles wide and has depths of 35 fathoms or more. The current velocity is over 2 knots in the pass and sets northwest and southeast. A midchannel course should be followed to avoid the rocks and islets near the shores of the islands.

(1167) **Amatignak Island**, the southernmost of the Aleutian Chain, is within 40 miles of the Seattle-Yokohama composite course. The rugged island is 5 miles long and 3 miles wide; the high tundra-covered hills and bare ridges and mountains of the interior rise to a height of 1,875 feet. The shores are generally steep and fringed with rocks; the west and northwest coasts are steep-to.

(1168) **Knob Point**, a peninsula with a conspicuous knob-shaped hill, is on the east side of Amatignak Island. **Ulva Cove**, just north of Knob Point, is used as a small-boat anchorage. The survey ship anchored off the entrance in 25 fathoms. Protection is fair from west and southwest gales except when there is a south and southeast swell from the Pacific. A boulder beach is in back of the cove and a trapper's cabin is on the small flat area at the head. A prominent waterfall is 1 mile north of the cove.

(1169) **Nitrof Point**, a rocky peninsula at the south end of Amatignak Island, is narrow and steep with conspicuous off-lying pinnacles. A rock awash with frequent breakers is 0.5 mile south-southwest of the most south pinnacle rocks. A foul area extends 0.6 mile offshore midway between Nitrof and Knob Points.

(1170) The west coast of Amatignak Island is very broken with prominent pinnacle rocks, steep cliffs and small coves; rocks awash fringe the shore. A prominent 170-foot dome-shaped pinnacle off the northwest coast makes a good landmark. A small deep cove on the northwest coast affords the best protection for landings on the west side of the island.

(1171) **Amchitka Pass**, between the Delarof Islands and the Rat Islands, has a least width of 50 miles and depths of 49 to over 1,000 fathoms. The islands on both sides of the pass should be cleared by at least 5 miles. Heavy tide rips have been observed off the east end of Amchitka Island. The pass is dangerous in heavy weather, particularly for small and medium craft; currents appear erratic in direction and velocities may be strong. This may account for reports of very large seas and strong tide rips.

(1172)

Rat Islands

(1173) The **Rat Islands**, between Amchitka Pass and **Buldir Island**, are a group of six large islands and several smaller ones covering an area of 60 miles north-south and almost 150 miles east-west. Strong williwaws frequently occur on the leeward sides of the north islands during periods of light to moderate breezes on the windward sides. Areas of clear weather are often found on the leeward sides during periods of heavy fog.

(1174)

Semisopochnoi Island to Bowers Ridge

(1175) **Semisopochnoi Island**, the northeasternmost of the Rat group, has a north-south length of 9.5 miles and an east-west width of 11 miles. The numerous rugged ridges and peaks, 1,200 to over 4,000 feet high, surround an interior valley with a small lake 300 feet above sea level. Most of the peaks or cones have deep craters and appear flat-topped from offshore. The shore is almost entirely steep cliffs or bluffs fringed with a narrow, rough boulder beach; kelp is alongshore. Dangers are within 400 yards of the shore, but the island should be cleared 1 mile or more. The west current velocity is about 1 knot and the east current about 1.5 knots, but a 3-knot current may be encountered at times. The currents are usually accompanied by tide rips off the points.

(1176) **Sugarloaf Head**, at the south end of Semisopochnoi Island, is a rounding, low, irregular, rocky point forming the south base of a 2,870-foot snow-capped conical peak that has a prominent secondary conical crater 1,620 feet high on its south slope. The small bight just east of the head has a section of sloping sand beach that is fronted by several lines of breakers. Two small bights with sloping boulder beaches are about 1 and 2 miles west of the head.

(1177) The valley drains to the southeast coast of the island between Sugarloaf Head and a jagged ridge with twin pinnacles more than 3,000 feet high to the northeast. East from the lake area, a low pass 600 to 800 feet high leads between steep cliffs to a broad grass-covered valley at the head of a small bight south of **Pochnoi Point**, the east end of the island. The point is broad somewhat flat and terminates in sheer rock cliffs about 300 feet high. A small stretch of sloping sand beach at the head of the bight is the best landing place on the island, but it is fronted by a small sand bar about 25 yards offshore.

(1178) **Petrel Point**, the north end of the island, has a prominent waterfall on its northwest tip that makes a sheer drop from the top of the bluff. Two small bights with sloping boulder beaches are about 2 and 4 miles along the shore southeast of Petrel Point.

(1179) The east shore of Pochnoi Point and the north shore of Petrel Point on Semisopochnoi Island are Steller sea lion rookery sites. There is a 3-mile vessel exclusionary buffer zone around each rookery that encompasses the northeast half of the island. (See **50 CFR 224.103**, chapter 2, for limits and regulations.)

(1180) Northwest of the lake area, the old crater wall rises steeply to a ridge with two prominent cones. **Tuman Point**, at the west end of the island, is faced with steep bluffs. A prominent triangular-shaped face of a 1,200-foot peak that drops steeply to the shore is 1.5 miles east along the north shore of the point. A sloping boulder beach is about 2 miles east of the point. In the broad but slight bight just south of Tuman Point are small stretches of sloping sand beach, but they must be approached through heavy kelp growing on large boulder rocks.

(1181) The best anchorage at Semisopochnoi Island is 1 mile offshore between Tuman Point and Petrel Point in 18 to 22 fathoms, sand and gravel bottom. This is inshore of the strength of the current, the approach is unrestricted, and it is well protected from most directions. Good anchorage is available in the center of the bight south of Pochnoi Point in 15 to 22 fathoms, sand bottom; it is free of tide rips and the current that prevails around the point. A fair anchorage is 1 mile offshore midway between Pochnoi Point and Petrel Point in 27 fathoms, sand bottom; current is about 1.5 knots. Another fair anchorage is 2 miles west of Sugarloaf Head in 25 to 30 fathoms, sand and gravel bottom.

(1182)

Local magnetic disturbance

(1183) Differences of as much as 7° from normal variation have been observed near Sugarloaf Head on Semisopochnoi Island.

(1184) **Petrel Bank**, which extends about 30 miles northeast from Semisopochnoi Island, is 16 to 20 miles wide within the 100 fathom curve. The high point on the ridge, covered 21 fathoms, is 15 miles northeast of the island. A narrow ridge that extends 30 miles northeast of Petrel Bank has ridges of 38 and 48 fathoms. The tidal current on Petrel Bank is rotary, turning clockwise. See the Tidal Current prediction service at *tidesandcurrents.noaa.gov* for specific information about times, directions, and velocities of the current at numerous locations throughout the area, including Petrel Bank. Links to a user guide for this service can be found in chapter 1 of this book.

(1185) **Bowers Ridge** extends north and west from Petrel Bank in a circular direction for nearly 250 miles. The ridge between the 1,000 fathom curves is 30 to 35 miles wide and contains several well-defined ridges. **Bowers Bank** about midway along the ridge had a least depth of 6 fathoms reported in 1971.

(1186)

Amchitka Island

(1187) **Amchitka Island**, 27 miles southwest of Semisopochnoi Island, has a northwest-southeast length of 34 miles and a greatest width of 4.5 miles. The southeast part is very low, the highest point being 351 feet. The northwest section is hilly and much higher, with peaks rising to 1,200 feet. The high land levels out toward the middle of the island to a low, rolling tundra and flat tableland. Many lakes and ponds are on the south half and a portion of the north half of the island. Most of the coast is fringed with reefs and extensive kelp beds. The shores are generally steep with many off-lying covered rocks, especially on the north shore and the east part of the south shore. Vessels should stay outside the 50-fathom curve, up to 4 miles off the north shore and 7 miles off the south shore, unless proceeding to anchorage. Weak tidal currents have been observed along the south side of the island.

(1188) In 1986, Amchitka Island and the nearby surrounding waters were closed to the public. The island is a military reservation. (See **50 CFR 36.39**; not carried in this Coast Pilot.)

(1189)

Local magnetic disturbance

(1190) Differences of as much as 5° from the normal variation have been observed on Amchitka Island.

(1191) **South Bight**, 3 miles west of **East Cape**, is an excellent emergency anchorage on the south coast of Amchitka Island, offering shelter during north weather.

(1192) East Cape and **Column Rocks** are Steller sea lion rookery sites. There is a 3-mile vessel exclusionary zone around these rookeries that encompass the entire cape including South Bight and surround column Rocks. (See **50 CFR 224.103**, chapter 2, for limits and regulations.)

(1193)

Constantine Harbor

(1194) **Constantine Harbor**, on the north side of Amchitka Island 6 miles west of East Cape, provides a fair anchorage. Because there are no prominent features on the island, caution is necessary to avoid mistaking other indentations for Constantine Harbor.

(1195) The south side of Constantine Harbor entrance is foul for 0.5 mile offshore. On the north side a reef, covered less than 2 fathoms in places and marked by heavy kelp, extends almost 1.5 miles east of **Kirilof Point**. The head of the harbor is a sand beach; other shores are rocky bluffs.

(1196)

Currents

(1197) Currents in the entrance to Constantine Harbor are strong and set across the narrow entrance channel. North to northeast gales may force vessels anchored in the harbor out to sea. The harbor is reported free of williwaws.

(1198)

Local magnetic disturbance

(1199) Differences of as much as 5° from the normal variation have been observed in Constantine Harbor.

(1200) The 0.2-mile-wide channel between the reefs at the entrance can be made on course **235°**; depths are 20 to 30 fathoms. Once inside anchorage is available in 6 to 20 fathoms, fair holding ground in sand and shell bottom.

(1201)

Kirilof Bay to Rat Island Pass

(1202) **Kirilof Bay**, on the north side of Amchitka Island 8.5 miles west of East Cape, is suitable only for small boats. Breakers have been reported to run across the entire entrance to the bay.

(1203) **Chitka Cove**, 24 miles northwest of East Cape, affords good protection from south and west weather. The approach is clear except for a 3-fathom shoal 0.7 mile northwest of **Chitka Point**. Anchor 0.7 mile offshore

in 18 to 20 fathoms with good holding ground in sand bottom.

(1204) Good protection from south winds can be had 0.7 mile offshore 1.5 miles east of **Bird Cape**, the northwest end of the island. The anchorage is midway between a kelp patch off the east side of the cape and a rock awash off the first small point to the east of the cape in 20 to 23 fathoms, sand bottom, Enter on course **170°**, heading for a prominent 50-foot-high pinnacle rock.

(1205) Protection from north and northeast winds can be had about 1 mile offshore 12 miles along the south coast of Amchitka Island from **Aleut Point**, the west end of the island. The anchorage is midway between two prominent rocks in 17 to 20 fathoms, sand bottom. Enter on a north course.

(1206) **Oglala Pass**, between Amchitka Island and Hawadax Island, is almost 10 miles wide; depths of 21 to over 30 fathoms can be carried through the middle of the pass. The current is somewhat rotary, turning clockwise. A 4-knot current has been measured in the middle of the pass; greater velocities may be experienced. Currents exceeding 7 knots have been encountered 1.5 miles northwest of Amchitka Island. See the Tidal Current prediction service at *tidesandcurrents.noaa.gov* for specific information about times, directions, and velocities of the current at numerous locations throughout the area, including Oglala Pass. Links to a user guide for this service can be found in chapter 1 of this book. During moderately heavy south weather, heavy tide rips extend across the pass at maximum ebb and attain heights of 30 to 40 feet under storm conditions. The pass should not be attempted by small vessels during south weather when the current is ebbing strongly.

(1207) **Little Sitkin Island**, 32.5 miles west of Semisopochnoi Island, has a north-south length of 5.5 miles and an east-west width of the same distance. The interior is extremely rugged and mountainous; only the lower slopes are grass covered. There are two prominent peaks, one 3,897 feet high in the northeast part and the other 1,960 feet high in the south part. Numerous streams are on the island but no lakes or ponds. The coast is generally bold, rocky, and precipitous, with a fringe of kelp 200 to 400 yards wide. A bank with a least depth of 10 fathoms extends about 1 mile off the north shore. No dangers are more than 600 yards from the beach. See the Tidal Current prediction service at *tidesandcurrents.noaa.gov* for specific information about times, directions, and velocities of the current at numerous locations throughout the area. Links to a user guide for this service can be found in chapter 1 of this book.

(1208) The sloping beach in the bight 1 mile east of **Prokhoda Point**, the south end of the island, is abrupt and composed of large, irregular boulders. Temporary anchorage, protected from west and northwest winds, can be had 0.5 mile offshore 1.5 miles northeast of Prokhoda Point in 22 to 25 fathoms, sand bottom.

(1209) A good anchorage in southwest weather is 600 yards offshore 2 miles northwest of **Pratt Point**, the east end of the island, in 20 fathoms, sandy bottom.

(1210) An anchorage protected from south swells in 0.7 to 1 mile offshore just east of **Patterson Point**, the north end of the island, in 20 to 25 fathoms, sand bottom. However, the williwaws off the island reach gale force with only a moderate southwest wind and currents setting around the island cause tide rips.

(1211) Anchorage in **Williwaw Cove**, just west of Patterson Point, is not recommended. The beach at the head is flat and sandy but bordered by several lines of breakers.

(1212) The sloping beach at the head of **William Cove**, 2 miles west of Patterson Point, is abrupt and composed of large, irregular boulders. Small steam jets and hot springs are in the valley at the head of the cove.

(1213) Small craft can anchor in the bight just north of **Sitkin Point**, the west end of the island, but strong williwaws are prevalent in east or northeast weather. A large prominent tan-colored bluff is at the head of the bight.

(1214) Anchorage protected from the northeast is 0.5 mile offshore in 25 to 30 fathoms, 0.7 mile southeast of a prominent 100-foot islet about 1 mile south of Sitkin Point. The anchorage is fair in moderate northwest and east winds.

(1215) **Little Sitkin Pass**, between Little Sitkin Island and Davidof Island, is 3 miles wide with depths of 48 fathoms or more in the middle part. Moderately heavy tide rips occur in the pass during the strength of the tidal current.

(1216) **Rat Island Pass**, between Hawadax Island and the group of islands to the north, is 8 miles wide and has depths of more than 50 fathoms through a 4-mile middle width. Currents in the pass are moderate; some set may be expected opposite Little Sitkin Pass and Khvostof Pass. See the Tidal Current prediction service at *tidesandcurrents.noaa.gov* for specific information about times, directions, and velocities of the current at numerous locations throughout the area. Links to a user guide for this service can be found in chapter 1 of this book.

(1217)

Hawadax Island to Vulcan Point

(1218) **Hawadax Island**, 12 miles northwest of Amchitka Island, is 8 miles long with a greatest width of 2 miles. The interior is rugged and mountainous, and the shores are rocky. Most of the north coast is precipitous and fringed with reefs; small islets and a reef extend 2 miles southeast from **Ayugadak Point**, the east end of the island.

(1219) Ayugadak Point is a Steller sea lion rookery site. There is a 3-mile vessel exclusionary buffer zone around the rookery. (See **50 CFR 224.103**, chapter 2, for limits and regulations.)

(1220) **Gunners Cove**, about midway along the north side of Hawadax Island, has depths of 1 to 12 fathoms but is not suitable for anchorage. The bottom is smooth rock

and the wind funnels through the cove. A prominent 50-foot cataract is at the head of the cove.

(1221) Protection for small vessels in west weather is available off the entrance to Gunners Cove in 17 fathoms. Rocks and reefs on both sides of the cove restrict the swinging room. Larger vessels can anchor farther off the cove in 28 fathoms, sand bottom. The anchorage on the southwest coast of Little Sitkin Island offers protection from northeast weather.

(1222) Fair anchorage during south weather can be had 2 miles east of **Krysi Point**, the west end of Hawadax Island, in 28 fathoms. The slope between the 20- and 30-fathom curves is less abrupt at this anchorage than elsewhere along the north coast; however, the bottom is irregular inside the 20-fathom curve.

(1223) A good anchorage in north and east weather is 1.2 miles offshore midway along the south coast of Hawadax Island in 17 to 25 fathoms. The anchorage is 0.8 mile northwest of the offshore group of rocky islets, 20 feet high, that is the dominant feature along this coast. Approach the anchorage from the southwest, passing 0.6 mile west of the islets.

(1224) **Davidof Island**, 7.5 miles north of Hawadax Island, is irregular in shape with a north-south length of 2 miles and a greatest width of 0.7 mile. The high point in the south part is 1,074 feet, and the summit in the north part is 922 feet high. The projecting east point of the island is marked by a prominent cone-shaped grayish-tan summit. An islet and a knife-edged pinnacle are close off the north end of the island.

(1225) **Khvostof Island**, 1 mile northwest of Davidof Island, is 1.5 miles long and 0.8 mile wide. The interior is rugged and mountainous; the highest peak of 870 feet is in the west part. Prominent twin rock pinnacles are close off the north end of the island, and a low flat rock is 700 yards off the northwest shore. A 1½-fathom shoal is 0.4 mile off the north point of the island.

(1226) The passage between Davidof Island and Khvostof Island is partially blocked by small and rugged **Pyramid Island**. The openings on either side of Pyramid Island are narrow and foul and have extremely heavy kelp. The blocked passage helps protect **Crater Bay**, northeast of Pyramid Island from southeast to southwest weather. Use of Crater Bay is restricted by a 2½-fathom shoal 0.6 mile north of Pyramid Island. The part of the bay between Pyramid Island and Davidof Island is clear but too deep for anchorage except close under the shore of Davidof Island, where small craft can find excellent protection. Small craft can also anchor, with limited swinging room, close under the northeast shore of Khvostof Island. Large vessels can anchor, free from tidal current, just inside the 30-fathom curve midway between the north end of Khvostof Island and the knife-edged pinnacle off the north end of Davidof Island.

(1227) **Khvostof Pass**, between Khvostof Island and Segula Island, is deep and clear and may be navigated without difficulty. The pass is subject to heavy tide rips at strength of spring currents, especially with moderate breezes from any direction.

(1228) **Segula Island**, 10 miles northwest of Hawadax Island and the most west of the group on the north side of Rat Island Pass, has a north-south length of 4 miles and an east-west width of 3.6 miles. The island is a lone crater-topped mountain, rising to 3,784 feet. A prominent deep fissure is on the south face of the mountain. Just west of the break is a broad, grassy slope that extends to the rocky bluff midway along the south shore.

(1229) **Iron Point**, on the southeast corner of the island, is a narrow, grass-covered, rock bluff 72 feet high; foul ground, marked by kelp and a breaker, extends 500 yards from the point. **Gula Point**, the northernmost tip of the island, is low, narrow, and grass covered. A distinctive dark, round-topped hill is at the end of the long ridge east of the small cove on the north side of the island, west of Gula Point. The cove entrance is nearly closed by reefs.

(1230) On the south side of **Zapad Head**, at the northwest corner of the island, a prominent grass-covered slope rises gradually from the gravel beach of a small bight; protected anchorage for small craft is afforded in the bight during moderate northeast to southwest weather.

(1231) A line of high, steep pinnacles extends west from **Chugul Point**, at the southwest corner of the island. Between Zapad Head and Chugul Point, irregular bottom, marked by heavy kelp, extends 800 yards offshore.

(1232) **Segula Pass**, between Segula Island and McArthur Reef, is wide, deep, and clear. Courses through the pass should be shaped to clear Segula Island by at least 1 mile and McArthur Reef by at least 2 miles.

(1233) **McArthur Reef**, 8 miles west of Segula Island and about the same distance east of Kiska Island, is a **menace to navigation**. The reef is about 0.8 mile in diameter, it does not uncover, and it does not break continuously even in a moderate swell at low water. The reef is not readily visible except close aboard and then can be identified only by a small area of slick water surrounding kelp.

(1234) **McArthur Pass**, between McArthur Reef and Kiska Island, is deep and clear and can be navigated without difficulty.

(1235) **Krysi Pass**, between Hawadax Island and Sea Lion Rock, has a jagged ridge covered in some places with only 2 to 4 fathoms that extends across it. See the Tidal Current prediction service at *tidesandcurrents.noaa.gov* for specific information about times, directions, and velocities of the current at numerous locations throughout the area.The pass is not recommended.

(1236) **Sea Lion Rock**, 9 miles west-northwest of Hawadax Island and 8 miles east-southeast of Tanadak Island, is less than 200 yards in extent and is about 10 feet high. A thick kelp bed around the rock extends 2 miles east and the same distance west.

(1237) **Sea Lion Pass**, between Sea Lion Rock and Tanadak Island, has depths of more than 20 fathoms over a 2-mile width near the middle. Sea Lion Rock is an uncertain target except in calm weather. Tide rips dangerous to small vessels may occur in the pass during spring tides. Tidal

currents of 4 knots have been observed. See the Tidal Current prediction service at *tidesandcurrents.noaa.gov* for specific information about times, directions, and velocities of the current at numerous locations throughout the area. Links to a user guide for this service can be found in chapter 1 of this book.

(1238) **Kiska Island** is about 600 miles west of Unalaska Bay and is the most important of the Rat Islands because of its well-sheltered anchorage. It is about 22 miles long and varies in width from 1.5 to 6 miles. The island is very rugged and mountainous, the north end being dominated by **Kiska Volcano**. The crater of the volcano has two tips, the west and slightly higher being 4,004 feet high. Immediately south of the volcano is a low valley about 2 miles wide in which are several salt water lakes. The valley extends nearly across the island from a long, low stretch of shoreline on the west coast, and a narrow draw leads over a low ridge at the head of the valley to a small steep-to sand beach on the east coast.

(1239) Flat-topped, boulder-strewn ridges rise to over 1,000 feet between the lake area and Kiska Harbor. A low, narrow pass cuts across the island from the southwest corner of Kiska Harbor to a small, foul bight on the west coast. South of this pass, sharp, rugged ridges 1,500 to 1,700 feet high extend to the southwest corner of the island. These ridges are precipitous on their west sides but slope gradually on their east sides to the shore of Vega Bay. The valleys and lower slopes of the island are covered with tundra and grass, while the higher parts are generally bare and strewn with boulders, especially the ridges north of Kiska Harbor.

(1240) The shores of Kiska Island are mostly rocky and steep and bordered in many places by covered and uncovered rocks. Kelp fringes most of the island. Kiska Harbor and Vega Bay are the two principal indentations of the coast.

(1241)

Naval Defensive Sea Area and Airspace Reservation

(1242) Under the authority of Executive Orders 8680 of February 14, 1941, and 8729 of April 2, 1941, Kiska Island is a designated Naval Defensive Sea Area and Airspace Reservation. Restrictions imposed under the authority of the above executive orders have been suspended subject to reinstatement without notice at any time that the interests of national defense may require such action.

(1243) **Sirius Point** is a jutting rock ledge at the north tip of Kiska Island, and the coast for more than 2 miles in either direction is formed of irregular, steep rock cliffs and minor points. Deep water extends to within 0.5 mile of the shore. The sharp rocky point at the northeast corner of the island is topped by a grass-covered hill conspicuous from the northwest and southeast.

(1244) In 1965, a volcanic outgrowth was observed making out from shore for a distance of 0.3 mile on the west side of Sirius Point.

(1245) **Pillar Rock**, 118 feet high, is a perpendicular rock of remarkable form 9 miles west of Sirius Point and 6.6 miles from the nearest part of the island. **Sturdevant Rock**, covered about 7 fathoms, is 3 miles 282° from Pillar Rock.

(1246) **Northeast Rocks**, with a high point of 115 feet, and **Haycock Rock**, a lone 113-foot pinnacle 1 mile to the south, are 0.4 mile off the coast east of the volcano. These rocks mark the outer limits of an extensive foul area and are excellent landmarks for visual or radar navigation. Behind Northeast Rocks is a prominent red bluff that is frequently visible when the other parts of the island are obscured by low clouds or fog.

(1247) Between Haycock Rock and Sredni Point, 2.5 miles to the SW, is **Sredni Bight**, an open bight that affords good shelter from northwest weather in 15 to 20 fathoms, sandy bottom, 0.7 to 0.9 mile from the beach. The anchorage may be entered on a course of **285°**, heading for the end of the bluff that marks the south side of the small, sandy beach at the head of the bight. Moderate williwaws may be expected, and swells enter the anchorage after a storm in the Bering Sea.

(1248) **Sredni Point** is sharp, sheer, and high. Southwest from the point to Reynard Cove and Salmon Lagoon, the high cliffs are bordered by detached pinnacles, rocks awash and submerged rocks. This section of coast should not be approached closer than 1 mile.

(1249) **Reynard Cove**, 2 miles southwest of Sredni Point, is blocked by a reef that extends nearly the entire width just inside the entrance.

(1250) **Salmon Lagoon**, 2 miles southwest of Reynard Cove and the same distance north of Kiska Harbor, can be entered with a pulling boat at high water, but the channel through the low, sand outer beach is sometimes closed and often shifts position.

(1251) In general, the waters adjacent to the Pacific side of Kiska Island, from Little Kiska Island to Cape St. Stephen, are irregular in depth. Broken bottom, within the 30-fathom curve, extends 1.5 to 2 miles offshore. Submerged pinnacles rise in deep water in Vega Bay, off Sobaka Rock, and off Cape St. Stephen. The several small bays and coves between South Pass and Vega Bay are unsuitable for anchorage.

(1252) **Vega Bay** is a broad indentation between **Bukhti Point** and **Vega Point**. The west part of the bay has irregular bottom, with a 2¼-fathom shoal 1 mile **070°** from Vega Point. The rest of the bay is clear except for inshore rocks. In north or west weather, good anchorage can be found in 22 to 30 fathoms, sand bottom, off the entrance to **Gertrude Cove** in the northeast corner of the bay. A pair of gray pinnacles on the shore west of the cove bears **000°** from the anchorage. The cove is a good anchorage for small vessels in all except southwest weather.

(1253) **Sobaka Rock** is 1.4 miles **155°** from Vega Point. About 2.4 miles due west of the rock is a 2½-fathom shoal. Because of possible set by currents, particular care

is necessary to avoid this shoal in rounding the south end of Kiska Island. Heavy tide rips occur in this area.

(1254) **Dark Cove**, small and shallow, is on the southwest side of Kiska Island just east of Cape St. Stephen. When the weather is rough outside, small boats have been able to land safely in the northeast corner of the cove. Landing is impracticable with a swell from the south-southwest.

(1255) **Cape St. Stephen**, the southwesternmost point of Kiska Island, should be passed no closer than 3.5 miles to avoid broken ground in the area of the 8-fathom shoal 1.8 miles 230° from the south tip of the cape. Heavy tide rips occur in this area at strength of current.

(1256) Cape St. Stephan and **Lief Cove** are Steller sea lion rookery sites. There is a 3-mile vessel exclusionary buffer zone around these rookeries. (See **50 CFR 224.103**, chapter 2, for limits and regulations.)

(1257) From Cape St. Stephen, the shoreline that extends about 15 miles in a northeast direction to Witchcraft Point is in general steep and rocky and indented by several small bights. Deep water extends to within 0.5 to 0.8 mile of the shore for the first 12 miles. Several pinnacle rocks and rocks awash fringe this part of the coast.

(1258) A prominent line of high rock pinnacles extends 700 yards offshore from **Witchcraft Point** on the northwest side of Kiska Island. South of Witchcraft Point low grass-topped bluffs, interrupted by the valleys of two stream beds, extend 2.7 miles to **Conquer Point**, a sharp and sheer rocky point at the foot of a razorbacked hill about 965 feet high. A 2¾-fathom shoal is about 0.5 mile west-northwest, and two reefs with depths of 4 and 6 fathoms are about 1 mile off the latter point.

(1259) Temporary anchorage for small boats can be had in the small bight on the south side of the razorback, having due regard for charted dangers. The bight has a sand beach.

(1260) Anchorage, protected from moderate northeast to southeast breezes and swells, can be found in 25 fathoms, sand bottom, 0.8 mile off the coast 1.1 miles south of Witchcraft Point. The anchorage should be approached on a course of **110°**, heading for the small valley about midway between Witchcraft Point and the razorback to the south. In this anchorage Witchcraft Point is on range with Vulcan Point.

(1261) A low sand and gravel beach, with a prominent grass-topped knoll about midway of its length, extends 2.5 miles northeast from Witchcraft Point. Then begins a rock cliff coast that extends 1 mile north to **Vulcan Point**. Northeast from Vulcan Point to Sirius Point, a distance of 3 miles, the coast is rocky and steep with deep water close to shore.

(1262) A reef, covered 5 fathoms, extends northwest from Witchcraft Point for 2 miles toward Pillar Rock, then east to a point inshore about 2 miles south of Vulcan Point. Heavy kelp marks the reef in the summer, and extremely large tide rips occur in the area at strength of current, especially during spring tides. It is not advisable to approach the reef closer than the 30-fathom curve. Small craft passing between the reef and Pillar Rock should do so when the currents are near slack, which periods occur approximately at the same time as in Krysi Pass.

(1263)

Kiska Harbor to Tanadak Pass

(1264) **Kiska Harbor**, midway along the east shore of Kiska Island, is formed by a small peninsula to the north that terminates at **North Head** and a broad peninsula to the south that is separated from Little Kiska Island by South Pass; **South Head** is the northeast point of the lower peninsula. The harbor proper is roughly circular with a 1.3-mile diameter, although anchoring depths extend an additional 0.5 mile to east. The northeast and south sides are rocky cliffs; the entire west side of the harbor is low and sandy except for several ridges that extend to the water's edge. A low valley opening out at about the middle of the west shore extends well back into Kiska Island. A low ridge parallels the north shore at a distance of about 0.5 mile.

(1265) Depths do not exceed 17 fathoms inside a line between North and South Heads. The 10-fathom curve is 0.3 to 0.5 mile off the shores. Caution is necessary in anchoring to avoid fouling with the many wrecks and other obstructions in the harbor. The masts of one derelict show above water in 15 fathoms near the center of the harbor, and a 2¾-fathom obstruction is just inside the 10-fathom curve off the west shore.

(1266)

Anchorages

(1267) Anchorage is recommended in the central part of the harbor in 13 fathoms 0.7 mile 185° from North Head. Shelter from northeast to northwest weather can be found in 15 fathoms 700 yards 150° from the outer end of the main wharf. The bottom is hard sand with fair holding qualities.

(1268) The shortest **route** to Kiska Harbor from Seattle with the best visibility is via Unimak Pass and the Bering Sea. From San Francisco the shortest distance is via Chugul Pass and Asuksak Pass, 20 miles east of Adak Island, thence north of the Aleutian Islands to Kiska Harbor; however, a direct route through Amchitka Pass and Rat Island Pass is only a few miles farther. Oglala Pass can also be used for the approach from the south. Offshore dangers in the approach to Kiska Harbor are McArthur Reef and the 4-fathom rock 1.3 miles north of Tanadak Island.

(1269) A ship pier and a small-craft pier are on the north side of Kiska Harbor. The ship pier extends 500 yards out from the shore in a southeast direction. In 1999, it was reported that most of the ship pier was in disrepair and that it was only usable by vessels drawing less than 15 feet. Also, only the shoreward 75 feet of the pier is usable to smaller vessels.

(1270) **Little Kiska Island**, 0.5 mile east of South Head on Kiska Island, is 3.2 miles long and 1 mile wide. The island is low and rocky, the highest point being 430 feet. The shores are, in general, rocky and often precipitous,

although there is a small stretch of low beach facing on South Pass. The coasts in most places are fringed by covered and uncovered rocks; a group of islets or rocks extend about 700 yards from the west end of the island.

(1271) Anchorage with fair protection from the north can be found in 20 fathoms, irregular rocky bottom, south of the center of Little Kiska Island. The highest peak, with two knobs at the summit, should bear due north.

(1272) **South Pass**, between Kiska and Little Kiska Islands, is a narrow approach to Kiska Harbor from the southeast. **Twin Rocks** is a group of small islets on the west side of the south entrance. A 2-fathom rock that breaks in rough weather, 1.2 miles northeast of Twin Rocks, is a danger to vessels approaching the pass from the south.

(1273) A 100-yard wide channel with a swept depth of 24 feet is between a pinnacle covered 11 feet 230 yards northeast of South Head and the near shore. East of this narrow channel, kelp patches show across South Pass to Little Kiska Island during slack water. Only light-draft vessels with local knowledge should use South Pass.

(1274) The current velocity is 4 knots in South Pass, the flood setting north and the ebb south. The ebb current is particularly strong south of the pass.

(1275) **Tanadak Island**, 2.7 miles east of Little Kiska Island and 8 miles west of Sea Lion Rock, is a small grass-covered plateau; cliffs rise from the water's edge or close behind it. Foul ground extends for more than 0.5 mile from the shores; irregular depths of less than 10 fathoms extend 4 miles southeast of the island.

(1276) **Tanadak Pass**, between Tanadak and Little Kiska Islands, is 2.5 miles wide but is full of shoals with depths of 2 to 9 fathoms. A 225-yard-wide channel with a least depth of 12 fathoms is 0.6 mile west of a prominent 20-foot rock, the most west of those off Tanadak Island. A current velocity of 2.8 knots has been measured in the pass. Tanadak Pass is not recommended for deep-draft vessels.

(1277)

Caution

(1278) Heavy seasonal growth of kelp completely fills Tanadak Pass and surrounds Little Kiska Island.

(1279)

Pilotage, Kiska Harbor

(1280) Pilotage, except for certain exempted vessels, is compulsory for all vessels navigating the waters of the State of Alaska.

(1281) Kiska Harbor is served by the Alaska Marine Pilots. (See **Pilotage, General** (indexed), chapter 3, for the pilot pickup stations and other details.)

(1282)

Buldir Island to Tahoma Reef

(1283) **Buldir Island** is an isolated island between Kiska Island and the Semichi Islands. This island forms an excellent landmark for the west Aleutians. The island is about 4 miles long and 2 miles wide, rugged and mountainous. The highest summit, 2,150 feet, is on the south part of the island. Two lesser summits, 2,013 and 1,768 feet, are on the northeast end. High, steep landslides are along the east end and on the southwest side. The shores, in general, consist of cliffs either rising from the water's edge or backing, narrow rock and sand beaches. The island is a bird refuge.

(1284) A chain of bold rocks and conspicuous islets extends 1.2 miles northwest from Buldir Island. The outermost of the three islets is 442 feet high, dome shaped, and an excellent landmark. It can often be seen by vessels passing to the north when Buldir Island is obscured by fog or thick weather. Tide rips are generally in evidence along the submerged ridge that extends 1.8 miles northwest from the islet, but no dangerous shoals or reefs are on the ridge.

(1285) At the east end of the island are several groups of rocks, the farthest being about 0.3 mile offshore. The south coast is foul alongshore and should be approached with caution. Other shores are less rocky. Heavy kelp nearly encircles the island and probably marks all inshore dangers. Vessels passing Buldir Island on any course should stay outside the 50-fathom curve.

(1286) The southeast to the northwest shore of Buldir Island is a Steller sea lion rookery site. There is a 3-mile vessel exclusionary buffer zone around this rookery that encompasses the entire island. (See **50 CFR 224.103**, chapter 2, for limits and regulations.)

(1287) The anchorage on the northwest side of Buldir Island is the shallow bight formed by the island and the chain of rocks and small islets that extend to the northwest. With the exception of the narrow valley opposite the anchorage, the slopes rise precipitously from the shoreline to the peaks. The sandy beach at the mouth of the valley affords the best landing on the island, and a small stream empties into the bight at this point. Good anchorage, free from strong currents, can be found in 15 fathoms, sand bottom, with the middle of the beach bearing **170°**. The anchorage affords adequate protection in fresh southeast to southwest weather but not in severe storms from any direction. Anchorage suitable for moderate east weather can be found in 15 to 20 fathoms 1 mile from shore just south of the chain of rocks and islets.

(1288) Extending southeast from Buldir Island to Kiska Island is a submerged ridge that is marked by heavy tide rips. **Buldir Reef**, 18 miles along the ridge from Buldir Island, is about 5 miles long and 0.5 mile wide. The dangerous part of the reef includes two areas where breakers can be observed. The east area is estimated to have depths of 2 to 3 fathoms over it. The west area, covered 3 fathoms, is of considerable extent and marked by heavy kelp beds.

(1289) A depth of 2½ fathoms is about 14.5 miles east-southeast of Buldir Reef in 52°06.5'N., 176°45.0'E. Breakers 8 to 10 feet high and seaweed have been sighted in the vicinity of the 2½-fathom spot. In 1975, soundings of 13 fathoms were recorded within 100 yards of the 2½-fathom spot. A sonar evaluation indicated that this

area may be a seamount about 300 to 500 yards wide. Mariners are urged to exercise caution in the area.

(1290) In 1981, a 14-fathom spot was reported about 9.4 miles south-southwest of the 2½-fathom spot, in about 51°57'35"N., 176°39'48"E.

(1291) Currents up to 5 knots were encountered in the area of shoals between Kiska and Buldir Islands. The set was to the north or northeast on the flood. Northwest of Buldir Island the set was always north. Currents are believed to be moderate except near shoals or islands.

(1292) **Middle Reef**, a rocky shoal covered 3 fathoms, is 22 miles south of Buldir Island; it is not marked by kelp. Thin kelp extends for 1 mile south of the reef, and from the appearance of the area on the swell, depths of less than 3 fathoms probably exist.

(1293) **Tahoma Reef**, upon which the cutter TAHOMA was lost in 1914, is 33 miles south of Buldir Island. The main reef, which has an east-west length of 1.3 miles, breaks at the east end in a light swell and for its entire length in a moderate swell. Kelp beds extend 1 to 3 miles from all sides of the reef. A current velocity of 1.5 knots was observed in the vicinity of the reef. See the Tidal Current prediction service at *tidesandcurrents.noaa.gov* for specific information about times, directions, and velocities of the current at numerous locations throughout the area. Links to a user guide for this service can be found in chapter 1 of this book.

(1294)

Near Islands to Ingenstrem Rocks

(1295) The **Near Islands** include the Semichi Islands and Attu and Agattu Islands.

(1296) The **Semichi Islands** are Shemya, Nizki and Alaid. Shemya Island, the easternmost of the group, is about 65 miles west-northwest from Buldir Island. Alaid Island, the westernmost, is about 16 miles east by south from Attu. The group trends west-northwest over a distance of 11.5 miles. The islands have numerous lakes, are covered with tundra and are treeless. The shores are fringed with reefs and rocks, some as far as 1 mile offshore.

(1297) Currents estimated to exceed 1 knot occur east and west of the Semichi Islands and in the passes between them. South currents have been reported in the area between the Semichi Islands and Agattu.

(1298) **Ingenstrem Rocks**, 14 miles southeast from the east end of Shemya Island, is a group of four visible rocks and several others that uncover. The highest and northernmost of the group is 9 feet high. The rocks are in an area about 350 yards in diameter.

(1299) Depths of 3 to 9 fathoms extend 2.2 miles southeast from the 9-foot rock. This reef probably breaks along its entire length during heavy weather. Vessels should not approach the rocks closer than 3 miles on the southeast and 2 miles on the north and west.

(1300)

Shemya Island to Hammerhead Island

(1301) **Shemya Island**, 3.8 miles long and 1.8 miles wide, slopes gradually from the shoreline on the south to a round bluff 250 feet high along the north shore. A 111-foot tall building is at the top of the bluff. An aero radiobeacon is at the west end.

(1302) The shoreline of Shemya Island is generally fringed with reefs except for a few short stretches of sand beach. Rocks, kelp and shoals extend 0.6 mile north of the north point of Shemya. The outermost offshore danger is a 3½-fathom shoal, 0.6 mile off the north shore.

(1303) Several prominent rocky islets, highest 56 feet, are 0.7 mile off the northeast coast of Shemya Island. About 0.3 mile northwest of these islets is a rock covered 3 feet, which breaks much of the time. Foul area extends offshore to within 0.2 mile of the rocky islets. Between the outer end of the foul area and the islets is a channel that may be used by launches.

(1304) The waters for 1.2 miles east and south of the east point of Shemya Island are foul with visible and covered rocks; the area is marked by kelp. Shoals with depths of 9 fathoms or less and marked by kelp in the summer are 4 miles south and south-southeast of the point.

(1305) **Alcan Harbor**, on the northwest side of Shemya Island, is protected on the east and south, somewhat protected on the west, and wide open to north weather. When the seas are running, breakers can be seen along the submerged remains of a former breakwater that extends about 0.4 mile north from the point on the west side of the harbor. A wreck marks the end of the point, and the submerged remains are marked by kelp. Several rocks are visible at low tide up to 100 yards north of the point; mariners are advised to exercise extreme caution in this area. In the middle of the harbor lies a wreck on a reef that is marked by kelp. Depths in the harbor cannot be relied upon because of the frequent changes, and vessels should be extremely careful of the natural and structural hazards. A strong current was observed entering the harbor from the north, move in a clockwise direction around the head of the harbor and exit west past the point.

(1306) **Danger Area – Unexploded Ordnance** – Despite Alcan Harbor having been cleared in 1959, some ordnance, over time, has reportedly been found to have settled back into the area. The Air Force considers the entire harbor area dangerous and likely to contain unexploded ordnance. Extreme caution is advised.

(1307) The south side of Shemya Island is mostly fringed with reefs and rocks that extend as much as 1 mile off, but there are short stretches of sandy beach. **Skoot Cove**, 0.7 mile from the west end of the island, has depths of about 2 fathoms, and small boats may find shelter here when weather conditions prevent landings in Alcan Harbor. It was reported that the submerged remains of a former breakwater extend about 100 yards seaward in a 150° direction from a point (52°43'00"N., 174°04'15"E.) on

the west side of the cove. The cove has been used as a dump and is reported to be filled in north of 52°43'N.

(1308) **Hammerhead Island**, 55 feet high and 0.5 mile west of Shemya Island, is the southernmost of several small islands surrounded by foul ground near the middle of **Shemya Pass**, which is between Shemya Island and Nizki Island. The controlling depth through the passages on either side of Hammerhead Island is about 13 feet, but the east passage is the preferable of the two. During stormy weather or when swells are running high in the Bering Sea or the Pacific, heavy breakers are likely to be encountered in the passages.

(1309)

Nizki Island to Alaid Island

(1310) **Nizki Island**, between Alaid and Shemya Islands, is 3 miles long and 1 mile wide and is nearly connected to Alaid by a shifting sandspit. The island with a high point of 165 feet is lower than either Alaid or Shemya. The shoreline is very irregular and is fringed by numerous rocks, reefs and kelp-marked shoals. Narrow channels between the reefs lead to small coves that provide shelter for small boats.

(1311) During northwest to northeast weather there is good protection in an anchorage 1 to 2 miles south of the narrow passage separating Nizki and Alaid Islands in 10 to 20 fathoms, hard bottom.

(1312) **Alaid Island** is 3 miles long and about 1 mile wide. The east part is low rolling tundra; the west part is made up of four hills, two of which are over 600 feet high. Most of the shoreline is rocky and fringed with reefs, but there are several bights that might provide anchorage for small boats in an emergency.

(1313) A dangerous 1-fathom shoal is 0.9 mile west of the west end of Alaid Island. Seas pile up on this shoal, and much of the time it is marked by a breaker. Currents are strong in the vicinity and cause rips when the wind and sea are opposed. The deep channel between this shoal and the shore reefs may be used by launches under favorable conditions, but is not recommended for large vessels.

(1314)

Attu Island

(1315) **Attu Island**, the westernmost of the Aleutians, is 15 by 35 miles in extent and is indented by many bays and long inlets. The terrain is rugged and has practically no large level area. The bays on Attu Island offer a striking similarity. They are apparently formed by submerged valleys between mountain ridges. The heads of the bays are fed by streams that have carried down enough sand to give a good holding ground. The exception to this is Holtz Bay, which is rock and sand. At the head of each bay is a crescent-shaped sand beach with a more or less high bank of sand across the middle. A course down the middle of the bay, with the exception of Massacre Bay, was found to be clear; all that have been investigated show deep water close inshore. Some have rocks along the shore but these are easily seen. Anchorages are in from 10 to 15 fathoms, sand bottom. The best method is to head into the bay until these depths are reached and anchor. At the heads of most of the bays are barabaras (huts) built by the Aleuts for use during the fur-trapping season.

(1316)

Currents

(1317) Strong currents may be encountered along the north coast of Attu Island, and while variable, the consensus seems to be that they follow strong winds and are noticeably affected by the weather. In calm weather the set is generally southeast.

(1318) Survey operations in recent years have roughly defined tidal currents crossing the chain here, setting in a general northwest and southeast direction at the flood and ebb, respectively, except as diverted by shoal and land areas. Slacks follow the times of local high and low water except for a lag at times as great as 1 hour.

(1319)

Chirikof Point to Casco Cove

(1320) **Chirikof Point** is the end of the long peninsula jutting east from Attu Island. This peninsula forms the north side of Massacre Bay and its approaches and the south side of Sarana Bay. It is mountainous and has several deep valleys running approximately north and south across it. Its shores are rock or boulders; it has rocky bluffs on the north shore, and like most of the land areas in the Aleutians, gentler slopes and fewer bluffs along the south shore. **Alexai Point**, midway along the south side of the peninsula, is flat and low with sand beaches in the east and west bights. Foul areas surround this point for 1 mile. The channel to Massacre Bay passes 0.8 mile southwest of this point.

(1321) As a rule the peaks on Attu Island are clouded in and are of little use to the navigator in making a landfall. Peaks on the peninsula are no exception to this rule. The lower hills and summits on Chirikof Point are frequently clear when the peaks are cloud covered and consequently a landfall here is not as difficult. The end of the point is paralleled by a ridge of varying elevation, more or less crescent shaped, that extends from the southeast to the northeast extremities of the point. The highest part of this ridge is a peak 1,315 feet high, approximately at the center of the point (north and south). The ridge terminates at its northeast end in **Buchanan Point**, a prominent knob and headland 320 feet high. To the south and southeast of the summit, the ridge slopes down to a prominent 755-foot knob-topped hill and then drops still lower to a flat ridge carrying out east to the end of **McCloud Head**.

(1322) A prominent black islet, 10 feet high, is about 0.5 mile north-northeast of Buchanan Point. Low rock ledges, mostly bare at high water, make out in an east direction from the south part of the point. A fair anchorage in 15 to 25 fathoms, sand bottom, can be had in the bight between the two extremities of the point with good protection in southwest to northwest weather.

(1323) A 2-foot-high rocky islet is 2.4 miles east-southeast from McCloud Head. East, south, and southwest of this islet for 0.8 mile are shoal areas of 7 to 10 fathoms. No dangers were found except close in to the islet, but the area should be avoided and the rocky islet approached no closer than 1 mile as the bottom is ragged and currents are strong. A safe channel exists west of this islet and 1 mile east of McCloud Head.

(1324) Reefs and kelp patches extend off the shoreline between Alexai Point and McCloud Head to a distance of 0.5 mile. Anchorage can be had under this shore inside the 20-fathom curve, having due regard for the charted foul areas. The bottom is hard, however. A prominent waterfall on this shore is about mid-distance between the two points.

(1325) **Massacre Bay**, on the south side of Attu Island 6 miles west of Chirikof Point, is 4 miles wide between Alexai Point on the east and **Murder Point** on the west and recedes for about 3.5 miles in a north direction. Numerous shoal areas obstruct the bay, but wire-dragged channels lead to the harbors.

(1326)

Caution

(1327) Earthquake activity in 1975 in the Attu Island area has caused a bottom uplift of 4 to 7 feet at various locations in Massacre Bay. Until more complete information is developed, mariners are advised to exercise extreme caution as depths may vary from those charted and mentioned in the Coast Pilot.

(1328)

Anchorages

(1329) Anchorage in Massacre Bay can be had in 10 to 20 fathoms; the bottom is volcanic ash and sand with some clay. The bay is protected on the north, east, and west by Attu Island, and in south weather heavy swells are broken up by off-lying reefs.

(1330) It was reported that the piers at the head of Massacre Bay and in **Pyramid Cove** were in ruins at the surfline, and only the pier in **Navy Cove**, close northeast of Pyramid Cove, was usable in this area. Numerous obstructions were reported to exist in Pyramid Cove and in the rest of the bay. Shallow-draft craft can tie up to dolphins behind the breakwater in the southwest part of **Casco Cove**, which is midway between Pyramid Cove and Murder Point, 2.3 miles to the south.

(1331)

Pilotage, Attu Island

(1332) Pilotage, except for certain exempted vessels, is compulsory for all vessels navigating the waters of the State of Alaska.

(1333) The Aleutian Islands are served by the Alaska Marine Pilots. (See **Pilotage, General** (indexed), chapter 3, for the pilot pickup stations and other details.)

(1334)

Sarana Bay to Holtz Bay

(1335) **Sarana Bay** is 5 miles west of Chirikof Point and on the opposite side of the peninsula from Massacre Bay. From Buchanan Point to the head of Sarana Bay the shoreline is rocky and precipitous with few valleys of appreciable depth. Mountainous terrain carries abruptly to the water with few off-lying rocks or ledges except at the small points. The south side of the bay and approaches consist of rock bluffs with close inshore rocks and pinnacles. **Square Point**, 3.5 miles west of Buchanan Point, is difficult to identify as none of the numerous points in this locality are prominent; however, the waterfalls on either side of Square Point are fairly prominent.

(1336) The head of Sarana Bay and also Hodikof Bay are low sand beaches. At **Hodikof Point** rocky bluffs begin again and continue to Holtz Bay. A chain of rocks and reefs, including **Hodikof Island**, makes out about 1.2 miles east from the small point at the north side of the inner bay. North of this chain of reefs is **Hodikof Bay**. A small-boat passage is west of Hodikof Island between Sarana Bay and Hodikof Bay. A low single-pinnacle rock, 4 feet high, is off the approaches to Hodikof Bay about 0.5 mile southeast of Hodikof Point. About 0.7 mile east-northeast of Hodikof Point is an extensive area of irregular bottom with a least depth of 1½ fathoms, which breaks in a heavy swell.

(1337) Sarana Bay is not recommended as an anchorage except for medium and small craft, as a cable area extends through the middle of the bay and in the position of the only ship anchorage. Smaller craft may anchor north or south of this area depending upon weather conditions or in Hodikof Bay. Also an emergency anchorage may be had along the shore west of Chirikof Point in not less than 15 fathoms, but the bottom is hard and irregular and is subject to considerable current. Hodikof Bay seems to be the best anchorage for medium and small craft in this locality but it should be entered with suitable visibility. Approach on a west course, passing 400 yards south of the 4-foot rock off Hodikof Point. Anchor in the middle of Hodikof Bay in 10 to 12 fathoms, sand bottom. This anchorage is exposed to weather from the north around to the southeast. Southeast to southwest winds blow with considerable force in Sarana Bay, probably augmented in funneling through the passes across the peninsula. Their effect in Hodikof Bay is not known.

(1338) **Kelliher Cove** is a small bight 0.5 mile south of **Khlebnikof Point**. Small craft may obtain shelter from weather from south to northwest. The shores are rocky except at the head of the cove, which has a short gravel beach. The bottom is hard.

(1339) From inner Sarana Bay to Holtz Bay the coast is rocky but with gentle slopes back to the mountains in the interior. East of and close inshore from Khlebnikof Point are off-lying rocky islets, 5 to 15 feet high, that serve as

landmarks when cruising close inshore. **Middle Peak**, 2,000 feet high, is the highest point between Sarana Bay and Holtz Bay but is usually covered by clouds.

(1340) **Gibson Islands** are on the north side of the entrance to Chichagof Harbor; the largest island is a flat-topped grass-covered island, 104 feet high. The smaller islets at the southeast limits of this group are bare pinnacles. **Cooper Islands**, 0.5 mile west of Gibson Island, may be identified by the sheer pinnacle, 125 feet high, constituting the south half of the middle island.

(1341) **Kennon Island**, a 92-foot grass-covered island about 0.3 mile long, is at the northwest side of the mouth of Chichagof Harbor. A narrow and shoal channel into the harbor is west of this island. **Middle Rocks** and **Inner Rocks** are low bare rocks 10 to 20 feet high. Middle Rocks are adjacent to and east of Kennon Island; Inner Rocks are adjacent to and south of the island. The main channel is southeast of these rocks.

(1342) **Pisa Point**, on the south side of the harbor entrance, is a low point ending in a reef. **Pisa Tower** is a prominent leaning pinnacle 44 feet high on the point. A rock that uncovers is 140 yards north of the point.

(1343) **Chichagof Point**, between Chichagof Harbor and Holtz Bay, is reasonably flat and 300 feet high. The shores are rocky bluffs.

(1344) **Chichagof Harbor** is small in area and shoal and holding bottom is poor, but it is well sheltered, although southeast to southwest winds appear to funnel through the valleys into the bay with augmented velocity. There is little or no current effect. The bay is about 0.7 mile wide and allows little swinging room except for small craft. About 18 feet at low water can be carried into the head of the harbor where depths are about 6 fathoms. Turns are sharp for medium craft. Fifteen feet is recommended as the maximum draft of vessels entering this harbor because of the concrete anchor clumps that stand 3 to 4 feet above the bottom. The bottom is mostly hard or gravel.

(1345) The head of Chichagof Harbor is a sand beach divided into two parts by a rocky point. Other shores of the bay are ledge or boulders. The north part of the bay, southwest of Kennon Island, is shoal and is recommended for small craft only. In the central part of the bay is a relatively large area of depths from 15 to 18 feet, with scattered kelp. The channel is north and west of this area. The village of **Attu**, at the head of the bay, has been razed. There is a dock, suitable for small craft, on the southwest side of the bay. Depths at the dock shoal from 10 feet at the outer end to 4 feet 50 yards inshore. A road leads across the island to Massacre Bay.

(1346) **Range Point** is 400 yards southwest of Inner Rocks. A 2½-fathom spot is 200 yards north of Range Point.

(1347) **Holtz Bay**, the first bay west of Chichagof Harbor, is the largest and the most spectacular on the north coast of Attu Island. It is a broad-mouthed bay thrusting deeply into the island and having bluff-bordered beaches backed by tundra-covered mountain masses on both sides.

(1348) The head of the bay is divided into two arms, separated by **Center Point**, a promontory about 500 feet high and having moderate, tundra-covered slopes. At the head of each arm is a broad sandy beach with low valleys beyond cutting back into the interior.

(1349) Holtz Bay is free from dangers except for inshore reefs. It may be entered on any course provided the shoreline is given a berth of at least 0.5 mile until the inner arms are reached. When 0.5 mile from Center Point and about abeam of a rocky islet off the west shore, take up a midchannel course down either arm. Anchor in 5 to 6 fathoms in **West Arm** and in 6 to 7 fathoms in **East Arm**. Vessels also anchor at the entrance to West Arm in 10 fathoms. The bottom in most of Holtz Bay is a fine gray sand, with shells and some boulders. The holding properties are fair.

(1350) Holtz Bay offers protection from south and west weather, but strong winds may draw up through the passes, especially in the fall and winter. One vessel reports having had an excellent lee from strong west winds when anchored in 17 fathoms in the central part of the bay about 0.6 mile off Center Point. The bay is wide open to storms from the north and east.

(1351)

Austin Cove to Kresta Point

(1352) West of Holtz Bay the north coast of Attu Island is precipitous, rugged and fairly straight for 7 miles. A number of reefs and rocks, all less than 0.3 mile from shore, are off this coast. Except for these inshore rocks this stretch of coast is free from dangers.

(1353) **Austin Cove** is an open bight about midway in this 7-mile stretch of coast. It offers some protection from south weather to small boats anchoring close inshore. A ledge terminating in a rock awash at high tide makes off the west side of the cove. A rock ledge, which projects from the inner part of the cove for 0.3 mile, must be avoided.

(1354) **Steller Cove** is a wide bight in the coast about 10 miles west of Holtz Bay. Three open coves further indent the coastline of this bight. The shoreline is bluff-lined except for the stretches of sandy beach in the middle and west coves. The only dangers to navigation are the close inshore rocks.

(1355)

Local magnetic disturbance

(1356) Differences of as much as 4° from the normal variation have been observed in Steller Cove.

(1357) The westernmost of these coves offers the best anchorage. Some protection from south and west weather may be obtained here. To enter the anchorage, steer **210°**, heading about 200 yards west of a prominent grassy knoll at the head of the cove. Anchor in 8 or 9 fathoms, with a fine gray sand bottom. The holding properties of this anchorage are fair. The anchorage offers no protection, however, from north weather. A current setting east along

the shore may cause a vessel to lay in the trough of the sea and roll excessively.

(1358) **Red Head**, on the west side of Steller Cove, has a bluff-lined shore with a tableland sloping inland to mountains 1,860 feet high. The upper slopes of these mountains show bare and red and form a distinctive landmark in this region. A shoal area extends north from Red Head, and marked currents swirl around this point. Red Head should be passed at least 1 mile off.

(1359) The only dangers from Steller Cove to the west end of Attu Island are the inshore reefs. Vessels can follow the coast with safety 1 mile or more offshore.

(1360) For several miles west of Red Head a low flat strip of land about 0.5 mile wide is between the shoreline and the mountains. Several conspicuous boulders are scattered over this flat. The most conspicuous, a block of rock about 20 feet high in 53°00.8'N., 172°46.4'E., forms an excellent landmark.

(1361) **Earle Cove**, 7 miles west of Steller Cove, is at the west end of the belt of flatland. At the entrance to this small cove are several rocks, but anchorage for small boats may be had in 10 fathoms 0.2 mile southwest of the larger rock in the cove entrance. Another anchorage in 11 fathoms may be had 0.2 mile south of this same rock. Care should be taken in approaching the anchorage to avoid the kelp and foul ground off the east point of the cove.

(1362) The shoreline for several miles west of Earle Cove is craggy and precipitous, rising rapidly to peaks over 2,000 feet high. **Kresta Point**, 8miles northeast of Cape Wrangell, is a prominent bold headland and marks the west end of this section of rugged coastline.

(1363) West of Kresta Point two small valleys make down to the coast, ending in a stretch of easy-sloping shoreline about 1 mile long. West of these valleys is another region of high mountains and craggy, precipitous shoreline, with a bold headland at its west end. This headland is 5 miles east of Cape Wrangell.

(1364) Two small coves are southwest of this headland. West, between the coves and Cape Wrangell, the shore is bold and precipitous, with a few islets, rocks and reefs near the shore.

(1365) The current sets east on the flood and west on the ebb along the north coast of Attu Island near Cape Wrangell. Velocities of 1.5 knots have been observed and may reach 3 knots during spring tides. A current velocity of about 1 knot, 5 miles northeast of Cape Wrangell, sets east-northeast on the flood and south-southwest on the ebb.

(1366)

Cape Wrangell to Theodore Point

(1367) **Cape Wrangell** is the westernmost extremity of Attu Island. The cape appears as a string of rocky, rugged islets, about 150 feet high, reaching out from a mountainous ridge. This ridge is bold and steep with a summit about 1,800 feet high.

(1368) On **Peaked Island**, just off the cape, a natural bridge and buttress forms an opening that has the deceptive appearance of a large patch of snow against the dark rocks. This is a distinctive landmark to vessels north and south of the cape.

(1369) A rock 3 feet high is about 0.3 mile west of Peaked Island. Breakers usually mark this rock.

(1370) Cape Wrangell should be rounded at 1.5 miles distance. At maximum current the heavy tide rips extend for about 3 miles off the cape.

(1371) Southeast of Cape Wrangell, inshore currents were observed setting east at times.

(1372) Cape Wrangell is a Steller sea lion rookery site. There is a 3-mile vessel exclusionary buffer zone around the rookery. (See **50 CFR 224.103**, chapter 2, for limits and regulations.)

(1373) Between Cape Wrangell and Etienne Head, the mountainous coastline is indented by two coves. A shingle beach is at the north end of **Wrangell Cove**, the east of the two. Small boats have made landings on this beach.

(1374) **Etienne Head** is a moderate-sized headland about 120 feet high. A group of large black rocks and reefs is off the headland.

(1375) **Etienne Bay** is the first large bay east of Cape Wrangell. It is broad and open and has high mountains on both sides and a long sandy beach at its head. A low valley and a pass run inland from this beach.

(1376) The bay is clear of dangers to navigation except for the reefs and kelp patches that border the east and west shores. The west shore should be given a berth of at least 0.5 mile. The bottom shoals gradually as the bay is entered. Deep-draft vessels can anchor in 14 fathoms in midbay about 1 mile from the head. The bottom is fine green sand and pebbles and has fair holding properties.

(1377) A perpendicular-sided table-topped shelf about 500 feet high is on the east shore 1.5 miles from the head of the bay. This makes a good landmark from seaward.

(1378) Etienne Bay is wide open to south and west storms and because of the lack of protection is not recommended as an anchorage except in north or east weather.

(1379) **Mikhail Point** marks the southeast approach to Etienne Bay. It is a broad, gently sloping headland with a terrace-sided shoulder near its northwest part.

(1380) A narrow-mouthed cove cuts into the southeast tip of Mikhail Point. This cove offers good protection to small boats, but the swinging room is very limited.

(1381) Mikhail Point should be given a berth of at least 0.5 mile by deep-draft vessels.

(1382) **Abraham Bay**, east of Mikhail Point, is the second major bay east of Cape Wrangell. It is wide mouthed, narrowing to an inner arm at the northeast end. This arm has parallel shores and a short, sandy beach at its head. The mountains surrounding Abraham Bay rise steeply from the shoreline to between 1,500 and 2,000 feet high. The steep, rugged slopes of the inner arm give it a fiord-like appearance.

(1383) An unusually large waterfall on the northwest shore of Abraham Bay, 2.5 miles east of Mikhail Point, is a conspicuous landmark, even to ships offshore.

(1384) A group of rocks and reefs mark the west side of the approach to the inner arm of Abraham Bay. The highest of these, a steep-sided rock 48 feet high, is an excellent landmark for vessels entering the bay. Vessels should steer a course to pass not less than 0.5 mile off this rock, rounding it at that distance and then heading toward the middle of the sand beach at the head of the inner arm. Anchorage is found east of the innermost low flat reef in 13 fathoms, gravel bottom. The holding properties are only fair. This anchorage offers some protection from north and east storms, but is exposed to the west and south. In addition, fierce strong winds often draw through the inner arm when no winds are noticeable off the approaches to the bay.

(1385) The east shore is clear of dangers except for the almost continuous string of reefs close inshore. The greatest dangers are the rocks almost 0.4 mile offshore 1 and 2.5 miles north of Chuniksak Point.

(1386) **Chuniksak Point**, between Abraham Bay and Nevidiskov Bay, is a broad, three-pointed promontory sloping moderately upward and back to two mountain ridges.

(1387) Small-boat landings have been made in the cove just northwest of the easternmost point of Chuniksak Point.

(1388) A current with a west set has been noticed close inshore around this point.

(1389) **Nevidiskov Bay**, on the southeast side of Chuniksak Point, is a fairly open, two-armed bay, surrounded by an irregular terrain of mountain ridges and valleys. Nevidiskov Bay is fairly clear of dangers and may be entered on any course, except that Chuniksak Point should be given a berth of at least 0.5 mile and Theodore Point a berth of at least 1 mile.

(1390) The steep sided, rocky islet, 38 feet high, south of the point separating the two arms of the bay is a landmark for vessels entering the bay.

(1391) At the head of the east arm of Nevidiskov Bay is a flat, sandy beach. Vessels of any draft can anchor off this beach in 15 to 17 fathoms, 0.7 to 1 mile east of the 38-foot islet. The bottom is fine gray sand mixed with small round boulders. It has fair holding properties.

(1392) This bay offers shelter for any draft vessel from northwest through northeast to southeast storms. It is open and exposed, however, to storms from the southwest quadrant.

(1393) Low rocks and reefs fringe most of the east shore of the bay for as much as 0.3 mile offshore. Kelp is found over and around these rocks.

(1394) The west arm of Nevidiskov Bay is constricted and has a rocky, submerged ledge across its inner part.

(1395) **Theodore Point**, between Nevidiskov Bay and Temnac Bay, is a bluff promontory sloping moderately to a knoll-like shoulder and then steeply to the mountain ridge behind. Theodore Point is the southernmost promontory of Attu Island, and the knoll-like shoulder is a conspicuous landmark for vessels southeast or southwest of the point.

(1396) Reefs and rocks fringe Theodore Point on all sides for about 0.3 mile. Kelp patches cover and surround most of these reefs. A dangerous pinnacle rock, covered 5 feet, is 0.5 mile southwest of the west end of the point.

(1397) Small boats have landed in the cove on the southwest side of Theodore Point.

(1398) West currents were encountered close inshore off Theodore Point during the summer.

(1399) Fog covers the land above the 100- to 200-foot level much of the time in the late spring and summer.

(1400)

Temnac Bay

(1401) **Temnac Bay**, the first bay west of Massacre Bay on the south coast of Attu Island, is about 8 miles wide between Theodore Point on the west and **Krasni Point** on the east and indents the island about 4 miles.

(1402) Coming from the east and Massacre Bay it is best to keep at least 1.5 miles off Krasni Point to clear the reef, which extends 1.2 miles south of the point, and the islands along the shore northwest of the point. A rock that uncovers 4 feet is 700 yards south of the westernmost island. The west shore should be given a berth of 0.8 mile until well into the head of the bay.

(1403) Large vessels can anchor about 1.5 miles from the head of the bay in 20 fathoms, fine gray sand bottom, of fair holding qualities. Smaller vessels can anchor farther in. The anchorage offers some shelter from strong southeast breezes. No williwaws were experienced while survey operations were in progress.

(1404) Temnac Bay is not, in general, recommended for anchorage but it might prove useful in an emergency, and it would be easy to get out of in case of undesirable weather conditions.

(1405)

Agattu Island

(1406) **Agattu Island**, about 22 miles southeast of Attu Island, is the second largest and the southerly island of the Near Islands. This island is roughly triangular in shape with the north shore or base of the triangle trending in a west-southwest direction. The north shore is about 17 miles in length, the south shore 14 miles and the east shore 9 miles in length.

(1407) The island is volcanic in origin and similar in terrain, shoreline, and vegetation to the other islands of the aleutians. Mountain peaks 1,992 feet high are adjacent to the east half of the north shore and 2,080 feet to the southwest. The shoreline is rocky and precipitous and fringed with close-inshore pinnacles. Boulder or pebble beaches are at the heads of most of the bights; frequently the boulders are outside the low water line, which renders landing in small boats, except in a smooth sea, difficult. Water may be boated from streams in most of the bights.

Most of the points rise 50 to 200 feet from the water to headlands and then slope more gradually to the interior.

(1408) The peaks are generally obscured by a low ceiling. For this reason the points are the most suitable features for navigational purposes. **Krugloi Point**, the northeast end of the island; **Cape Sabak**, the southeast end of the island; and **Gillon Point**, the west end of the island, are hills and plateaus sloping to the water's edge or ending in sheer headlands. Gillon Point ends in a low flat-topped headland that appears separated from the island. **Kohl Island**, 156 feet high, is about 2.5 miles west of Cape Sabak and is prominent. Gillon Point should be given a berth of at least 1 mile and Krugloi Point 3 miles.

(1409) Cape Sabak and Gillon Point are Steller sea lion rookery sites. There is a mile vessel exclusionary zone around these rookeries. (See **50 CFR 224.103**, chapter 2, for limits and regulations.)

(1410) **Armeria Point**, 5 miles northeast of Gillon Point, is a sheer double-pointed headland 100 feet high, fringed with high pinnacles and rising to greater elevations a short distance inland. **Patricia Point**, 6 miles west of Krugloi Point, is low and slopes gradually back to the hills inland.

(1411) **Nile Point** on the south side, 2.3 miles east of Gillon Point, is a bold headland. A dangerous breaker is about 0.5 mile off this point. This is one of the few off-lying dangers.

(1412) The hills and plateaus constituting most of the island give the appearance of flat tableland from a distance but in most of the areas are interspersed with numerous valleys.

(1413) It is recommended that medium craft keep outside the 20-fathom curve around the island except when seeking shelter and large craft outside the 40-fathom curve.

(1414) All anchorages about the island are limited as to shelter, but the island is not large, and both medium and large craft can proceed to such anchorages as the prevailing weather requires.

(1415) The currents are weak, and heavy tide rips will not be encountered about this island except in rare cases.

(1416) **Patricia Bight** is the best anchorage off the north shore. Extensive kelp beds make well out from the east side of this bight, and a long reef makes out from about the deepest part in a north direction, ending in a rock that uncovers. This reef is surrounded by extensive kelp beds. Small craft may proceed to an inner anchorage east of this reef and into the deepest part of the bay. A fox farmer's cabin is at the head of this bight.

(1417) No evidence of kelp or dangers has been found in other parts of the bight except very close inshore. Large or medium craft should anchor in 15 to 20 fathoms, sand bottom, 0.5 to 0.8 mile off the west shore and about east of the end of Patricia Point. Shelter is afforded from southeast to southwest. West and east swells and sea make into the bay.

(1418) **Binnacle Bay** is a bight 1 mile southwest of the end of Patricia Point. Kelp beds are off the north part of the east shore. A kelp bed also makes out from the point at the west side of the deepest part of the bay. The remainder of the area seems to be clear of kelp, and anchorage can be had as needed in 17 to 21 fathoms, hard bottom.

(1419) In **Armeria Bay** no dangers were found outside the kelp area. A 10-fathom bank is 1.5 miles east of Armeria Point. Anchorage may be had 0.5 mile southeast of the bank in 24 to 25 fathoms, hard sand and rocky bottom.

(1420) **West Cove**, a two-armed bight 1.5 miles southwest of Armeria Point, is a fair anchorage for small craft. The bottom is hard, and there is insufficient sea room for medium craft. Enter 200 to 300 yards east of an islet off the west side of the entrance. Anchor in the middle of the bay in 15 fathoms or as desired.

(1421) A bight on the south side of the island, 1.5 miles east of Gillon Point, is free of dangers except for the breaker off the end of Nile Point. Anchorage can be had in 17 fathoms, sand bottom, about 0.5 to 0.7 mile from the shore. The bottom is hard sand, scattered rocks and broken shell. Reefs are close inshore, and a black detached islet is at the west side of the head of the bight.

(1422) **Otkriti Bay**, on the south side of Agattu Island, is the largest bay on the island affording any protection; it is about 1 mile long and 2 miles wide. Two long narrow islands extend west from the east entrance point; the highest point, 83 feet, of the outer island is a good landmark. About 0.6 mile southwest of the outer island is a ½-fathom shoal that breaks in a moderate sea. Anchorage can be had in 20 fathoms, coarse sand and shell bottom, southwest of the bold point between Karab Cove and Otkriti Bay proper. Holding properties are fair, but there is no protection from the south and west.

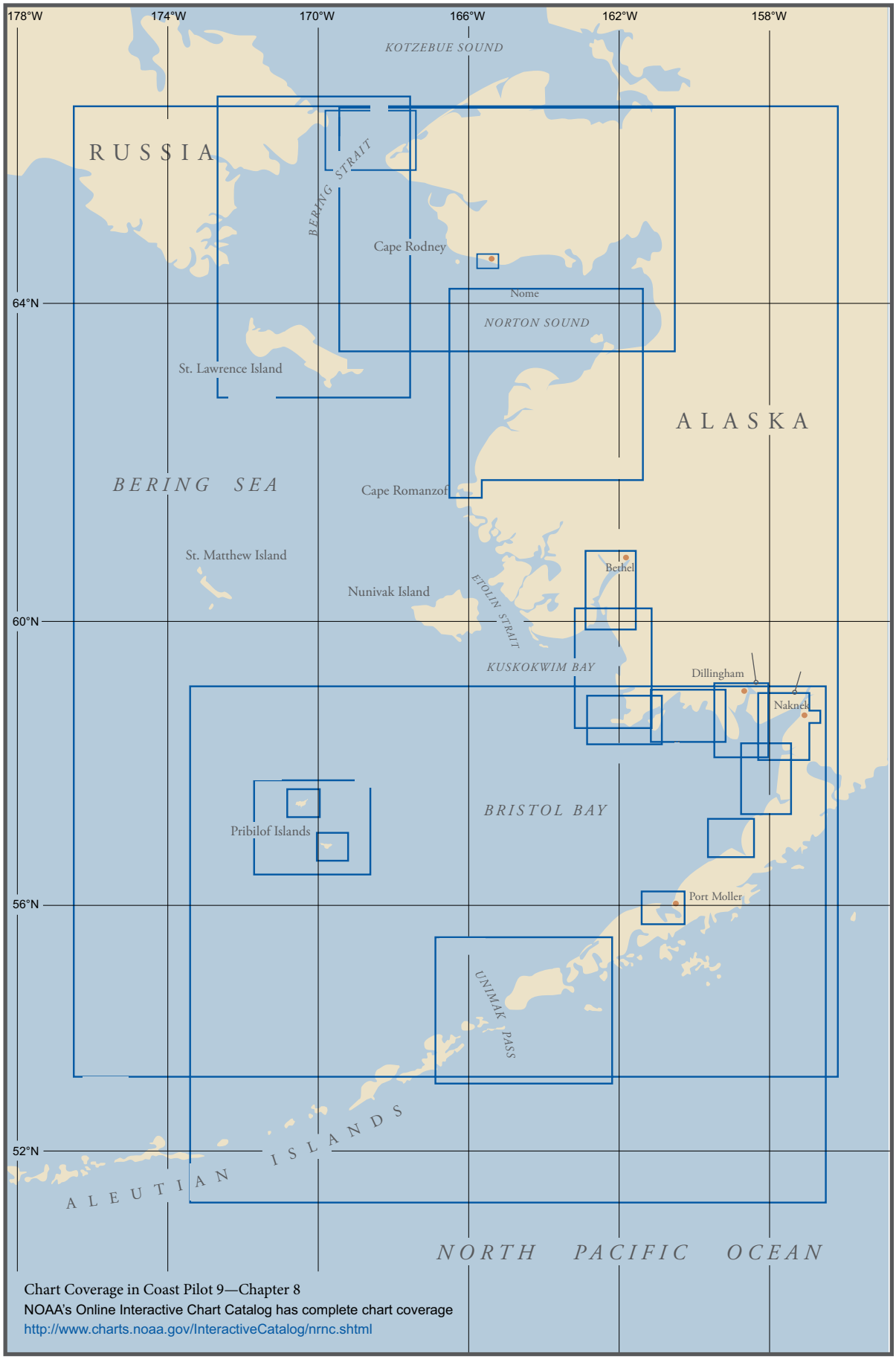
(1423) **Karab Cove**, the bight on the east side of Otkriti Bay, is small, 1 mile long and 0.5 mile wide, but affords the best protection of any anchorage on the island for vessels less than 125 feet in length; it is open only to the southwest. The anchorage is in the center of the cove in 12 fathoms, sand and gravel bottom; it is not recommended in south or southwest weather.

(1424) **Agattu Roadstead**, on the east side of Agattu Island, is an extensive open bight. Numerous monolithic pinnacles are along the shoreline; **Monolith Point**, which appears black against lighter background, is on the north side of the entrance to **McDonald Cove**. There are no dangers to navigation if the shoreline is given a berth of 0.5 mile. The depth of the roadstead` slopes gradually up from about 45 fathoms to 10 or 12 fathoms. The bottom is sand, although there is some rock opposite rocky promontories. Where there is sand it appears to be deep and affords good holding ground. Agattu Roadstead offers little protection from east and but little from north and south, but it is protected from the west, subject, however, to draw winds from that direction. The bight offers suitable anchorage for any type of vessel if weather conditions are favorable.

(1425) A good anchorage is available in this locality off McDonald Cove in 15 to 20 fathoms, sand bottom. Depths seem to be suitable for anchorage alongshore for some distance towards Krugloi Point. Reefs, making out 0.3

to 0.5 mile from shore, extend for 2 miles from Krugloi Point.

(1426) The area west of Attu Island was surveyed to 170°E in 1946. **Stalemate Bank**, 55 miles west of Cape Wrangell, Attu Island, is a large shoal area with a least depth of 18 fathoms.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BERING STRAIT
Cape Rodney
Nome
NORTON SOUND
St. Lawrence Island
ALASKA
BERING SEA
Cape Romanzof
St. Matthew Island
Nunivak Island
ETOLIN STRAIT
Bethel
KUSKOKWIM BAY
Dillingham
Naknek
BRISTOL BAY
Pribilof Islands
Port Moller
UNIMAK PASS
ALEUTIAN ISLANDS
NORTH PACIFIC OCEAN
Chart Coverage in Coast Pilot 9—Chapter 8
NOAA's Online Interactive Chart Catalog has complete chart coverage
http://www.charts.noaa.gov/InteractiveCatalog/nrnc.shtml

Bering Sea

(1) This chapter describes the north coast of the Alaska Peninsula, the west coast of Alaska including Bristol Bay, Norton Sound and the numerous bays indenting these areas. Also described are the Pribilof Islands and Nunivak, St. Matthew and St. Lawrence Islands. The communities of Nome, Unalakleet, Bethel, King Salmon, Naknek, Port Moller and St. George are also discussed.

(2)

Routing Measures, Bering Sea and Bering Strait

(3) The International Maritime Organization (IMO) has adopted routing measures, which includes recommended two-way routes, precautionary areas and areas to be avoided, in the Bering Sea and Bering Strait (See IMO SN.1/Circ. 336). These routing measures are recommended for all ships of 400 gross tonnage and upwards. The geographic points of these areas are shown below.

(4)

Precautionary Area *A*			
The waters contained within a circle of radius 4 miles, centered on 58°45.00'N., 167°27.81'W.			
Two-way route connecting Precautionary Areas *A* and *B*			
1	58°48.91'N., 167°26.26'W.	**7**	64°55.19'N., 168°27.77'W.
2	60°10.86'N., 168°19.58'W.	**8**	63°29.57'N., 167°42.57'W.
3	61°29.47'N., 167°35.89'W.	**9**	62°25.26'N., 167°11.99'W.
4	62°25.14'N., 167°03.13'W.	**10**	61°30.52'N., 167°43.95'W.
5	63°30.44'N., 167°33.86'W.	**11**	60°10.74'N., 168°27.94'W.
6	64°56.08'N., 168°18.60'W.	**12**	58°47.65'N., 167°33.56'W.
Precautionary Area *B*			
6	64°56.08'N., 168°18.60'W.	**16**	65°02.60'N., 168°37.28'W.
13	64°59.22'N., 168°20.29'W.	**17**	64°58.14'N., 168°29.36'W.
14	65°05.00'N., 168°20.30'W.	**7**	64°55.19'N., 168°27.77'W.
15	65°05.00'N., 168°29.75'W.		
Two-way route connecting Precautionary Areas *B* and *C*			
14	65°05.00'N., 168°20.30'W.	**19**	66°26.57'N., 168°29.75'W.
18	66°26.57'N., 168°20.30'W.	**15**	65°05.00'N., 168°29.75'W.
Precautionary Area *C*			
The waters contained within a circle of radius 4 miles, centered on 66°30.00'N., 168°25.00'W.			
Two-way route connecting Precautionary Areas *C* and *D*			
20	66°30.64'N., 168°34.79'W.	**22**	66°20.83'N., 169°11.21'W.
21	66°24.59'N., 169°14.72'W.	**23**	66°26.90'N., 168°31.34'W.
Precautionary Area *D*			
The waters contained within a circle of radius 4 miles, centered on 66°21.50'N., 169°21.00'W.			
Two-way route connecting Precautionary Areas *D* and *E*			
24	66°18.05'N., 169°16.11'W.	**26**	65°56.20'N., 169°25.87'W.
25	66°18.05'N., 169°25.87'W.	**27**	65°56.20'N., 169°16.11'W.
Precautionary Area *E*			
26	65°56.20'N., 169°25.87'W.	**29**	65°45.52'N., 169°25.87'W.
27	65°56.20'N., 169°16.11'W.	**30**	65°47.69'N., 169°34.01'W.
28	65°45.52'N., 169°16.11'W.	**31**	65°52.82'N., 169°25.87'W.
Two-way route connecting Precautionary Areas *E* and *B*			
28	65°45.52'N., 169°16.11'W.	**16**	65°02.60'N., 168°37.28'W.
29	65°45.52'N., 169°25.87'W.	**15**	65°05.00'N., 168°29.75'W.
32	65°29.65'N., 169°25.87'W.	**33**	65°30.71'N., 169°16.11'W.
Two-way route connecting Precautionary Areas *E* and *F*			
29	65°45.52'N., 169°25.87'W.	**34**	64°28.31'N., 171°36.35'W.
30	65°47.69'N., 169°34.01'W.	**35**	64°26.14'N., 171°28.60'W.
Precautionary Area *F*			
The waters contained within a circle of radius 4 miles, centered on 64°24.36'N., 171°36.61'W.			
Coordinates are North American 1983 Datum (NAD 83)			

(5)

Area to be Avoided *Nunivak Island*			
1	60°17.05'N., 167°37.80'W.	**4**	59°32.80'N., 165°28.80'W.
2	59°54.89'N., 167°40.98'W.	**5**	60°39.86'N., 165°41.70'W.
3	59°41.44'N., 166°49.08'W.		
Area to be Avoided *King Island*			
6	65°03.12'N., 168°19.56'W.	**8**	64°53.54'N., 167°46.98'W.
7	64°51.01'N., 168°14.82'W.	**9**	65°05.53'N., 167°52.92'W.
Area to be Avoided *St. Lawrence Island*			
10	63°08.57'N., 173°31.02'W.	**14**	63°17.99'N., 168°12.54'W.
11	62°44.38'N., 168°58.32'W.	**15**	63°59.95'N., 171°06.18'W.
12	62°46.14'N., 168°21.24'W.	**16**	63°54.80'N., 171°50.94'W.
13	63°01.78'N., 168°04.38'W.		
Coordinates are North American 1983 Datum (NAD 83)			

(6)

Bering Sea

(7) The south limit of the **Bering Sea** is a line running from Kabuch Point (54°49'N., 163°22'W.) on the Alaska Peninsula through the Aleutian Islands to the south extremes of the Komandorski Islands and on to Cape Kamchatka in such a way that all the narrow waters between Alaska and Kamchatka are included in the sea. The north limit is the Bering Strait.

(8) Much of this area has been only partially surveyed, and the charts must not be relied upon too closely, especially near shore. The currents are much influenced

by the winds and are difficult to predict; dead reckoning is uncertain, and safety depends upon constant vigilance.

(9) The chapter area is entirely within the 100-fathom-depth curve, which extends northwest from Unimak Pass and passes to the southwest of the Pribilof Islands. Depths vary more or less uniformly in the open sea except near the off-lying islands, which are volcanic and rocky and range in height to more than 2,000 feet.

(10) From the head of Bristol Bay to Norton Sound, shoals or banks formed by river deposits extend many miles from the mainland, in some places completely out of sight. Kuskokwim and Yukon Rivers are the principal drainage systems along this stretch of coast. As fog and thick weather are common during the navigation season, coasting vessels are advised to sound constantly and to stay in depths greater than 10 fathoms unless feeling their way in to the land.

(11) Navigational aids are few, and all are seasonal. The rocky islands and the rocky parts of the mainland are frequented by thousands of birds whose constant cries may serve to indicate the approach to these places in thick weather. Port facilities are rare, and most of the villages scattered along the coast lighter their supplies from vessels anchored offshore. Good water can always be found in the vicinity of high land.

(12) The navigation season depends largely upon ice conditions, discussed later. During the winter, the ice and snow along the shore, as well as inland, are suitable for travel by dog team over many miles of established trail. Tractors could be driven over long stretches of this beach area when the lakes and protected bays are frozen solid enough to support them. Airplanes equipped with skis can also operate in winter from many points along the coastal and inland areas.

(13)

Currents

(14) Strong tidal currents flow through the Aleutian Islands passes, setting into the Bering Sea on the flood and into the North Pacific Ocean on the ebb. Observed velocities have exceeded 8 knots in some of the passes, but the decrease is rapid once the passes are cleared. The tidal currents set north and south along the Bering coast and into and out of the various bays. The periodic tidal flow along the coast is completely masked at times by wind currents. In constricted bays the currents may have considerable velocities. The tidal current has an average velocity of 0.5 to 1 knot at the off-lying islands. See the Tidal Current prediction service at *tidesandcurrents.noaa.gov* for specific information about times, directions, and velocities of the current at numerous locations throughout the area. Links to a user guide for this service can be found in chapter 1 of this book.

(15) Most reports indicate that during the open season there is a general drift north along the Bering coast and thence through the Bering Strait into the Arctic Ocean. During the winter, ice moves from the Arctic into the Bering Sea. The north drift is probably not more than 0.5 knot in the open sea well north of the Aleutian passes. Wind and atmospheric pressure are said to materially affect the drift. In a disturbed area the current will generally set with a strong wind or toward an atmospheric depression, and such a current may serve as a storm warning.

(16) Along the north side of Unimak Island, the currents are fairly strong and generally parallel the coast. They attain a maximum velocity of 2 knots 1 mile off Cape Mordvinof and probably do not exceed 2.5 knots anywhere along this coast. Velocities have been estimated at 2 to 2.5 knots as far as 12 miles from shore in depths of about 40 fathoms.

(17) Between St. Matthew Island and Nunivak Island, the current sets northwest with prevailing northeast winds during the navigation season and northeast with northwest or southwest winds. This north current continues and increases between St. Lawrence Island and the mainland, being stronger toward the mainland north of the **Yukon River** where it has a velocity of about 1 knot except in early summer when the Yukon freshets may increase it to 2 knots or more. A strong north current, amounting at times to 2.5 knots, has been observed setting on the Yukon flats. The current sets north across Norton Sound to Sledge Island and is strongly marked along the coast between Sledge Island and Bering Strait.

(18) Captain Covell, of the Coast Guard Cutter BEAR, said of the currents in this area: "After a southeast gale in the Bering Sea, during which the water is banked up against Siberia, a very marked current sets in the opposite direction. The reverse is true for a southwest gale. The exact interval between the gale and the strong countercurrent is, so far, undetermined. Of the existence of this countercurrent under such conditions, there is no doubt, and it demands consideration."

(19)

Weather, Bering Sea

(20) The weather over the Bering Sea is generally bad and very changeable. Good weather is the exception, and it does not last long when it does occur. Wind shifts are both frequent and rapid. The summer season has much fog and considerable rain. In early winter, the gales increase, the fogs lessen, and snow is likely any time after mid-September. Winter is the time of almost continuous storminess. Heavy winds from any direction are usually accompanied by precipitation; however, the rain or snow that comes with east or south winds is likely to continue steadily until the wind shifts, while rain or snow squalls are characteristic of the west and north winds. Skies tend to clear more quickly with the slackening of the speed if the winds have been blowing from north or west directions.

(21) Taking the area as a whole, the winds are most frequent from north and northeast directions from October through May and are variable, with predominating winds from directions in the south half of the compass at most stations during the period from June through September. The local topography, however, influences the prevailing

wind so that the general wind circulation does not show conditions at the individual stations.

(22) Over Bristol Bay, winter winds blow mainly out of the north through east, while summer winds are more likely to come from the southwest through northwest. In winter, gales can be expected 5 to 10 percent of the time. At King Salmon, northerlies blow more than 20 percent of the time during the winter season, at average speeds of 10 to 12 knots. Calms occur about eight percent of the time. During June, July and August, winds are out of the south through southwest about 40 percent of the time, at average speeds of 8 to 10 knots. Gales occur less than one percent of the time in winter. The annual mean wind speed is about 10 knots.

(23) At Bethel, the head of ocean navigation on the Kuskokwim River, winter winds are out of the north through northeast greater than 40 percent of the time; they blow at average speeds of 9 to 14 knots. Northwesterlies are also common from March through June, and then south through southwest winds become predominant in midsummer; these summer winds average 10 to 12 knots. Gales at Bethel blow less than one percent of the time even in winter and are unheard of from April through August. However, winds reach 17 knots or more up to 20 percent of the time. At Hooper Bay, winds are frequently out of the northeast from November through February but quite variable the rest of the year. St. Paul Island is more exposed than many locations along the coast. Here winter winds blow at 15 to 19 knots on the average, and gales can be expected about two percent of the time. Winds are variable but mainly out of the north through east during this season. By midsummer, south through southwest winds become prevalent, at average speeds of 10 to 12 knots. Northwesterlies are frequent during September and October. The annual mean wind speed is over 14 knots. The highest reported gust was 73 knots in September 1990. Winter winds are also strong in Norton Sound, where they blow at 28 knots or more on up to 13 days per month, at exposed locations like Unalakleet. Nome is more sheltered, and winds reach this speed on less than 4 days per month. At Nome, north through east winds prevail during the winter; calms are also common. Summer winds are more variable but often blow out of the south through west. Maximum winds reached 62 knots in December 1977. At Gambell, on the northernmost point of St. Lawrence Island, the prevailing winds are southwest in summer and generally north through northeast in winter. In general, south through southwest winds are prevalent over the north Bering Sea in the midsummer.

(24) Most of the precipitation over Bristol Bay and the Bering Sea falls from July through October. Annual average amounts are 20 to 25 inches (508 to 635 mm) in Bristol Bay. It rains about 20 to 25 days per month during the peak period. Snow totals 40 to 60 inches (1,016 to 1,524 mm) per year on the average and is most likely from November through April. From Kuskokwim Bay to Norton Sound, precipitation drops off to about 10 to 17 inches (254 to 432 mm) annually; rain falls on 10 to 25 days per month in late summer. St. Paul Island has an average of nearly 24 inches (610 mm) during the year, and extremes have ranged from 36.6 inches (930 mm) in 1964 to 9.82 inches (249 mm) in 1977. To the other extreme for the region, Nome has an average annual precipitation total of 15.79 inches (401 mm). Annual extremes for Nome have ranged from 24.25 inches (616 mm) in 1950 to 7.42 inches (189 mm) in 1962. At Bethel in August, it rains an average of 26 of the 31 days, averaging about 3.5 inches (89 mm) for the month. Snowfall is much more uniform, ranging from a maximum of 58.7 inches (1,491 mm) in Nome to 46 inches (1,168 mm) in King Salmon.

(25) Poor visibility can be a problem all year along the Bering Sea coast. Visibility is restricted by land fog and snow in winter and by sea fog and rain in summer. Sea fog is more frequent and more widespread. However, it does not drop visibility below 0.5 mile any more frequently than land fog.

(26) In general, sea fog or haze drops visibilities to 7 miles or less on 13 to 20 days per month in midsummer. St. Paul Island is the most exposed, and fog or haze occurs here 22 to 29 days per month from May through August. At King Salmon, Bethel and Nome, July and August are usually the worst months. Sea fog drops visibilities to 0.5 mile or below on about 2 to 5 days per month in summer. Snow and land fog during the winter restrict visibilities to less than 7 miles on about 8 to 12 days per month and to less than 0.5 mile on about 2 to 5 days per month. Upriver ports like Bethel are the most vulnerable.

(27) There is a large continental influence in temperatures. Sheltered or inland ports get much colder in winter and much warmer in summer compared with those exposed to the sea. St. Paul Island and Pilot Point are at about the same latitude. However, the average daily maximum in February is 27°F (-2.8°C) at St. Paul, compared with 11°F (-11.7°C) at Pilot Point, while average minimums are 18°F (-7.8°C) and -7°F (-21.7°C), respectively. At St. Paul, temperatures dropped as low as -26°F (-32.2°C) in January 1919 compared with a -44°F (-42.2°C) at Pilot Point. In summer, the reverse is true. Pilot Point daytime readings are frequently in the low sixties (17° to 18°C) with an 84°F (28.9°C) extreme. At St. Paul Island, average daytime temperatures run in the upper forties to low fifties (8° to 12°C), with a 66°F (18.9°C) extreme (August 1987). Along the coast, midwinter daytime temperatures usually climb to 20°F (-6.7°C) in the south and 10°F (-12.2°C) in the north and at upriver ports. At night, readings frequently drop below 0°F (<-18°C) at Bethel and Nome, while at King Salmon, 6°F (-14.4°C) readings are common. Extreme lows range from a -13°F (-25°C) at Port Heiden to a -55°F (-48.3°C) along the shores of Norton Sound. Significant warming takes place from March through May. Midsummer temperatures reach the mid-fifties to low sixties (12° to 17°C) during the day and drop to the mid-forties (6° to 8°C) at night. Extreme high temperatures have reached the low seventies to upper eighties (22° to 32°C). Highest temperatures

occur at the more continental locations. Nome, Bethel and King Salmon have each recorded all-time maximum temperature in the mid- to upper eighties (29° to 32°C) and extreme minimums approaching or surpassing -50°F (-45.5°C).

(28)

Ice

(29) Except in sheltered places the ice of the Bering Sea is in detached fields, floes and cakes, which are continually kept in motion, breaking up, piling and telescoping by the action of variable winds and currents. At no time is the sea one solid sheet of ice, and in the winter, when it is forming, the ice is more scattered than in the spring, when the north movement begins and packs it closer together. The general south limit of ice is from Bristol Bay to the vicinity of St. George Island and thence about west-northwest to the Siberian shore. The south edge is ragged and very much scattered, and continued north winds sometimes drive fields of ice far south. As a rule, no heavy ice will be encountered south of the Pribilof Islands, and the ice in their vicinity is likely to be nothing more than detached fields.

(30) In the spring, beginning with April, the ice has a general north movement, the shore clearing ahead of the center of the sea; but the ice sometimes hangs on in the bays and around the islands later than in the open sea. The movement and position of the ice depend greatly on the winds. Generally, by June 1, the whole body of ice is well up with St. Lawrence Island, and a passage opens to its west side. The east side of the sea is likely to be obstructed a little later than the west side, and ice is often met between St. Lawrence Island and Nunivak Island in the early part of June. The breaking out of the rivers in the latter part of May clears the shores, but the ice is likely to remain in Norton Sound several weeks later. In general, for a vessel not fitted to encounter ice, Norton Sound is not navigable before the middle of June. At the opening of navigation the ice is likely to be heaviest and to remain longest on the north shore of Norton Sound; in general it is the latter part of June before that part of the sound is altogether clear.

(31) In the fall young ice begins to form on the rivers and in the bays and sheltered places in October and grows stronger and spreads according to the severity of the advancing season. At Nome, on the north side of Norton Sound, navigation is difficult from early December to early June and is usually suspended from late December to mid-May.

(32) The National Weather Service publishes a Marine Weather Services Chart of Alaska waters which shows ice limits, forecast areas and radio stations that transmit marine weather and additional information of interest to mariners.

(33)

Bristol Bay

(34) **Bristol Bay** may be said to include all that part of the Bering Sea east of a line drawn from Cape Sarichef, Unimak Island, to the Kuskokwin River. Unimak Island and the Alaska Peninsula bound it on the south and east and separate it from the Pacific Ocean. The Naknek River is at the head of deepwater navigation, while the bay itself terminates in the Kvichak River a few miles north. The region about Nushagak River, Kulukak Bay and the Kuskokwim Bay forms its northwest boundary.

(35) The shores are generally low and nondistinctive, but high mountain ranges and volcanic cones extend along the central parts of Unimak Island and the Alaska Peninsula. These rugged snow-covered mountains and lofty peaks would serve as unmistakable landmarks were they not obscured by the almost constant fogs that prevail during the summer. The shore and objects near sea level are often seen beneath the fog when the higher lands are obscured, and, therefore, most of the available landmarks are found on or near the beach.

(36) The Bristol Bay region must be regarded as a dangerous locality to navigate; it is only by the greatest vigilance and constant sounding that disaster can be avoided upon approaching the land. This is particularly true of the northeast arms and approaches that receive the waters of the great salmon streams on which the Bering Sea canneries are located. The rivers discharge a great quantity of water into wide indentations that open on the arms of the great bay. The banks of the rivers are frequently marshy and generally muddy. The discolored water of the rivers is charged with a large amount of sediment, which when deposited forms shoal areas.

(37) The funnel-shaped configuration of the bay and river entrances creates tidal currents of great force, reaching, at times, velocities up to 6 knots. The diurnal range of tide averages about 18 feet at the river entrances. Vast areas of shoals uncover at low water, leaving only pools and narrow channels between them.

(38) In Bristol Bay and its tributaries, some lights and buoys are maintained by the Alaska Department of Fish and Game during the fishing season to mark fishing districts; they usually show quick flashing white lights and have no navigational significance. Marine lights and buoys are normally maintained only during the navigation season.

(39) Vessels operating in Bristol Bay, particularly at the head, are warned concerning the use of seawater as a cooling agent in internal combustion engines, heat exchangers, condensers and evaporators. The heavy amount of silt in suspension in this area can do great damage to the machinery or equipment if overlooked. This is especially true of small diesel or gasoline engines with gear-type water pumps, since the fine sand will pack itself between the gears and cause them to bind. Also, the silt is likely to settle in various parts of the cooling

system, and accordingly the system may need regular flushing. Most small-boat operators in the salmon fishing area, such as Kvichak and Nushagak Bays, use freshwater cooling systems with piping led outboard.

(40) Reports of ice conditions at the head of Bristol Bay usually can be obtained from the National Weather Service Radio Weather Broadcast station at King Salmon near Naknek or the nearby canneries. On May 17, 1948, the survey ship PATHFINDER encountered floe ice about 20 miles northwest of Port Heiden and a solid field of drift ice about 10 miles west of Egegik Bay. At this time of the year, the run from off Port Moller to the head of Bristol Bay should be made during daylight because of possible ice. In 1948, several commercial vessels encountered difficulties attempting the run at night.

(41)

Caution

(42) The State of Alaska has established a crab pot storage area in the Bering Sea between 57°00'N. to 58°00'N. and 164°00'W. to 166°00'W.

(43)

Danger zone

(44) A danger zone of an air-to-air weapon range is in the north part of Bristol Bay. (See **33 CFR 334.1280**, chapter 2, for limits and regulations.)

(45)

Cape Sarichef to Izembek Lagoon

(46) **Cape Sarichef** (54°36.0'N., 164°55.7'W.), described in chapter 7, the west end of the south coast of Bristol Bay, is low with detached rocks close inshore, around which strong tidal currents sweep. The land falls away east in a gentle curve forming **Dublin Bay**, about 3 miles in depth and 16 miles across between the cape and Cave Point. This bay may be used as a temporary anchorage by vessels of any size. The holding ground is said to be good. From offshore the first 8 miles of this indentation is a smooth grassy slope gradually rising from low, rocky, grass-covered bluffs, about 60 to 100 feet high, to the mountains several miles inland.

(47) The beach is steep, and the surf breaks almost at the shoreline. The terrain leading back is quite rugged and is cut by numerous gullies. This part of the coast has several prominent hills ranging from 800 to 2,000 feet high at distances of 2 to 4 miles back from the shore. **Red Hill**, although only 798 feet high, is a very distinctive formation near Cape Sarichef; it is isolated and closer to the shore than the other peaks in the vicinity. The hill is easily recognized by its reddish hue and is prominent from the north, northeast and west. It is often clear when higher peaks are obscured by fog or clouds.

(48) A large valley, appearing not as a pass but as an indentation into the hills, is easily recognized from offshore. **Beartrack Creek**, having a considerable drainage area, is a swift stream flowing through a bed strewn with small boulders. About 6 miles northeast of Cape Sarichef are several waterfalls that may serve as landmarks for vessels close inshore.

(49) The coast in the north half of this moderate indentation is a series of low sand dunes, and the shore is sandy. From the line of dunes along the beach a large marshy area extends back for 2 or 3 miles, where a low pass begins and leads between the peaks to the south side of Unimak Island. Two moderate-sized streams and a number of small ones empty into the Bering Sea.

(50) Southwest of Cave Point the bottom is generally even, of fine black sand, and good holding ground; the 10-fathom curve is from 0.4 to 0.8 mile from the beach. There are no charted shoals of any consequence, although the 10-fathom curve is a little farther off the points than off the bights and coves. The best anchorage is in about 19 fathoms, 7.5 miles 048° from Cape Sarichef Light. This anchorage affords protection from the northeast through the southeast and around to the southwest. In north and northwest weather the current may prevent a vessel at anchor from heading into the sea.

(51) **Cave Point** is a vertical rocky cliff formed by a ridge extending from the north side of Black Hill. It is named for a cave on its face inhabited by sea birds that in summer hover about it in the thousands, making it conspicuous in clear weather by their numbers and in fog by their constant cries.

(52) The point is very prominent and can be easily seen in clear weather from Cape Sarichef or from Cape Mordvinof. The water off Cave Point is deep; no shoals have been found. The 20-fathom curve runs about 1 mile off the point.

(53) **Black Hill**, a black-looking hill about 3 miles east-southeast from Cave Point, is the highest peak near the shore; it can be plainly seen from the west to the north. The hill is covered with snow in the winter but is bare in the summer.

(54) Between Cave Point and Oksenof Point, the westernmost point of Cape Mordvinof, is another moderate indentation in the coastline about 6.5 miles by 0.8 mile in size. The shore for 4 miles northeast of Cave Point is a sandy beach with a series of grass-covered dunes just back of the high-water line. From the line of dunes a large flat area extends back for several miles; in this area is a large pond that is about 0.5 mile northeast of Cave Point. Between this pond and the hills forming Cape Mordvinof is a large swamp. One large stream empties into the sea at the north end of the sand beach. Offshore the bottom is even and no shoals of any importance have been found. The 20-fathom curve runs from 1 to 1.5 miles off the beach. The indentation in the coastline between Cave Point and Cape Mordvinof is a fair anchorage, giving some protection from the northeast around to the south. In north and northwest weather, currents affect the heading of an anchored vessel.

(55) Snow-clad **Pogromni Volcano**, 8.3 miles east of Cape Sarichef Light, forms a striking background to the low, monotonous coast. The top of the 4,040-foot peak, 1.9 miles north of Pogromni Volcano, is a ridge with no

definite point. It is covered with snow most of the year and usually capped by clouds. However, at times, it is clear when Pogromni Volcano is not. On the northwest slope of the volcano is a prominent arrowhead-shaped peak about 1,300 feet high. It is very prominent on the skyline from the north and northeast but is covered by clouds a great part of the time.

(56) **Cape Mordvinof**, 26 miles northeast of Cape Sarichef, consists of a succession of points and coves at the end of a series of round-topped ridges separated by shallow valleys. The point, including **Oksenof Point**, is characterized by precipitous rocky bluffs ranging from 450 feet high on the west side of the cape down to 100 feet on the east end. Small clear streams run through the valleys, and the terrain slopes upward from the bluff line to a group of rocky peaks about 2,000 feet high. These peaks are snow covered in the winter and bare in the summer. The valleys and ridges are covered with grass and tundra. Good landmarks are lacking on Cape Mordvinof; the peaks are not distinctive and usually are hidden by clouds.

(57) Good anchorage for large vessels is not found off the cape, but shelter from south winds can be had in two of the coves indenting the cape for boats no longer than 65 feet. The water deepens rapidly and evenly off the cape, and the 20-fathom curve is from 1 to 2 miles off the shoreline. No shoal of importance is known off the cape, and no danger to navigation has been found at distances greater than 1 mile offshore.

(58) By making good a course of **036°** from 3 miles **270°** of Cape Sarichef for 25 miles, vessels will be well outside the 20-fathom curve and the known dangers to navigation.

(59) East of Cape Mordvinof, the coast falls away slightly for 6 miles, where it turns abruptly east for 5 miles and then takes a north direction forming **Urilia Bay**. This bay is open north but affords protection from all winds from south of east or west. The approaches are clear, and the water shoals gradually to 6 fathoms, black sand bottom, about 0.8 mile from shore.

(60) From Urilia Bay to Isanotski Strait the coast trends northeast, is very low, and has several rocky patches extending 0.5 to 1 mile from shore. Shishaldin Volcano, near the middle of Unimak Island, is described in chapter 7.

(61) **Swanson Lagoon** is a shallow lagoon on the north side of Unimak Island 7 miles west from **Chunak Point**. It has a narrow entrance, and during some years light-draft launches can enter, but at other times only pulling boats can. Inside it is mostly a mudflat at low water with crooked channels 1 to 3 feet deep flowing between tidal flats. The lakes draining into the lagoon are spawning places for salmon, and the lagoon is important only as a fishery. About 0.8 mile east of the entrance is a cone-shaped hill, 85 feet high.

(62) Isanotski Strait (False Pass), used only by small vessels, is described in chapter 6.

(63) For 20 miles northeast of Isanotski Strait to 175-foot-high **Cape Glazenap**, the coast is low with some grassy 50- to 100-foot bluffs. Except off the entrance to Isanotski Strait, dangers are within 1 mile of the shore. Cape Glazenap is prominent because it is higher than the other places in this area.

(64) The **Kudiakof Islands**, low, narrow, and grass covered, extend from Cape Glazenap to Moffet Point, 16 miles to the northeast. The wreck of an old schooner on **Glen Island**, the southwest island, and domes on **Grant Point**, east of Glen Island, are conspicuous landmarks. The lights at the Cold Bay airport are visible over this general area on clear nights.

(65) Behind Cape Glazenap and the Kudiakof Islands is **Izembek Lagoon**, which is crossed by many shallow sloughs. Most of the extensive lagoon area is bare or awash; the bottom is mud and sand. The sloughs are difficult to follow except at low stages of the tide and are not recommended for craft drawing more than 3 or 4 feet.

(66) The Cape Glazenap channel into Izembek Lagoon is narrow and shifting. The entrance is close to the cape and is between breakers that extend seaward about 1 mile. The entrance channel has a depth of about 6 feet. During the summer, fishermen mark the approach with a drum buoy.

(67)

Moffet Point to Nelson Lagoon

(68) **Moffet Point**, 95 miles northeast of Cape Sarichef, is a curving sandy hook with dunes 40 to 60 feet high. A channel leads into the northeast part of Izembek Lagoon between Moffet Point and the northeast end of the Kudiakof Islands. The depth over the bar is about 2 fathoms. The channel is between breakers and during the summer is marked by drum buoys placed by local fishermen. Passage should not be attempted without local knowledge or by boats drawing more than 3 or 4 feet.

(69) **Moffet Lagoon**, behind Moffet Point, is a shallow area similar to Izembek Lagoon but much smaller in extent. The two lagoons are joined south of Moffet Point. **Joshua Green River** empties into the east side of Moffet Lagoon.

(70) **Amak Island**, 10 miles north-northwest of Cape Glazenap, is of volcanic origin. Along the shores are bluffs and huge boulders except on the south side, where there is a small flat that was the site of a World War II airstrip.

(71) Foul ground extends about 1.1 miles off the north side of Amak Island. A reef that uncovers is off the southeast side of the island and extends east about 0.3 mile. A good anchorage, affording protection from north to southwest winds, is about 0.5 mile east of the island, 1 mile northeast of the rocky ledge off the southeast point, in 8½ fathoms, gravel bottom.

(72) The passage between Amak Island and the Kudiakof Islands is clear and is the usual track for small vessels.

Depths in midpassage are 10 fathoms or more; currents are about 2 knots.

(73) **Sealion Rocks** are about 2.5 miles northwest of Amak Island. The largest of the rocks, 95 feet high and prominent, is marked by **Sealion Rocks Light** (55°27'52"N., 163°12'11"W.), 94 feet above the water and shown from a skeleton tower.

(74) Sealion Rocks is a Steller sea lion rookery site. There is a 3-mile vessel exclusionary buffer zone surrounding these rocks. (See **50 CFR 224.103**, chapter 2, for limits and regulations.)

(75) From Moffet Point the low coast trends almost 70 miles east-northeast to Cape Rozhnof, on the west side of Port Moller. A strong inshore set is frequently noted in this area.

(76) **Black Hill**, 24 miles northeast of Moffet Point and 3 miles inland, is prominent. About 16 miles to the northeast of Black Hill and 2 miles inshore is a low prominent sandhill known locally as **Last Knoll**, as it is the last knoll on the coast to be seen by a vessel bound east. Local vessels use this hill extensively in checking their distance to Port Moller.

(77) **Lagoon Point**, about 37 miles northeast of Black Hill, is on the west side of the entrance to **Nelson Lagoon**. **Nelson Lagoon Light** (56°00'39"N., 161°05'36"W.), 15 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark just east of Lagoon Point; this light marks the entrance to the lagoon. In 1986, extensive shoaling was reported to exist in the approaches and in Nelson Lagoon; caution is advised. A large L-shaped dock and a launching ramp are on the north side of Nelson Lagoon about 2 miles west of the east end of Lagoon Point.

(78)

Herendeen Bay to Crow Point

(79) **Herendeen Bay** and **Port Moller**, 175 miles northeast of Cape Sarichef, are mostly shallow, but deep channels lead almost to their heads. The common approach to both bays is over a very flat gently sloping bottom with low shores. Farther in are extensive sand and gravel flats between deep channels. The earth bluffs along the beaches have hills behind them that increase in height to the south. Herendeen Bay has deep water near its head, and the mountains are broken by several large valleys; the head of Port Moller is surrounded by high steep mountains, but deep water is restricted to narrow channels that apparently are kept open by tidal currents.

(80)

Pilotage, Port Moller

(81) Pilotage, except for certain exempted vessels, is compulsory for all vessels navigating the waters of the State of Alaska.

(82) The Bering Sea is served by the Alaska Marine Pilots. (See **Pilotage, General** (indexed), chapter 3, for the pilot pickup stations and other details.)

(83) In the event prior pilotage arrangements have not been made, a stranger in the area should radio the cannery and request assistance.

(84) **Kudobin Islands**, on the west side of the entrance to Port Moller between Lagoon Point and **Cape Rozhnof**, are low and difficult to identify. **Walrus Island**, the easternmost island of the group, has a distinctive 20-foot knob on its east end.

(85) **Entrance Point**, on the east side of the entrance to Port Moller, is marked by **Port Moller Light 5** (55°58'41"N., 160°34'59"W.), 18 feet above the water and shown from a tower with a square green daymark. A cannery is inside the point at the village of **Port Moller**.

(86) **Harbor Point**, 4 miles south of Entrance Point and marked by a daybeacon, is a low, narrow, grassy, sand and shingle sandspit with high land behind it. Doe Point and Point Divide at the entrance to Herendeen Bay are bluffs that can be seen outside of Entrance Point.

(87) Extensive shoals just inside Port Moller are subject to frequent change.

(88)

Anchorages

(89) Anchorage can be had about 1 mile west of Entrance Point in 8 fathoms with fair to good holding ground. Discoloration of the water in this area is caused by streaks of sediment carried by the tidal currents. Tide rips are caused by sand waves rising above the general depths.

(90)

Currents

(91) The current velocity at Port Moller is 1 to 2 knots. See the Tidal Current prediction service at *tidesandcurrents.noaa.gov* for specific information about times, directions, and velocities of the current at numerous locations throughout the area. Links to a user guide for this service can be found in chapter 1 of this book.

(92) The cannery pier inside Entrance Point is 350 feet long; depth alongside the face is about 6 feet. It is exposed to south and southeast winds that blow across the peninsula and through the divides. Winds appear stronger at Entrance Point than at the anchorage in the middle of the bay entrance.

(93) It is advisable to be ready to move on short notice if moored at the wharf as southeast winds come up very quickly, making it difficult to get away with the limited turning room. Many fishing vessels moor starboard side to the wharf in order to leave quickly. Larger supply vessels anchor in about 7 fathoms 1 mile southwest of the cannery.

(94) Fishing boats and barges find protection from the south and southeast storms on the northwest side of Harbor Point, 2.5 miles south of Entrance Point.

(95) Water is available at the pier at Entrance Point; gasoline, fuel oil and diesel oil are stored for cannery use. A marine railway is maintained for cannery small boats. Limited provisions can be obtained at a store. A paramedic is at Port Moller in the summer and can be reached on 4125 kHz or VHF-FM channel 16. Air

transportation is reported to be available. Radiotelephone and radiotelegraph communications are maintained.

(96) **Point Divide**, 9.5 miles southwest of Entrance Point, has a 40-foot bluff with the land sloping gradually upward toward the mountain ranges. **Doe Point**, the southeast end of **Deer Island** opposite Point Divide, is 50 feet high. The bluff on the east side of Deer Island is 150 feet high while the rest of the island and the mainland to the south and west are generally lower.

(97) **Hague Channel**, marked by buoys and leading to Herendeen Bay, is 1 mile wide at the north entrance but contracts to 700 yards between Point Divide and Doe Point. Tidal currents are very strong in the channel, as much as 4 knots on the spring flood. The current does not follow the axis of the channel but sweeps across the flats and narrow channel. As a result the channel is subject to change.

(98) A survey vessel anchored 3 miles northeast of Point Divide in 10 fathoms, sand and gravel bottom, and 2.8 miles west-southwest of Point Divide in 8 fathoms, mud bottom; holding ground was good in both places.

(99) On the flood tide, the current causes spectacular tide rips between Point Divide and Doe Point, with an extensive area of swirls farther inside Herendeen Bay. Small craft should use caution during flood tide, especially when the wind is against the current.

(100) **Johnston Channel**, on the east side of Herendeen Bay, is 6 to 15 fathoms deep and very narrow with steep sides. **Halftide Rock**, on the east side of the channel 3 miles south of Point Divide, is awash at half tide. The current velocity is about 1.5 knots near the rock. **Eagle Rock**, near the east shore 3.8 miles south of Point Divide, is pyramid shaped and prominent.

(101) Small craft can find protection on either side of **Shingle Point**, in the small cove between Shingle Point and **Bluff Point**, and in **Mine Harbor**. Larger vessels can anchor off **Marble Point**. **Crow Reef**, off the entrance to Mine Harbor, bares at low water. The reef is an outlying danger in the upper bay. **Midway Reef**, extending 0.4 mile from the east shore of Mine Harbor, shows at half tide. A reef extends 0.5 mile west from **Crow Point**.

(102)

Cape Kutuzof

(103) The coast is low between Port Moller and **Cape Kutuzof**, 20 miles to the north-northeast. The cape rises in a rounded bluff to 150 feet.

(104) **Cape Seniavin Light** (56°23'57"N., 160°08'47"W.), 175 feet above the water, is shown from a small house with a red and white diamond-shaped daymark on rocky **Cape Seniavin**. Except for a cluster of small hillocks about 12 miles from the cape, low beach extends from Cape Seniavin to Seal Islands.

(105) Cape Seniavin is an important resting area (haulout) for Pacific walruses from approximately April through October. Walruses are extremely sensitive to unexpected or unfamiliar sights, smells and sounds and can easily be startled, in some cases causing deadly stampedes. Operating a boat in a manner which results in disturbing, harassing, herding, hazing or driving of walruses is prohibited under provisions of the Marine Mammal Protection Act. In an effort to prevent disturbance to walruses, marine vessel operators are requested to observe the following guidelines:

(106) Vessels less than 50 feet in length should remain at least 0.5 nautical mile away from a walrus haulout.

(107) Vessels 50 feet or more but less than 100 feet in length should remain at least 1 nautical mile away from a walrus haulout.

(108) Vessels 100 feet or more in length should remain at least 3 nautical miles away from a walrus haulout.

(109) All vessels should refrain from anchoring or conducting tendering or fishing operations within 3 nautical miles of a walrus haulout.

(110) **Seal Islands**, 30 miles northeast of Cape Seniavin, are several barrier islets, barely above high water, strung along the coast for about 10 miles. It is reported that small boats can find protection behind the islands. The coast continues low from Seal Islands to Port Heiden.

(111)

Port Heiden

(112) **Port Heiden**, 250 miles northeast of Cape Sarichef, is 9 miles in greatest width and extends inland about the same distance. The seaward side of the bay is formed by barrier sandbars 5 to 10 feet above high water. **Strogonof Point** (56°53.3'N., 158°50.7'W.) is the northeast end of the barrier beach that extends from the southwest. Farther to the northeast is crescent-shaped **Chistiakof Island**, which extends nearly to the mainland on the northeast side of the bay.

(113)

Pilotage, Port Heiden

(114) Pilotage, except for certain exempted vessels, is compulsory for all vessels navigating the waters of the State of Alaska.

(115) The Bering Sea is served by the Alaska Marine Pilots. (See **Pilotage, General** (indexed), chapter 3, for the pilot pickup stations and other details.)

(116) The approach to Port Heiden should be recognized by the high, bold headlands and the airfield installations on the north side, but the bight back of Seal Islands, 20 miles to the southwest, has been mistaken for the bay. **Aniakchak Crater** is about 15 miles east of Port Heiden, and **Black Peak** is about the same distance to the south.

(117) On the mainland back of Chistiakof Island is the village of **Meshik**. A commercial airfield, numerous radio towers, and several prominent buildings are about 4 miles north-northeast of the village.

(118) The seaward approach has a uniformly gently sloping bottom, with shoals extending considerably offshore. The 10-fathom curve is 6 to 8 miles off the bay and the 20-fathom curve about 15 to 20 miles off. Over this area there is good holding bottom of fine sand and gravel,

with some offshore sand waves lying perpendicular to the beach. Inshore of the 5-fathom curve the bottom tends to shoal abruptly.

(119) No passage is recommended between Strogonof Point and Chistiakof Island because of numerous shifting bars. Small boats, however, can approach Meshik around the northeast end of Chistiakof Island, with local knowledge and by exercising caution. In 1982, Chistiakof Island and the islands to the southwest were reported to be submerged, forming more bars that close much of Port Heiden during inclement weather. In 2023, the original approach from the northeast end of Chistiakof Island was closed off. The best navigable channel option runs over the southwest portion of what used to be Chistiakof Island. Many sandbars and parts of Chistiakof island are exposed at low tide.

(120) Breakers are common across the entire entrance to Port Heiden. Vessels must have favorable weather and tide to attempt passage.

(121) The bottom in Port Heiden is sand and mud, and the holding properties are considered poor. The landing area off the cannery at Meshik is long and sloping, and heavy loading should be done in the latter stages of a rising tide because of the flats that uncover at low water.

(122)

Currents

(123) The current velocity is 1 knot; the ebb current seems to be increased by a southeast wind. Sea ice conditions are variable, with navigation seldom entirely suspended; drift ice usually restricts navigation to full-powered vessels from January through April.

(124)

Cape Menshikof to Cape Greig

(125) From Port Heiden the same low coast extends in nearly a direct line to **Cape Menshikof** (57°30.0'N., 157°55.0'W.), where the high land of Port Heiden gradually recedes from the coast. Cape Menshikof is a high bluff, extending some distance alongshore, with hilly country back of it.

(126) **Cinder River**, about 10 miles southwest from Cape Menshikof, is a shallow indentation in the coastline that is often mistaken for the Ugashik River.

(127) Beaches and sand bars near the mouth of the Cinder River are important resting areas (haulouts) for Pacific walruses from March through September. Haulouts have been reported at various sites along an approximately ten nautical mile stretch of shoreline. Walruses are extremely sensitive to unexpected or unfamiliar sights, smells and sounds and can easily be startled, in some cases causing deadly stampedes. Operating a boat in a manner which results in disturbing, harassing, herding, hazing or driving of walruses is prohibited under provisions of the Marine Mammal Protection Act. In an effort to prevent disturbance to walruses, marine vessel operators are requested to observe the following guidelines:

(128) Vessels less than 50 feet in length should remain at least 0.5 nautical mile away from a walrus haulout.

(129) Vessels 50 feet or more but less than 100 feet in length should remain at least 1 nautical mile away from a walrus haulout.

(130) Vessels 100 feet or more in length should remain at least 3 nautical miles away from a walrus haulout.

(131) All vessels should refrain from anchoring or conducting tendering or fishing operations within 3 nautical miles of a walrus haulout.

(132) **Ugashik River** empties into **Ugashik Bay**, the wide indentation between Cape Menshikof and Cape Greig. The capes can be approached from west to within about 2 miles. The coast between the capes, including the river valley, appears low. **Smoky Point**, a bluff on the north side of the entrance, is 7 miles south of Cape Greig. Here the river is about 4 miles wide at high water. The indentations between the capes, including the mouth of the river, are filled with shoals. A channel in the river has a depth of about 10 feet, but a stranger could not follow it with safety. Only launches can approach the cannery at low water because of boulders in the channel. The river is fresh at low water about 5 miles above Ugashik. Each year the cannery company anchors two floats on the north side of the channel at the entrance.

(133) A cannery is near the entrance at **Pilot Point**. The wharf is 144 feet long but dries at low water. Water is available on the wharf. Gasoline, fuel and diesel oils are stored for cannery use. A machine shop and scowway are maintained by the cannery; a 4-ton crane is on the wharf. Radiotelegraph communication is maintained.

(134) A cannery at the village of **Ugashik**, 13 miles from the entrance, has a wharf 200 feet long with a depth of 14 feet at high water but is reported dry at half tide. Water is available on the wharf and by barge at the anchorage. Gasoline and diesel oil are stored for cannery use. The wharf has a 2-ton crane. The cannery has a machine shop and a scowway. Small tenders are beached for light hull repairs.

(135)

Pilotage, Ugashik Bay

(136) Pilotage, except for certain exempted vessels, is compulsory for all vessels navigating the waters of the State of Alaska.

(137) The Bering Sea is served by the Alaska Marine Pilots. (See **Pilotage, General** (indexed), chapter 3, for the pilot pickup stations and other details.)

(138) **Cape Greig**, 7 miles north of Smoky Point, is a prominent brownish bluff, with a few yellow vertical stripes extending several miles alongshore. It appears to be the seaward end of a low ridge with low land on each side. This and a peculiar notched mountain some distance inland are good marks. **Cape Greig Light** (57°43'30"N., 157°41'47"W.), 350 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark.

(139) Cape Greig is probably the best landfall for the approach to Kvichak and Nushagak Bays from southwest. North of Cape Greig, the coast is low and has no distinguishing features, and even radar is not of much assistance until abeam of Egegik Bay. Particular care should be taken to clear the shoals off the entrance to this bay. After passing the bay, Middle Bluff can usually be identified, although the lights on this bluff and on Red Bluff are small structures not easily seen from offshore. **Johnston Hill**, 357 feet high, is not readily identified by a stranger approaching from the southwest, but abeam of the hill and thence to the northeast a sharp tip on the north side is very prominent.

(140) Cape Greig is an important resting area (haulout) for Pacific walruses from March through September. Walruses are extremely sensitive to unexpected or unfamiliar sights, smells and sounds and can easily be startled, in some cases causing deadly stampedes. Operating a boat in a manner which results in disturbing, harassing, herding, hazing or driving of walruses is prohibited under provisions of the Marine Mammal Protection Act. In an effort to prevent disturbance to walruses, marine vessel operators are requested to observe the following guidelines:

(141) Vessels less than 50 feet in length should remain at least 0.5 nautical mile away from a walrus haulout.

(142) Vessels 50 feet or more but less than 100 feet in length should remain at least 1 nautical mile away from a walrus haulout.

(143) Vessels 100 feet or more in length should remain at least 3 nautical miles away from a walrus haulout.

(144) All vessels should refrain from anchoring or conducting tendering or fishing operations within 3 nautical miles of a walrus haulout.

(145)

Kvichak Bay Kvichak River

(146) **Kvichak Bay**, the large arm at the head of Bristol Bay, extends northeast from a line between the south entrance point of Egegik River and Etolin Point. The bay is an important fishing area for red salmon and has several canneries in its north part. Kvichak Bay is navigable for deep-draft vessels as far as the anchorage about 270° from the entrance to the Naknek River. The approach from the southwest is restricted to a channel about 4 miles wide by **Big Flat**, an extensive tide flat extending off the east shore, and by **Dead Man Sands**, the large shoal in the middle of the bay northwest of Johnston Hill. This shoal uncovers about 8 feet, and the area north of it is very foul. Fishing boats and collecting barges use the area at half tide or higher. Caution is necessary as a number of fishermen have been lost when trapped by the tides.

(147) About midway between Middle Bluff and Johnston Hill are two low spits which, while not discernible visually from a vessel in midchannel, are quite prominent on a radarscope and hence are valuable landmarks during periods of low visibility.

(148) North of Naknek River are numerous shoals and uncovered banks. There is a narrow channel on the east side of the bay between Naknek River and Koggiung, but local knowledge is needed to avoid the shoals. The land is low and flat, but the tanks and buildings of the canneries and the lights, which are maintained during the canning season, are good landmarks. In 2023, the best channel upriver was found on its west side, corresponding approximately to Albert Channel. This channel was relatively wide and deep with a least depth of about 10 feet reported. The area is highly changeable from shifting sandbars and should be navigated with caution.

(149) Kvichak River, which empties into the head of Kvichak Bay, is the outlet for Lakes Iliamna and Clark, on the west side of the mountain system that borders Cook Inlet. At maximum ebb, the confluence of discharges from Naknek and Kvichak Rivers is apt to cause overfalls that are dangerous to small boats. Winds in excess of 20 knots, opposed to currents, make the bay quite rough for vessels of light draft.

(150) Good holding ground is available any place in Kvichak Bay where depths are suitable for anchorage. The bottom appears to consist of a layer of coarse gravel, sand and stones, with mud beneath. The shoal depths permit a generous scope of chain, which is necessary because of the strong currents and frequent blows. Only one anchor is recommended because a vessel tends to swing to the direction of the current, despite wind direction, with consequent fouling if moored with two anchors. Experience has shown that a scope of 8 or 10 to 1 will withstand the effects of a 60-knot wind and a 3.5-knot current. With a strong wind opposed to current, a vessel will usually lie broadside to both, and while such a condition sometimes causes an anchor to walk, no such tendency has been experienced in this area.

(151) Navigators are reminded that the great range of tide in this bay must be considered when selecting an anchorage.

(152)

Currents

(153) In Kvichak Bay and River the current is very strong, and consequently the channel shifts more or less each year. The current velocity is 3.5 knots in the lower part of the bay and 2.5 knots in the main ship anchorage off Naknek. In Naknek River at the hole off Morakas Point, 4 miles above the entrance, the current velocities are about 1 knot on the flood and 2 knots on the ebb. See the Tidal Current prediction service at *tidesandcurrents.noaa.gov* for specific information about times, directions, and velocities of the current at numerous locations throughout the area. Links to a user guide for this service can be found in chapter 1 of this book.

(154) It is recommended that vessels anchor against the current, when it is at maximum strength, so that engines may be used to offset the sudden strain when the anchor is let go. Caution must also be exercised, on flood current, to keep the vessel from being carried beyond the

anchorage area while maneuvering. Since the currents usually follow the axes of the bay channels, navigators should make ample allowance when proceeding between Kvichak and Nushagak Bays; otherwise they are apt to be set to the north or to the south when they are on an east or west course.

(155)

Weather, Kvichak and Nushagak Bays Vicinity

(156) The best weather in Kvichak and Nushagak Bays appears to be from the latter part of May through July. The bays are frozen over during the winter, and the ice usually does not break up until May. Vessels approaching the bays during this time of the year, which they frequently do in preparation for the fishing season, are cautioned to do so during daylight because of possible ice.

(157) Storms have a tendency to move into this area from the Aleutian Islands during August and September, and while their intensity usually is diminished, their rate of movement is decreased, and at times they remain stationary while the depressions fill, thus causing extended periods of poor weather. Fog is not as prevalent in these bays as farther to the southwest in Bristol Bay proper. Storms south of the Alaska Peninsula at times cause strong winds to draw through the valleys, such as that of the Egegik River, thus giving the effect of williwaws near the valley entrances.

(158) Mirages are seen frequently in the Kvichak Bay area during periods of calm, and particularly at low tide. They distort the appearance of bluffs and shorelines and make tanks and other elevated structures visible at greater distances than their altitudes warrant.

(159) **Egegik River** empties into Kvichak Bay 30 miles north of Cape Greig; **Cape Chichagof** is the north entrance point. It is a large river, 1 mile wide at the canneries, and is the outlet of **Becharof Lake**. It flows in a west direction for more than 28 miles.

(160) The lower part of the river forms **Egegik Bay**. A large part of its area is bare at low water. At the entrance, shoal water extends 6 miles offshore and should be given a wide berth by passing vessels. Entering vessels, depending upon their draft and condition of the sea, generally cross the entrance bar between half and full tide stages only. Moderately heavy seas will break over this bar with any stage of tide, although it has 4 fathoms over it at high water. It is considered the most dangerous bar in the Bristol Bay area.

(161) In 1982, extensive shoaling was reported in the entrance to Egegik Bay; local knowledge is advised. In 1994, a wreck was reported about 6.7 miles west-northwest of Coffee Point in about 58°15'19"N., 157°37'48"W.

(162)

Pilotage, Egegik Bay

(163) Pilotage, except for certain exempted vessels, is compulsory for all vessels navigating the waters of the State of Alaska.

(164) The Bering Sea is served by the Alaska Marine Pilots. (See **Pilotage, General** (indexed), chapter 3, for the pilot pickup stations and other details.)

(165)

Anchorages

(166) At the entrance to Egegik River are two partially protected anchorages with limited swinging room that are used by power scows and tugs. The principal one is the channel inside **Coffee Point**, with depths up to 5 feet. A smaller anchorage is just east of the wharf at Egegik, with depths from 6 to 11 feet. Ebb current at the smaller anchorage is very strong.

(167) Egegik River is navigable to small boats for its entire length into and across Becharof Lake. Although tidal to the foot of the rapids, mean range in its lagoons is only 1 foot; 5- to 6-foot drafts can be carried through the river, but the small lagoon reduces this to 3 or 4 feet, depending upon water stage. The controlling depth of the ¼-mile rapids of the lake outlet is 4 feet at low water stage. Although its midchannel current averages 5 knots, slow-speed powerboats run it frequently with and without handline aid from the shore. The river is open from May to October. In 1970, the river was obstructed by numerous boulders possibly carried in through ice action.

(168) Freight from oceangoing vessels is generally lightered into Egegik from the ship anchorage off Naknek. **Egegik** has limited facilities; a cannery wharf that is 80 feet long dries at low water. Water and a 5-ton crane are available. Gasoline and diesel fuel are available for local use only. A pier, 70 feet long and 40 feet wide, with dolphins 10 feet off each outer corner, is 0.2 mile east-northeast of the cannery, just north of the twin tanks. Depths of 6 to 11 feet are off the pier. A cannery wharf, across the river, is 150 feet long with little water at its face. This cannery is inoperative, but its marine railway is active and hauls out barges, piledrivers, and tugs for winter layup. A removable fish conveyor and three pile dolphins extend offshore from Coffee Point. The conveyor and dolphins are removed after the fishing season. Two stores remain open all year in Egegik. Their supplies are principally food staples and clothing.

(169) Radiotelegraph communications are maintained. Transportation is available by floatplane from May to October and is usually obtained from Naknek village or King Salmon Airport.

(170) **Naknek River** enters Kvichak Bay on the east side, about 10 miles south of Koggiung. **Cape Suworof** is the point on the north side of the entrance. The large 60-mile-long river has its source in **Lake Naknek**, where there are two villages.

(171)

Anchorages

(172) Anchorage can be had off the entrance to Naknek River in 35 to 40 feet; this is the head of navigation for deep-draft vessels. The approach channel to this anchorage has depths of 33 to 60 feet.

(173) Shoals and banks, many of which uncover, fill the lower course of the river and extend 3 or 4 miles, then trend around north and join the body of the banks that fill the upper end of Kvichak Bay.

(174)

Pilotage, Naknek

(175) Pilotage, except for certain exempted vessels, is compulsory for all vessels navigating the waters of the State of Alaska.

(176) The Bering Sea is served by the Alaska Marine Pilots. (See **Pilotage, General**, (indexed), chapter 3, for the pilot pickup stations and other details.)

(177) Vessels using the Alaska Marine Pilots and en route to Naknek can contact the pilot boat by calling "NAKNEK PILOT BOAT" on VHF-FM channel 16 or on a prearranged frequency between pilot and agent/vessel.

(178) The Naknek River has several large salmon canneries; all have wharves that bare alongside at low water. Some of the canneries have not operated for years. Deep-draft vessels anchor about 6 miles off the entrance to the river and lighter their freight ashore in barges that are available at Naknek; the approaches to the anchorages vary little from year to year. Vessels drawing up to 10 feet can go alongside the cannery wharves at half tide but can remain afloat at low water only by shifting to what is called the hole just east of **Morakas Point**, which is 4 miles above the river mouth. The hole has depths of 9 to 14 feet at low water over a narrow crooked area 200 to 300 feet wide and about 0.5 mile long. Mooring buoys are maintained in this hole by the canneries on a seasonal basis for use of power scows, tugs and barges. Craft of these types, drawing up to about 12 feet, can proceed up the river with local knowledge some 12 miles from the mouth. In order to do this, vessels leave Naknek village 1 hour before high water. Beyond this point, small boats of 3-foot draft can proceed as far as the rapids, a distance of about 7.5 miles.

(179) An overhead power cable with a clearance of 48 feet crosses Naknek River about 1.3 miles above Morakas Point.

(180) All active canneries maintain radio communication. Limited repair facilities, including machine work, are available at the canneries, as well as water in any quantity. During the fishing season, water is available at the main ship anchorage by water barge. Diesel oil, gasoline and lubricating oil are available in quantities sufficient for normal demands, and limited amounts of coal and stove oil also are available. Delivery can be made alongside the fuel dock for vessels drawing up to 10 feet at better than half tide or by drums to ships at anchorage. There is no fuel oil. Provisions in limited quantities are available.

(181) **Naknek** is on the north side of the Naknek River about 1.5 miles from the mouth. A nurse is on duty during the winter and, during the cannery season, each cannery employs a doctor whose services are available to the public for a fee. Weekly mail service is by plane throughout the year. Regular scheduled steamers also carry mail during the summer. A road leads 0.8 mile inland to a lake used as a landing place for floatplanes; another road goes about 12 miles southeast to **King Salmon Airport**. Transportation over land in this area is entirely by plane. Several floatplanes at the inland lake are available for hire or charter. The airport has scheduled freight and passenger service to Anchorage. There is a telephone line from Naknek to the airport. **South Naknek** is on the south side of the Naknek River, directly across from Naknek.

(182)

Weather, King Salmon Vicinity

(183) Nearness to the ocean tends to provide King Salmon with a climate that is predominantly maritime in character, with diurnal and seasonal temperature ranges normally confined to rather narrow limits. However, the area occasionally experiences definite continental influences that cause temperature extremes that tend to exaggerate the climatic conditions generally prevailing. The extreme maximum temperature for King Salmon was 88°F (31.1°C), noted in June 1953, but days in summer with maximum readings reaching the 80°F (26.7°C) mark are extremely rare. In fact, July, the warmest month, averages only 5 days with temperatures reaching 70°F (21.1°C) or above. The coldest temperature on record was -48°F (-44.4°C) in January 1989.

(184) From December through March the area experiences rather strong winds, due to the passage of east-moving Aleutian lows. The strongest winds are usually from a northerly direction, developing after the low centers have passed on east of the local area. Winds of 55 knots or more have occurred in all months with an extreme of 97 knots in November 1965.

(185) Cloud coverage in the King Salmon area is generally quite high, averaging about four-fifths the year around. Mountain ranges to the south, east, and west tend to provide uplift for air moving toward King Salmon from these directions and produce considerable cloudiness that is carried out across the local area. When the wind movement is inland from the southwest, the air arrives carrying a high moisture content to condense in low-level cloudiness, and this action contributes to the frequent fog occurrences all months of the year. Fog development is most frequent during July and August. During the winter the high moisture content of the air causes substantial accumulations of frost on outside objects.

(186) Seasonal snowfall averages about 46 inches (1,168 mm) and has ranged from 94 inches (2,388 mm) to 16 inches (406 mm) for annual extremes. The maximum depth on the ground during the winter season averages about 10 inches (254 mm). This indicates the extent of melting that takes place with the snow accumulation. Although most of the snow is received during periods of general snowfall over most of the southwest mainland, a considerable amount of snow is brought in as snow showers that move inland from the Bristol Bay area. These showers are generally quite local and usually of

short duration, but they often follow in rapid succession to bring sizable accumulations of snow within relatively short periods of time. December, with an average of about 9 inches (229 mm) of snowfall, has the greatest monthly average snowfall amount. Only July and August have never seen snowfall.

(187) Ice in the bay near King Salmon usually becomes safe for man around November 11, with the Naknek River becoming safe for navigation around November 25. Breakup on the bay averages about April 6; the breakup on the river averages about April 18.

(188) **Libbyville**, on the east side of Kvichak Bay, 3.5 miles north of Naknek River entrance, has a cannery with a 100-foot-long wharf.

(189) Common practice in this area is to avoid all movement of vessels north of Naknek River at the lower stages of the tide or on a falling tide. At or near high water it is safe to navigate almost any part of the area with vessels drawing up to 7 or 8 feet; vessels going aground on a rising tide are floated in a very short time and may proceed. No known rocks exist on the shoals, and temporary groundings do not often damage vessels.

(190) Most of the area between Naknek and Kvichak Rivers bares at some stage of the tide.

(191) The east channel from Libbyville to Koggiuing has depths that vary from 3 to 23 feet at low water. Local knowledge is necessary to avoid grounding on a falling tide.

(192) **Koggiung**, a village on the east side of Kvichak River, has several canneries. All of the wharves are dry at low water and have mud bottom alongside. All have water connections. Fuel oil, diesel oil, and gasoline are stored for cannery use.

(193) The longest wharf at Koggiung is 450 feet. The marine railway at this wharf can haul out vessels up to 60 tons at high water.

(194) **Kvichak River**, from Koggiung to Iliamna Lake, is 50 miles long. In the upper half of its course it is much broken by islands and bars into narrow, shallow channels. The lower half is tidal.

(195) Occasionally vessels drawing 14 feet have ascended the river as far as the mouth of Alagnak River, but anchorage is difficult to find. Kvichak River is navigable for cannery tenders of 10-foot draft to **Alagnak River**, 22 miles above the mouth of Kvichak River. Launches of 3- to 4-foot draft can go on up into Iliamna Lake.

(196) In 1984, the channels through the entrance to Kvichak River were reported to be extremely changeable. Local knowledge is advised.

(197)

Anchorages

(198) The Kvichak River has four recommended anchorages where mooring buoys are maintained during the fishing season. Water is available at the canneries.

(199) At **Graveyard Point**, near the mouth, fair protection is available in depths of 10 to 12 feet in all weather except strong southeast storms. The bottom is fine gray sand with good holding ground.

(200) **Graveyard Point Light** (58°52'03"N., 157°00'49"W.), 55 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark 0.7 mile south of Graveyard Point.

(201) Off **Nakeen**, good protection in all weather is afforded in depths of 13 to 23 feet. The bottom is fine gray sand; the holding ground is good.

(202) At **Kvichak** good protection is afforded in depths of 8 to 10 feet in all weather except a strong north storm. The bottom is gray sand; the holding ground is good.

(203) At **Levelock** good protection is afforded in all weather, in 8 to 10 feet, fine gray sand bottom, with good holding ground.

(204) Common practice on the Kvichak River is to restrict navigation to the direction of the current and to a stage about half tide, if possible. Vessels grounding on a rising tide are floated in a short time, and temporary groundings cause no damage since there are no rocks on the shoals.

(205) Local knowledge of the channels is necessary, and anyone not thoroughly familiar with the river is strongly advised to obtain a pilot from one of the canneries.

(206)

Iliamna Lake to Lake Clark

(207) **Iliamna Lake** is about 70 miles long and generally from 7 to 17 miles wide. It is about 50 feet above tidewater. Reported soundings indicate a depth at the east end of many hundred feet. The lake is usually frozen from late December until late in May; the snow leaves the low ground in April, remaining until June in the pass between Iliamna Lake and Cook Inlet. Some snow may be expected in September, but the ground is not permanently covered at low altitudes until some months later.

(208) **Old Iliamna** is an abandoned village 3.5 miles above the mouth of the **Iliamna River**, which drains into the east end of Iliamna Lake.

(209) A 15.5-mile State-maintained gravel road connects Pile Bay, at the east end of Iliamna Lake, and Williamsport on the west shore of Iliamna Bay. The road is open from June to October. (See chapter 4, for a description of facilities available at Williamsport.)

(210) **Newhalen River** (59°41.5'N., 154°56.0'W.), about 20 miles long, connects Iliamna Lake with Lake Clark. The upper 10 miles can be navigated by canoes and poling boats. Rapids and reported falls make even canoe navigation impossible for the lower 10 miles. These rapids may be avoided by a 5-mile portage.

(211) **Iliamna** is near the mouth of Newhalen River. An airfield is adjacent to the village.

(212) **Lake Clark** is about 45 miles long and from 1 to 3.5 miles wide. It is about 220 feet above tidewater and is tributary to Iliamna Lake and Newhalen River.

(213)

Nushagak Bay

(214) **Nushagak Bay** and **Nushagak River**, on the north side of Bristol Bay near its head, are noteworthy for salmon fishing and canneries that operate during the summer. The bay is 17.5 miles wide at the entrance between Protection Point and Etolin Point.

(215) The ice free season is typically mid-May to early October. During this time, many tug and barge vessels, which draft up to 13 feet, transit the area heading to Dillingham hauling fuel, gravel and other supplies. A fishing fleet of several hundred vessels operates in the area, fishing the various salmon openers (May through August). Approximately half a dozen large tenders and processors operate in the area throughout the fishing season, anchoring where needed, to service the fishing fleet. Fishing vessels from Dillingham not only harvest in Nushagak River and Nushagak Bay but also transit to other areas of Bristol Bay to fish. Still more fishing vessels migrate to Nushagak Bay from Seattle, Bellingham and other ports outside Alaska. Fishing vessels operating in the area are typically no more than 33 feet in length with drafts of 3 to 7 feet.

(216) Nushagak Bay and River are shallow and highly changeable. Some areas have numerous shifting sandbars and shoals, while other areas remain relatively consistent. Strong currents are always prevalent and can be extreme due to the combination of both river and tidal constituents. The tide range is high, on the order of 13 to 20 feet daily. Unfavorable weather conditions and sea states are common, even in the summer. Local authorities state that this area is particularly subject to change on the ice runout each spring.

(217)

Pilotage, Nushagak

(218) Pilotage, except for certain exempted vessels, is compulsory for all vessels navigating the inside waters of the State of Alaska.

(219) The Bering Sea is served by the Alaska Marine Pilots. (See **Pilotage, General** (indexed), chapter 3, for the pilot pickup stations and other details.)

(220) North of Dillingham is a sparse growth of timber, which becomes heavy farther inland, but to the south are only occasional clumps of alder bushes.

(221) The peninsula of **Cape Constantine** is low rolling tundra country, with bluffs in places. **Nichols Hills**, 125 feet high, are small sand knolls, the highest part of a ridge that follows the east side of the cape and is 5 miles northwest of Protection Point.

(222) At the southwest end and on the southeast side of the cape are the entrances of two lagoons that can be entered by boats at high water when there is no surf. At low tide, water remains in the entrance and for a short distance inside the first lagoon; the second lagoon is bare.

(223) Shoals with little water on them in places extend 6 miles south from Cape Constantine, and the outer shoal, Ustiugof Shoal, is 8 to 9 miles southeast from the cape. These shoals are in the form of long ridges trending in the direction of the set of the tidal currents around the cape to and from Nushagak Bay. They are steep-to, especially on the offshore side, and soundings will not give sufficient warning to avoid them.

(224)

Currents

(225) The tidal currents northeast of **Sterling Shoal**, off Cape Constantine, have a velocity of about 2 knots. See the Tidal Current prediction service at *tidesandcurrents.noaa.gov* for specific information about times, directions, and velocities of the current at numerous locations throughout the area. Links to a user guide for this service can be found in chapter 1 of this book.

(226) **Ustiugof Shoal** is a narrow ridge with a least depth of 13 feet and has a length of 15 miles in a 052° direction. Close to its southeast side are depths of 11 fathoms or more. From a vessel near the shoal, Cape Constantine can be seen in clear weather. The greatest care is required when south or southeast of the cape. The shoaler ridges are generally indicated by rip or breakers at low water, but there is generally nothing to indicate Ustiugof Shoal.

(227) **Protection Point**, the east end of Cape Constantine, is a low marshy spit that extends 1.5 miles from the higher land. On the north side of the point, 2 miles west-northwest of its end, is the entrance to a lagoon; small boats can anchor in or close inside the entrance, but the current is strong on the ebb. The current velocity off the point is about 2 knots on the flood and 3 knots on the ebb. A narrow shoal that uncovers in places at low water extends 4.2 miles south from the point. The south half of the shoal is about a mile from shore; between the point and the north end of the shoal is a narrow channel. A detached shoal about 2 miles east from the point has a least depth of 15 feet.

(228) **Nichols Spit**, east of Nichols Hills, forms a cove, dry at low water, that can be entered by boats at high water and affords shelter except from north winds.

(229) **Igushik River**, 15 miles north of Protection Point, is a crooked winding river on the west side of the bay. There are two channels leading into the river; the northern channel is the deepest. These channels are highly changeable. The flat on the east side of the channel leading to the mouth of the river shows for nearly its full length at low water.

(230) **Igushik Ridge**, on the west side of Igushik River, is prominent, being about 260 feet high near its north end, where it breaks sharply to the river. The peninsula east of the river is low.

(231) **Togiak National Wildlife Refuge** includes Igushik and Snake Rivers and is a Marine Protected Area.

(232) **Snake River**, 10 miles north of the mouth of Igushik River, is used only by fishing boats. There are two channels into the river; the southern channel is the deepest. These channels are highly changeable.

(233) The land on the east side of the bay is low and rolling tundra, and the entrance point is rounding without a distinct point.

(234) **Etolin Point**, the larger rounded point between Kvichak and Nushagak Bays, is flat and tundra covered, with several shallow lakes, some of which have been used for floatplane landings. The west extremity of the point is a 90-foot-high bluff. A 149-foot-high rounded hill, 2 miles east of the point, is a prominent landmark when approaching from seaward.

(235) Shoals covered less than 12 feet extend 5 miles south of the rounding point southeast of Etolin Point, while depths of 30 feet or less are more than 10 miles from the shore. The soundings are a good guide in approaching the east shore when just outside a line joining Etolin and Protection Points. Above this line in the east half of the bay are long shoals, most of which show in places at low water. A **341°** lighted range marks the channel to Ekuk. The range line should be transited with caution especially on its north end where it transects a shoal area that is subject to change. In 2023, a least depth of 11.5 feet was found along the range line in this area. Caution should still be taken as shifting sandbars and shoals are still present in the area and it is highly subject to change. **Ekuk Bluff**, north-northwest of Etolin Point, is 170 feet high and prominent. **Ekuk** is a native village on a spit at the north end of the bluff. The lagoon inside the spit is bare at low water. The cannery wharf at Ekuk is 150 feet long with 7 feet alongside at high water. Gasoline, diesel oil and fuel oil are stored for cannery use, and water is available.

(236) **Clarks Point**, 1.5 miles north of Ekuk, is low and has an extensive gravel beach. On the point are a large abandoned cannery and the village of Clarks Point. The ridge, 169 feet high, terminates in a bluff at the shoreline 0.6 mile south of the point and is prominent from seaward. Several large water tanks near the shore end of the bluff are prominent landmarks.

(237) The Trident Seafoods wharf at Clarks Point is 175 feet long and has a depth alongside of about 8 feet at high water. Two large seasonal fish processing plant vessels operated by Trident Seafoods and Icicle Seafoods commonly anchor offshore Clark's Point approximately May through August.

(238) **Clark Slough**, 1.5 miles northeast of Clarks Point, is navigable for launches at high water for about 17 miles. The bar that must be crossed at the edge of **Combine Flats** when entering the slough bares at low water. Fishing craft and tenders use Clark Slough and the part of Combine Flats behind Clarks Point for shelter during heavy southwest weather.

(239) **Nushagak Point**, on the east side of Nushagak Bay and 7 miles north from Clarks Point, is the outer end of a prominent 250-foot ridge, to the east of which is a deep valley. **Nushagak**, a small village on the point, has a fish camp during summer. There are no wharves. Vessels may approach as closely as their draft permits and use small boats or barges for reaching the shore. Landing at low water is difficult because of the very sticky mud on the flats, but a good landing can be made on the gravel beach at high water. Nushagak has no post office or supplies. Mail is received through Dillingham.

(240) From **Coffee Point** to **Snag Point**, 9 miles to the northeast, the west shore of Nushagak Bay consists mostly of bluffs. **Bradford Point**, between Coffee Point and Snag Point, is opposite **Grassy Island**, which is awash at highest tides.

(241) **Kanakanak**, at Bradford Point, is a small settlement that includes the former sites of Dillingham and Kanakanak and is connected by roads with the present site of Dillingham at Snag Point. A hospital is in Kanakanak, about 7 miles from Dillingham.

(242) **Dillingham** is the principal settlement and source of supply in Nushagak Bay. The city has a school and churches, and hospital facilities at Kanakanak may be reached by road. Ordinary supplies are available at several general stores. Petroleum products, except fuel oil, can be obtained from the Delta Western, Dillingham Terminal Wharf. Bristol Alliance Fuels, just west of Dillingham small boat harbor, also carries petroleum products and can be accessed by large vessels at high water. The sea wall can be heavily battered by wave action when winds are from the south to southwest.

(243) Vessels drawing 23 feet ascend the bay on high tide and anchor just below Snag Point. Supplies are lightered to Dillingham either by the canneries' equipment or by private equipment. The oil and cannery wharves can be approached only at high tide; vessels drawing 12 feet moor at these wharves on higher high tides. A 208-foot City Dock accommodates large ships and barges for unloading with a depth of 3 feet alongside.

(244) The Peter Pan Seafood Processing Facility at Dillingham operates May through July and has a wharf 300 feet long that is dry at low water but can be used by larger vessels at high tide. Gasoline, diesel oil, and fuel oils are stored for cannery use. Telephone service is available. The cannery maintains VHF communications May through July.

(245) **Dillingham Small-Boat Harbor** on the west side of Dillingham provides about 950 feet of float space for small fishing and pleasure craft. A set of red and green buoys mark the entrance to a dredged channel leading from Nushagak Bay to the basin. Observation of the channel at very low water will reveal the channel shape enabling safe navigation at high water. The basin retains less than 5 feet of water, and vessels commonly ground in the mud at lower tides. The entrance channel and basin are subject to rapid shoaling due to sediments from Nushagak Bay, and annual maintenance dredging is attempted each year. The **harbormaster's office** (907–842-1069) is across from the small boat harbor.

(246) An airport 1.5 miles west of the city provides air services the year round. An aerolight is at the airport.

(247) **Wood River** has its entrance north of Snag Point and has a length of about 24 miles to **Lake Aleknagik**. Its width varies from about 600 yards in its lower part to

about 50 yards where it joins the lake. A depth of 3 to 3½ feet at low water can be carried 15 miles upriver and not more than 2½ feet to the lake; at high water 4 feet can be carried this distance. The lake is about 24 miles long and navigable for its entire length.

(248)

Prominent features

(249) North of Nushagak Bay is a chain of prominent mountains that are snow covered in early summer but are bare except in the ravines by the middle of July. In clear weather the peaks show from a long distance seaward, but much of the time they are obscured by clouds and haze.

(250)

Channels

(251) The controlling depth in Nushagak Bay and River is about 10 feet to Dillingham, 30 miles above the mouth. Small vessels of 2½-foot draft can continue up Nushagak River to **Nunachuak**, 100 miles above the mouth.

(252)

Anchorages

(253) Vessels can anchor in the outer part of Nushagak Bay in north weather. The wind from this direction does not appear to blow with force during the summer. This part of the bay is exposed to a heavy sea during east to south weather. The strong current causes a vessel at anchor to lie stern or broadside to the sea when the wind opposes the current. The bars seem to afford little protection. In southwest and northeast weather, the west and east sides of the bay, respectively, should be selected.

(254) Good anchorage can be found south of Ekuk Bluff, in 30 to 35 feet, mud bottom, where the current is not strong. During the fishing season, mooring buoys, placed in a line parallel to the beach, are maintained for tally barges in the area south of Ekuk Bluff and east of the main channel.

(255) In southwest weather, good anchorage in about 18 feet is offered to vessels drawing 12 feet or less, 1 mile **021°** from Protection Point. Deeper draft vessels should anchor farther northeast.

(256) Above Ekuk good anchorage will be found wherever the depth will permit. This part of the bay is very choppy in heavy weather, but the sea seldom, if ever, is heavy enough to endanger a vessel. The bottom is sand, but the anchor holds well if given a scope of about 60 fathoms. The currents are strong, and care should be taken to avoid dragging. Vessels remaining long are anchored in line in the channel to interfere as little as possible with the nets. During the fishing season, mooring buoys are placed by the canneries in lines parallel to the channel off Ekuk Bluff and Clarks Point.

(257)

Currents

(258) The currents in Nushagak Bay have considerable strength; velocities of about 4 knots have been observed on both the flood and the ebb. The ebb usually begins shortly before high water and continues to run after low water, roughly about 7 hours ebb and 5 hours flood. The period of slack water is usually short. The currents generally set fair with the channels, but in navigating the bay the course is often across the current and allowance must be made for it. The velocity is influenced by freshets and continued winds, which also affect the times of slack water. A current of over 5 knots may be experienced at times. See the Tidal Current prediction service at *tidesandcurrents.noaa.gov* for specific information about times, directions, and velocities of the current at numerous locations throughout the area, including Nushagak Bay. Links to a user guide for this service can be found in chapter 1 of this book.

(259)

Weather, Nushagak Bay Vicinity

(260) The weather is variable, but it is considered better than farther west. Spells of bad weather occur, and their duration increases in the late summer. Southwest winds sometimes predominate in the early summer and east winds later. East winds bring thick weather and rain, and are accompanied by a low or falling barometer. Moderate southwest winds bring fair weather; strong winds bring rain. Northeast winds bring fine clear weather but seldom blow steadily. In settled weather the wind may be light from any direction, accompanied by showers. After a gale there is usually no shifting of the wind or sudden breaking of the storm, but the wind decreases, and there is a gradual return to fair weather. Fog sometimes sets in from the sea, but there is little fog during the summer

(261)

Ice

(262) The movement of the ice is variable, depending upon the direction of the wind. It is said that the arrival of cannery vessels has been as late as June 17. The ice is not solid but drifts in floes with the wind and current. Northeast winds drive the ice out of the upper bay to ground and breakup on the shores and sandbars of the west side of the bay. Cannery floating equipment is hauled out upon completion of the season in mid-August, and the salmon pack is taken out at that time. One winter supply vessel generally makes the last trip into the bay about the middle of September.

(263)

Routes

(264) The channels and bars of Nushagak Bay and River are probably subject to constant change because of the action of currents and to a smaller extent by the action of the sea. Changes of considerable extent are reported by those of long experience. A margin of safety should therefore be allowed for the soundings found by the survey. It is also well to remember that with a very low tide the water may fall as much as 4½ feet below the plane of reference of the chart.

(265) The navigation of the bay is not easy, and a stranger should proceed with great caution. Tide rips may be taken as good evidence of shoals. The shoals are long ridges trending in the same directions as the tidal currents, and the danger of stranding is greatly increased if a course is set across the currents. A stranger should navigate only

on a rising tide and is advised to communicate by radio with one of the canneries and arrange to have a pilot sent out.

(266) It is recommended that vessels bound to Nushagak make Cape Greig, which is high and easily recognized and marked by a light, then shape the course for the entrance to the bay, favoring the Etolin Point side in preference to the Cape Constantine side. The currents that may be experienced when crossing from Cape Greig are not known, but there may be considerable set. Great care should therefore be exercised in approaching the entrance. The land at the entrance when first seen in approaching is indefinite and presents no feature that can be readily identified.

(267) Enter the bay on the **341°** lighted range through **Ship Channel**. Favor the east side of the range until clear of the 6-foot spot on the east edge of **Long Sands**. The area is highly changeable, and caution should be taken on the north end of the bar where the eastern and western shoals merge somewhat. In 2012, NOAA hydrographic surveys found that the range line intersects a 3-foot sounding in this area. When through the cut on the bar, leave the range and follow the general trend of the shore to off **Ekuk**.

(268) **Note:** On the flood, just inside the bar, cross a distinct rip and keep it about 150 feet off the port side. The waters of the upper bay and river carry heavy sediment, and the only indications of shoals usually are swirls or rips. On the ebb the waters of the upper bay are practically fresh, but they become brackish on the flood.

(269) From Clarks Point to the upper canneries, numerous mud and sandbars are exposed at low water in the central and west parts of the river. Shoal water in the middle of the river is extensive and restricts crossing during low water; nearly all navigation of this section is done on a rising or high tide. Navigation of this area should not be attempted by large vessels except on a rising tide and then only with local knowledge or with a local pilot. Local authorities state that the area is subject to change on the ice runoff each spring.

(270) Present traffic follows the east shore above Clarks Point, keeping about 1 mile off. The channel follows close along the edge of the east mudflats. The channel is 0.8 mile offshore at the north end of Combine Flats and 0.5 mile off at Nushagak Point. One mile north of Nushagak Point, vessels cross over and pass 0.3 mile off Bradford Point, then follow the west shore at this distance to the anchorage off Dillingham. Traffic generally starts upriver on half-flood tide.

(271)

Repairs

(272) The large tides and the flats make it easy to beach a vessel of drafts up to about 18 feet.

(273)

Communications

(274) The Northland Services and Alaska Logistics Marine Lines makes several trips a year into the Nushagak Bay area, the earliest about May 15 and the latest about September 15, depending upon ice conditions. Commercial airlines serve the area. Dog teams are used to some extent by natives and trappers during the winter, and small boats are used for local travel during the summer. Tankers and barges bring in diesel oil, gasoline, lubricating oil and fuel oil. All canneries and their tenders are equipped with radiotelephone, and radio traffic can be handled through the cannery shore stations during the season. Radiotelephones are maintained by cannery caretakers during the winter.

(275)

Kulukak Bay to Cape Peirce

(276) The area between Cape Constantine and Cape Newenham (58°40'N., 162°10'W.) is unsurveyed, and there are indications that the present charts are considerably in error. Vessels setting a course from outside Ustiugof Shoal (58°17.0'N., 158°39.0'W.) to pass about 2 miles off Cape Peirce (58°38.0'N., 161°45.0'W.) in thick but otherwise moderate weather have reported making Hagemeister Island dead ahead. This undoubtedly is because of a north set in this vicinity. In the thick weather which prevails in this locality safety is assured only by constant sounding.

(277) **Kulukak Bay**, entered between **Kulukak Point**, 38 miles northwest of Cape Constantine, and Right Hand Point, about 9 miles west-southwest, is shoal; there is a depth of 3 fathoms just inside the entrance and the north half dries at low water. The buildings of an abandoned native village are above the bluff at the northwest corner of the bay.

(278) **Togiak National Wildlife Refuge** includes Kulukak Bay and is a Marine Protected Area.

(279)

Pilotage, Kulukak Point

(280) Pilotage, except for certain exempted vessels, is compulsory for all vessels navigating the waters of the State of Alaska.

(281) The Bering Sea is served by the Alaska Marine Pilots. (See **Pilotage, General** (indexed), chapter 3, for the pilot pickup stations and other details.)

(282) **Right Hand Point** is the south extremity of a mountainous peninsula that separates Kulukak Bay from Togiak Bay.

(283) **Walrus Islands**, consisting of three islands and three above-water rocks, are in the approach to Togiak Bay. Several shoals of 3 fathoms or less are between the islands as well as south of the group. Shoaling is rapid after reaching a depth of 3 fathoms, requiring continuous sounding while navigating these waters. Thick weather is frequent in this area, and often the higher islands are fog capped when the weather is otherwise clear. The land areas and adjacent waters of Round Island, Crooked Island, High Island, Summit Island, The Twins and Black Rock are established as the **Walrus Islands State Game Sanctuary**.

(284) **Round Island**, the easternmost of the group, is 1,410 feet high and is about 10 miles south-southwest of Right Hand Point. Access within 3 nautical miles of Round Island is prohibited without a permit from the Alaska Department of Fish and Game. The west side of the island is precipitous and bare in the lower elevations. Narrow beaches with cliffs or steep slopes above outline the entire island. To the north, the island terminates in a distinct pinnacle rock. A reef, bare in places and consisting of sand and smooth boulders, extends about 1.3 miles northwest of the pinnacle rock.

(285) Round Island is an important resting place (haulout) for Pacific walruses, the endangered western population of Steller sea lions, and a nesting area for many seabirds. Pacific walruses are present from April through October; Steller sea lions present year-round and nesting seabirds from April through August. Walruses are extremely sensitive to unexpected or unfamiliar sights, smells and sounds and can be easily startled, in some cases causing deadly stampedes. Sea lions are also sensitive to unfamiliar stimuli and can abandon their haulout if disturbed. Operating a watercraft in a manner which results in disturbing, harassing, herding, hazing or driving of marine mammals is prohibited under provisions of the Marine Mammal Protection Act. Operation of a vessel within 3 nautical miles of Round Island without a permit is a violation of Alaska State law. In an effort to prevent disturbance to walruses and sea lions, marine vessel operators should refrain from entering within 3 nautical miles of Round Island without first receiving authorization from the Alaska Department of Fish and Game, Division of Wildlife Conservation. For coordinates of Walrus Islands State Game Sanctuary boundaries refer to: www.adfg.alaska.gov/index.cfm?adfg=maps.refugeboundaries&disclaimer=read

(286) Indifferent anchorage may be found about 1 mile northeast of the island in about 11 fathoms, hard sand bottom.

(287) **Crooked Island**, 1,254 feet high, is 9 miles west-northwest of Round Island; it is almost entirely covered by tundra. There are large coves on both the southwest and east sides of the island. These coves have been reported to be shoal, the 3-fathom curve extending about 2 miles offshore on the west side of the island. About 0.5 mile off the east side of the island just south of the large cove, anchorage with protection from west to southwest winds and good holding ground can be found. A bank, covered 2 fathoms or less, is about 1.5 miles off the northwest side of the island. Shoal extends the full length of the west side of the island.

(288) **High Island**, the westernmost of the Walrus group, is 1,716 feet high and is 2 miles west of Crooked Island; this island is steep-to on its east and west sides, with a few strips of sand beach.

(289) **The Twins** are two isolated rocks 3 miles south of Crooked Island. The larger is 300 feet high; the lower and southwest of the two is 100 feet high.

(290) **Black Rock**, 131 feet high, is 3 miles east of the north part of Crooked Island. From the air the rock appears to be an upthrust on a submerged ridge, the axis of which parallels that of Crooked Island. Black Rock, the southeast tangent of Crooked Island, and the Twins are very nearly on range.

(291) **Summit Island**, 801 feet and 505 feet high near the south and north ends, respectively, is 8.5 miles west-northwest of Right Hand Point and 2 miles from the east shore of Togiak Bay. Good anchorage, in 5 to 6 fathoms and sheltered from southwest weather, may be had in a bight about 0.5 mile off the middle of the northeast side of the island in 5 to 6 fathoms, sand bottom.

(292) **Togiak Bay**, north of the Walrus Islands, and about midway between Cape Constantine and Cape Newenham, is shoal; the head of the bay uncovers to the south for 3 to 4 miles. A submerged ledge and rock extend 0.2 and 0.5 mile, respectively, from **Rocky Point** at the east entrance of the bay.

(293) **Togiak** is near the head of the bay. The waters off Togiak are shallow and not navigable during low water. Good anchorage can be had for deeper draft vessels on the east side of the bay about 1 mile off **Anchor Point** in 5 to 6 fathoms of water, sand bottom.

(294)

Pilotage, Togiak

(295) Pilotage, except for certain exempted vessels, is compulsory for all vessels navigating the waters of the State of Alaska.

(296) The Bering Sea is served by the Alaska Marine Pilots. (See **Pilotage, General** (indexed), chapter 3, for the pilot pickup stations and other details.)

(297) **Hagemeister Island**, 10 miles west of High Island, is mountainous except for about 5 miles at the north end. Shoals surround the island and extend east 20 to 25 miles, including the area between Hagemeister Island and the Walrus group.

(298) Shoals and sand waves with depths less than 2 fathoms extend east and southeast from the northern half of Hagemeister Island in the direction of High Island. Ice has been observed grounded there. Foul ground is also reported as extending north of the north point of the island.

(299) Hagemeister Island is an important resting area (haulout) for Pacific walruses. Walruses have mainly been observed hauled out on the Southwest coast of the Island from May to September. Walruses are extremely sensitive to unexpected or unfamiliar sights, smells and sounds and can easily be startled, in some cases causing deadly stampedes. Operating a boat in a manner which results in disturbing, harassing, herding, hazing or driving of walruses is prohibited under provisions of the Marine Mammal Protection Act. In an effort to prevent disturbance to walruses, marine vessel operators are requested to observe the following guidelines:

(300) Vessels less than 50 feet in length should remain at least 0.5 nautical mile away from a walrus haulout.

(301) Vessels 50 feet or more but less than 100 feet in length should remain at least 1 nautical mile away from a walrus haulout.

(302) Vessels 100 feet or more in length should remain at least 3 nautical miles away from a walrus haulout.

(303) All vessels should refrain from anchoring or conducting tendering or fishing operations within 3 nautical miles of a walrus haulout.

(304)

Currents

(305) Current observations were made in June 1948 for a period of about 10 hours, about 8 miles southwest of Hagemeister Island. The current sets approximately 335° and 165° with velocities at strength of about 0.8 knot and 1.5 knots, respectively. In 1985, the NOAA Ship RAINIER anchored 3 miles off the southeast corner of Hagemeister Island observed currents flooding 070° and ebbing 240° at velocities up to 4 knots.

(306) **Hagemeister Strait** is about 16 miles long between the island of that name and the mainland. It is 3 to 4 miles wide, but shingle spits contract it in two places to less than 2 miles. Good anchorage was found under **Tongue Point**, the shingle spit making out from the mainland about midway of the channel. Good anchorage can be found throughout the strait avoiding the shoal areas northeast of Hagemeister Spit. In 1991 NOAA Ship RAINIER observed currents of 0.5 to 1.5 knots flooding **060°** and ebbing **220°** near Estus Point. Currents are significantly stronger near the western end of Hagenmeister Spit causing tide rips in the area. Strong currents and an unstable bottom result in shifting sand waves throughout the strait and its approaches. Shoal areas that lie directly south of the spits on both sides of the strait cause waves to break at times of heavy swell.

(307) The **Osviak River** empties into the strait about 13 miles west of Tongue Point. In 1991, NOAA Ship RAINIER reported an average river depth of 1.3 feet and that many portions of the river bare at low stages of tide. The channel runs approximately mid-stream. The river is navigable in this channel for two miles upstream of the entrance by shallow draft vessels when the tide is 5.3 feet or greater. The abandoned native village of **Osviak** is on the west bank of the river about 3 miles from the mouth.

(308) **Cape Peirce** (58°38.0'N., 161°45.0'W.), of moderate height and symmetrical form, is 22 miles west of the south end of Hagemeister Island and 15 miles southeast of Cape Newenham. A shoal area with rolling sand waves and depths of 1.5 to 6 fathoms extends 2.5 miles west from the cape. Depths of 15 fathoms, about 7 miles west-southwest of the cape, were found outside the charted 20-fathom curve. Depths of 10 fathoms are found 2 miles south of the cape, and good anchorage in 10 fathoms is found inside **Shaiak Island**, just east of the cape. There are reports of good anchorage, sheltered from north weather, in the bight northwest of Cape Peirce. To make the anchorage from east, give Cape Peirce a berth of about 3 miles and steer **009°** for the junction of the northwest end of the sand beach with the rocky shores; select anchorage at will off the sand beach. The approaches from west are clear except for the above-mentioned shoal.

(309) Cape Peirce and Nanvak Bay provide a nesting area (rookery) for many seabirds, and important resting areas (haulouts) for spotted seals, harbor seals, and Pacific walruses. Vessels should transit the area with caution to avoid disturbing any of these sensitive species. Disturbance to seabird rookeries can cause seabirds to flush off the cliffs, which can knock eggs off the cliff ledge or expose eggs and chicks to predation. Harbor and spotted seals haul out on sand bars along the inside channel of Nanvak Bay and about 1 km northeast of the channel. They are highly sensitive to unexpected stimuli and will readily abandon their haulout if disturbed. Harbor seal pups are born in Nanvak Bay in June through July; disturbing mother-pup pairs when pups are very young can disrupt bonding and result in abandonment of the pup. Walrus haulouts have been observed along the north side of the Cape from April through December. Walruses are extremely sensitive to unexpected or unfamiliar sights, smells and sounds and can easily be startled, in some cases causing deadly stampedes. Operating a boat in a manner which results in disturbing, harassing, herding, hazing or driving of marine mammals is prohibited under provisions of the Marine Mammal Protection Act. In an effort to prevent disturbance to walruses, marine vessel operators are requested to observe the following guidelines:

(310) Vessels less than 50 feet in length should remain at least 0.5 nautical mile away from a walrus haulout.

(311) Vessels 50 feet or more but less than 100 feet in length should remain at least 1 nautical mile away from a walrus haulout.

(312) Vessels 100 feet or more in length should remain at least 3 nautical miles away from a walrus haulout.

(313) All vessels should refrain from anchoring or conducting tendering or fishing operations within 3 nautical miles of a walrus haulout.

(314) Shaiak Island is densely populated with common mures, kittiwakes, and both tufted and horned puffins; it is considered an important nesting area for the common mures.

(315)

Kuskokwim Bay to Kanektok River

(316) **Kuskokwim Bay** opens into the Bering Sea north of the entrance to Bristol Bay. The bay, filled with many flats and hard steep-to shoals, is entered north of Cape Newenham.

(317) The channels through the bay are not always apparent by the surface indications of the water. At times the channels will be smooth with rips on the shoals, and at other times the reverse will be true. The edges of the channels are often marked by long lines of foam, but occasionally the foam extends across the channels; it is

well to approach these lines with caution. Navigation is recommended only at low water, when the mudflats are visible, enabling the channels between them to be followed. Because of the inequality of the tides, a vessel grounding at high water may not be refloated for several days.

(318) The 40-mile approach through **Eek Channel** to **Kuskokwim River** is a maze of shifting sandbars, both visible and covered, and blind channels. The channels in the bay and river undergo constant change from year to year, because of the action of the sea, currents and ice; extreme caution and continuous soundings are necessary.

(319) The procedure usually followed is for a small pilot boat from Goodnews Bay to precede the vessel through these waters, constantly feeling out the channels and sounding.

(320) During south storms a heavy sea makes up the bay nearly to Eek Island, at the head of the bay, and vessels caught on a shoal are in danger of breaking up.

(321) The channel through Kuskokwim Bay and up Kuskokwim River to the junction with Johnson River is marked by seasonal buoys. The deepest draft that should attempt to reach Bethel is about 15 feet.

(322) **Cape Newenham** is the landfall for this region and can be approached close-to with deep water. It is the end of a peninsula formed by a series of rough sawtoothed mountains. These mountains terminate in a level plateau that forms the immediate cape.

(323) There are rocky ledges that surround Cape Newenham; mariners should be aware of rocks in the area if navigating close to shore. A shoal area produced by sand waves has been observed to the north-northwest of Cape Newenham. These sand waves have been measured as high as 3 meters producing bottom depths as shoal as 4.5 meters approximately 1.5 miles north of the western most point of the cape. Evidence of frequent landslides is present between Cape Newenham and Cape Peirce, mariners are advised to be cautious as large boulders have been found in areas which otherwise exhibit a flat and featureless sea floor.

(324) Heavy seas, combined with tide rips and strong currents cause dangerously confused seas to occur off Cape Newenham. In the summer of 2019, NOAA ship *FAIRWEATHER* observed frequent and dramatic changes in fog and wind occurring in close proximity to Cape Newenham. Good anchorage can be had during heavy north winds in a small cove directly south of Jagged Mountain, 0.4 mile offshore in depths of 10 fathoms with sand and mud bottom.

(325) An aero radiobeacon (58°39'20"N., 162°04'31"W.) is shown from the north side about 3 miles east from the outer end of the cape. About 1.7 miles south of the aero radiobeacon is a radar dome.

(326) Cape Newenham is a nesting area for many seabirds and an important resting place (haulout) for Pacific walruses and the endangered western population of Steller sea lions. Pacific walrus haulouts have been observed on various pocket beaches and offshore rocks along both coasts of the Cape from May through December. Steller sea lions haul out year-round on the western-most tip of the Cape Newenham Peninsula and on adjacent beaches approximately 0.5 km southeast and northeast of the Cape. Walruses are extremely sensitive to unexpected or unfamiliar sights, smells and sounds and can easily be startled, in some cases causing deadly stampedes. Sea lions are also sensitive to unfamiliar stimuli and can abandon their haulout if disturbed. Operating a watercraft in a manner which results in disturbing, harassing, herding, hazing or driving of marine mammals is prohibited under provisions of the Marine Mammal Protection Act. In an effort to prevent disturbance to walruses and sea lions, marine vessel operators are requested to observe the following guidelines:

(327) Vessels less than 50 feet in length should remain at least 0.5 nautical mile away from a walrus or Steller sea lion haulout.

(328) Vessels 50 feet or more but less than 100 feet in length should remain at least 1 nautical mile away from a walrus or Steller sea lion haulout.

(329) Vessels 100 feet or more in length should remain at least 3 nautical miles away from a walrus or Steller sea lion haulout.

(330) All vessels should refrain from anchoring or conducting tendering or fishing operations within 3 nautical miles of a walrus or Steller sea lion haulout.

(331) Maintain a 1 nautical mile buffer from active walrus haulouts when loading or unloading barge cargo at Cape Newenham.

(332) **Jagged Mountain** is a well-defined peak, the highest of the Cape Newenham group. Viewed from north, its slopes appear jagged.

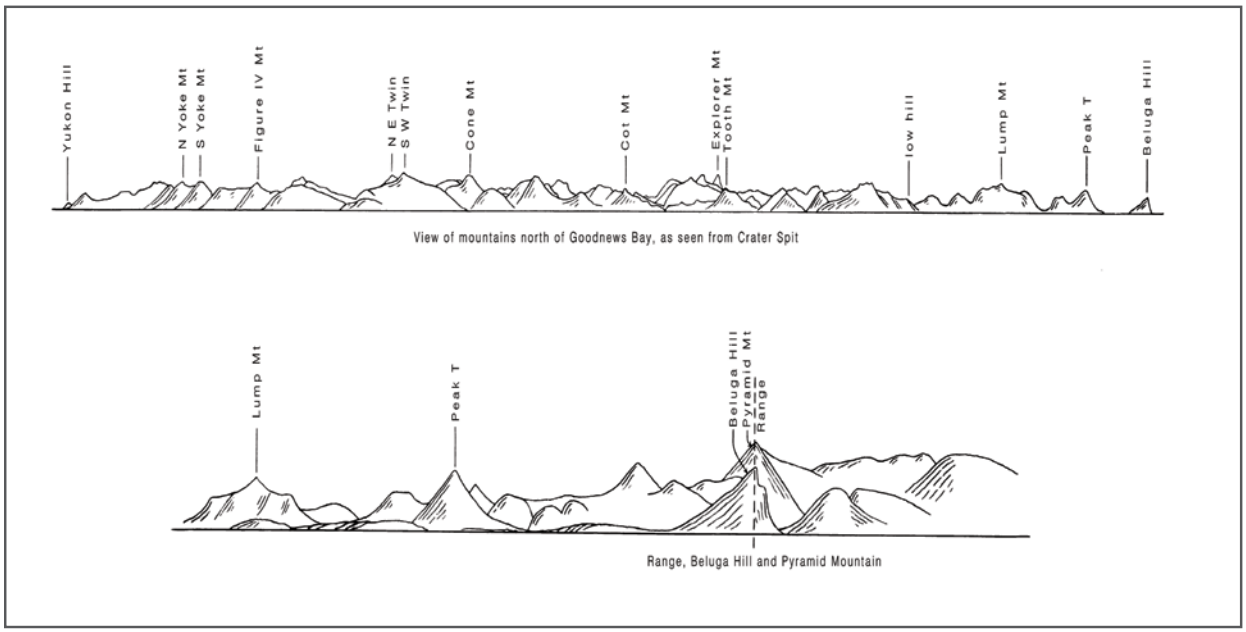
(333) **Security Cove**, 9 miles east-northeast of Cape Newenham, is a good anchorage except with northwest winds; the usual summer gales are southeast. The bottom is even and shoals gradually. The best anchorage in 3 fathoms, mud bottom, is about 0.8 mile northeast of Castle Rock and on the range of Castle Rock and the first promontory southwest. Water can be obtained from a stream that enters the cove. There is also good anchorage in 2 fathoms with good holding ground in the middle of the bight on the southwest side of Castle Rock. This anchorage is less affected by the ground swell making along the coast from Cape Newenham than the anchorage in Security Cove.

(334) **Castle Rock**, the southwest entrance point of Security Cove, is a small prominent headland, 260 feet high, joined to the land by a low neck. At the northeast entrance point of Security Cove is a conspicuous pinnacle rock, 169 feet high, covered with light tundra.

(335) **Chagvan Mountain**, between Security Cove and Chagvan Bay, is smooth shaped and terminates in two high rounded knobs.

(336) **Chagvan Bay** has a narrow shoal entrance. Inside it is very shoal and cut up by bars that are bare at low water.

(352)



(337) **Red Mountain**, just south of Goodnews Bay, is a reddish color and conspicuous. From north it appears as a long ridge with the highest part at its north end.

(338) **Goodnews Bay** is shoal except for a channel with depths ranging from 1¼ to 12 fathoms that leads through the entrance to a point about 1 mile inside. This channel affords good anchorage, either in the middle of the entrance or up to 0.8 mile inside the bay on a line approximately northeast of the south tangent of North Spit. Inside the entrance the strength of the tidal currents reaches a maximum of about 2.5 knots in a direction parallel to the axis of the channel. See the Tidal Current prediction service at *tidesandcurrents.noaa.gov* for specific information about times, directions, and velocities of the current at numerous locations throughout the area. Links to a user guide for this service can be found in chapter 1 of this book. Along the northeast shore of South Spit the ebb current is very strong, and during the flood an eddy sets north along this shore. The holding ground is good. Small craft can select from the chart a place that affords the best shelter. A restricted anchorage for small vessels is about 1 mile south of the south entrance point, but local knowledge is necessary for its use. The sea from the outside is broken by the shoals off the entrance and does not reach the anchorage. With south or east winds, tide rips dangerous for small craft occur in the channel. The spits at the entrance are shingle and steep-to.

(339) **Platinum**, at the inner end of the spit on the south side of the entrance of Goodnews Bay, is the headquarters of a mining company and of most of the commercial activity in this area. The village has semiweekly airmail service during the summer and weekly service during the winter; an airplane landing strip is here. Radiotelephone and radiotelegraph communications are maintained.

(340) Groceries, general supplies, petroleum products and water are available at Platinum. The small-boat basin just south of the oil-storage tanks on the northeast side of South Spit can be entered only at high water as the entrance bares at low water. A road leads from the village to the storage tanks and boat basin. The platinum mines are about 15 miles southeast of the village.

(341)

Pilotage, Goodnews Bay

(342) Pilotage, except for certain exempted vessels, is compulsory for all vessels navigating the waters of the State of Alaska.

(343) The Bering Sea is served by the Alaska Marine Pilots—see **Pilotage, General** (indexed), chapter 3, for the pilot pickup stations and other details.

(344) **Beluga Hill** is a prominent conical hill, 924 feet high, with a steep, rocky face that rises abruptly from the north side of Goodnews Bay. Although lower than the mountains behind it, the hill usually stands out prominently from all parts of Kuskokwim Bay.

(345) To enter Goodnews Bay from a point about 2.5 miles south by west of the entrance, stand in on the northeast-southwest range on course **037°** until the east-west range, nearing **090°30'**, closes; then steer **000°** for about 0.7 mile or until abeam of west tangent of the spit; then follow South Spit at a distance of 0.25 mile, and cross the entrance to the small-boat anchorage.

(346) To go to the anchorage in the north part of the bay, round North Spit at a distance of 300 yards and steer **312°** for the high bluffs on the west side of the bay. Hold this course for about 2 miles or until the east side of Beluga Hill is in range with the flat-topped mountain just back of Goodnews Bay village. Then head up to Beluga Hill and hold the range until up to the anchorage under the mountain.

(347) About 6 feet of water will be found here at low tide. In 1913 the survey ship YUKON was at anchor here during a north gale. There is no protection in south or

east weather. A stream enters the bay here. The bay has a good shingle beach.

(348) It should be noted that this route has not been surveyed, and there may be, in places, less than 6 feet of water at low tide. This route should be used with caution and only on a rising tide. Keep sounding constantly. On the bluffs at the foot of Beluga Hill is a cabin.

(349) The UNITED, drawing 16 feet, was taken into Goodnews Bay. Good anchorage is reported in 7 to 11 fathoms, 2 miles north-northeast from the bay entrance on line to Beluga Hill. This indicates that deep water can be carried farther into the bay in the main channel than is indicated on the chart.

(350) **Goodnews Bay (Goodnews)** is a small village with a school at the head of Goodnews Bay. The channel to the village is shallow and winding so that local knowledge is desirable,but can be followed by small boats at low water when the bars are visible.

(351) **Carter Spit** (59°19.0'N., 162°00.0'W.), on the east side of Kuskokwim Bay, is a low sandspit about 4.5 miles long and from 50 to 300 yards wide. Carter Spit encloses **Carter Bay**, which is a wide area of shoals and mudflats. Around the end of the sandspit a narrow channel is scoured out, affording anchorage for launches and small craft but without protection from north. A small stream, known as **Indian River**, flows into the east side of Carter Bay near two abandoned cabins formerly called **Carter**. Water can be obtained by boats from Indian River at high water.

(353) **Explorer Mountain** is the highest peak north of Goodnews Bay. From south it appears as a long ridge and is recognized by three deep gulleys on its side. From west it appears as a pyramid peak, the highest of the group.

(354) **Tooth Mountain**, a flat-topped mountain in the front range, has a sharp, rocky pinnacle on the north edge of its summit. It is easily recognized from the vicinity of Carter Spit.

(355) **Figure IV Mountain** is a sharp peak in the front range east of Jacksmith Bay. The deep ravines on the side of this mountain form a Roman numeral IV that is conspicuous from west when the ravines are filled with snow. In the latter part of the summer, the snow disappears from the ravines.

(356) **Cone Mountain** is a large conical mountain in the first range.

(357) **Yukon Hill** is low but is the north end of the front range paralleling the coast; it is visible from the entrance of Eek Channel. From west the hill is not distinguishable, as it has the receding range for a background.

(358) **Thumb Mountain** is a fairly sharp summit in the range that recedes from Jacksmith Bay. From off Quinhagak it resembles a huge thumb placed on a high flat mountain plateau. As Eek Island is approached, the mountain appears as a less distinctive ridge.

(359) **Jacksmith Bay**, the large indention 14 miles north of Carter Spit, is bare at low tide.

(360) **Quinhagak**, 66 miles north of Cape Newenham, is difficult to approach by water because of the great mudflats bordering its shores. Launches can enter the river here only at the highest tides, and even small craft can hardly get within sight of the village and remain afloat at low water. Supplies are landed with great difficulty because of the extensive flats and their exposure. Quinhagak has a Moravian mission, a store and a school. Radiotelegraph communications are maintained. A limited amount of supplies may be procured. The church steeple is sometimes visible from Eek Channel. **Kanektok River**, entering Kuskokwim Bay at Quinhagak, runs fine clear mountain water at all stages of the tide.

(361)

Warehouse Bluff to Eek Island

(362) **Warehouse Bluff**, a long dark-colored bluff about 11 miles northwest of Quinhagak, is an important landmark, as it is the first land on the east bank to be sighted when ascending Eek Channel. No objects on the west shore are visible until approaching the head of Eek Channel.

(363) **Warehouse Creek**, 2 miles above Warehouse Bluff, is deep and can be approached through a long tortuous channel that can be followed by small craft when the mudflats are bare. Small craft may find shelter here. The greatest range of tide in the bay occurs in the vicinity of Warehouse Creek. Inside the creek there is just swinging room for a 75-foot vessel riding to 15 fathoms of chain.

(364) In the early days trading schooners ascended the bay only to Warehouse Creek. Natives and traders from various bay and river points assembled here to await the coming of the schooner. At one time some small warehouses were built here, but no trace of them now remains.

(365) **Kuskokwak Creek** flows into the east side of the bay 4 miles south of Beacon Point. It is approached through a short channel across the flats and affords a good shelter for launches and other small craft. Just inside the mouth of this creek is a depth of 4 fathoms.

(366) At **Cape Avinof**, on the west side of Kuskokwim Bay, the east shore of the Bering Sea turns northwest.

(367) **Kwigillingok** is a native village on the west side of the bay near the mouth of the Kwigillingok River. Seasonal, unlighted oil drums mark the river channel and its approaches, but pilotage or local knowledge is required due to constantly changing conditions. There are no piers or docks in the village so small boats tie off the bank or beach themselves. Pilotage can be arranged by contacting “MAMIE 2” or “Council office” on VHF-FM channel 1022 (previously channel 22A). Telephone, mail, fuel, groceries, outboard motor repair and a health clinic are available in the village.

(368) **Beacon Point**, 12 miles north of Warehouse Bluff, is flat and barely above storm high water. A line between Beacon Point and **Popokamiut**—a seasonal native fishing camp on the west shore opposite Beacon Point—is considered the dividing line between Kuskokwim River and Kuskokwim Bay. Much of the west shore of Kuskokwim Bay has not been surveyed.

(369) **Eek Island** is a grass-covered mudflat cut up by deep sloughs and is covered by the higher tides. The island is a feeding ground for many thousands of ducks and geese.

(370) **West Point** is a fishing camp on the west bank of the river just above Eek Island. The mudbank making out from West Point has extended itself considerably since the time of the survey.

(371) **Eek River** is a large tributary flowing into the Kuskokwim River on its east side just above Eek Island. It is navigable by launches for 15 to 20 miles. The river rises in the mountains about 60 miles distant; its waters are muddy and silt laden.

(372) **Eek**, on the east side of the Eek River about 8 miles by boat from its mouth, is a large Indian village with a general store and school. Daily radio schedules are maintained with Bethel. Limited supplies of gasoline and canned goods are available.

(373) **Bethel**, 65 miles up the Kuskokwim River, is considered the head of ocean navigation. From here river boats operate to points on the upper river.

(374) Bethel Small Boat Harbor has berthing space for approximately 100 vessels. In 2023, 2 feet was available in the access channel and 3.9 feet was available in the basin with shoaling near the boat ramps. An overhead power cable with a clearance of 35 feet crosses the access channel to the small boat harbor.

(375)

Weather, Bethel Vicinity

(376) The two main topographical features affecting Bethel's climate are (1) the Bering Sea, which is about 100 miles to the west and southwest; and (2) the Kilbuck Range of mountains, about 40 miles to the east and southeast. This range, averaging about 4,000 feet in height, extends roughly in a north-south direction in that part nearest to Bethel. Some 160 miles southeast of the Kilbuck Range, the Aleutians, extending in a northeast-southwest direction, provide an additional natural barrier to many of the storms originating on the outward end of the Aleutian Chain and moving out through the Gulf of Alaska. Both ranges tend to direct some of the storms northeast into the Bering Sea and thus directly affect the Bethel area. During invasions of such storms, it is not uncommon for wind velocities to exceed 43 knots. Gales occur during the winter months but are unheard of during the months of April through August. Maximum speeds usually accompany northeast winds in the winter and southeast winds in the summer. During the winter, strong south winds tend to be considerably affected by the mountains to the south, producing at times a pronounced foehn (chinook) effect. Temperatures have risen almost 50°F (28°C) in less than 24 hours under these conditions.

(377) Bethel's climate is somewhat more maritime than continental in character, which tends to modify daily temperature extremes during most of the year. However, there are usually two periods during the year when the area becomes affected by continental climatic influences. In June and July, temperatures in the area rise noticeably under the influence of warmer continental air. Around the latter part of December and early January, cold, clear continental air becomes quite dominant, and Bethel's climate becomes quite similar to other areas farther inland. Extremes of temperature registered during these periods of dominant continental type climate have ranged 134°F (74°C), from -48°F (-44.4°C) in January 1989 to 86°F (30°C) in July 1951 and again in June 1959. Average temperatures through the entire winter season, however, are considerably higher than those experienced in the Alaska interior, and temperatures for the entire summer season average considerably cooler than in the Alaska interior. The average annual temperature is 30°F (-1.1°C). The mean daily maximum in July is 62.4°F (16.9°C), while the mean daily minimum is 47.8°F (8.8°C). The coolest month, January, has a mean daily maximum of 12.7°F (-10.7°C) and a mean daily minimum of -0.6°F (-18.1°C). Annual precipitation averages nearly 17 inches (432 mm) and has ranged from 39.47 inches (1,002.5 mm) in 1951 to an annual minimum of 7.29 inches (185.2 mm) in 1976. August is usually the wettest month, with an average of slightly over 3 inches (76 mm) of precipitation. Thunderstorms are rare, the average being about two a year. The few thunderstorms that do occur are generally short in duration but rather severe. They usually develop and move out of the northeast during June and July. Snowfall averages about 53 inches (1,346 mm) a year and has fallen in every month but July and August. On average, 142 days in a year see snowfall.

(378) At Bethel there is a large Alaskan Native Health Service Hospital, a National Guard Armory and a Moravian mission and several churches, hotels and stores that are the distributors for the Kuskokwim district. Direct telephone communication, provisions, gasoline and fuel oil are available. A limited amount of coal is kept on hand.

(379) A large well-equipped airfield with a weather station and an FAA flight service station is 3 miles west of Bethel and is serviced by an all-weather road. Daily airmail and transportation services with Anchorage are maintained.

(380) Communication between Bethel and the numerous outlying villages is by floatplanes.

(381) Ocean vessels make several trips during the summer between Seattle and Bethel, transporting freight and equipment that are distributed from Bethel over a large area. A considerable amount is shipped upriver on barges and river steamers to the many native villages along the river.

(382) At **Aniak**, 125 miles from Bethel by river steamer, is an airfield. Limited supplies of gasoline, fuel oil and provisions are available. General stores and a hotel are in the village.

(383) Radiotelephone and radiotelegraph communications are maintained.

(384) **McGrath**, 400 miles above the mouth, is the head of navigation on the Kuskokwim River.

(385) Radiotelephone and radiotelegraph communications are maintained.

(386)

Routes

(387) Enter Kuskokwim Bay about 2 miles west of Cape Newenham and make good a **028°** course for about 6 miles until the cape bears **190°**; thence steer **010°** with Cape Newenham directly astern for about 18 miles until Beluga Hill bears **065°** and Red Mountain **121°**. From this position, steer **341°** for about 13 miles to a position 4 miles **256°** from the elbow of Carter Spit.

(388) In thick or hazy weather a route nearer the coast may be taken as follows: Pass 0.5 mile off Cape Newenham and Bird Rock and then make good a **070°** course for about 6.5 miles until Castle Rock, the southwest headland of Security Cove, bears **177°**. Strong tidal currents occur along the north shore of Cape Newenham. From here steer **357°** with Castle Rock astern for 14 miles until the summit of Red Mountain is abeam, thence **341°** for 19.5 miles to a position 4 miles **256°** from the elbow of Carter Spit.

(389) Next steer **302°** for 5.5 miles with Beluga Hill in range with Pyramid Mountain astern, then head up the channel on a **006°** course.

(390) Vessels should arrange to make this point at the last of the ebb and go up the channel with the flood. After heading on the **006°** course, the long shoal on the east side of the channel should be made out, either heaping or breaking. It is only with a very smooth sea that this shoal is not in evidence at low water. After continuing on this course for about 10 miles, the long shoal on the west side of the channel should be made out, either heaping or breaking. This shoal should be followed at a distance of about 1 mile until its north extremity is reached. Here it becomes a mudflat, bare at about half tide, of a yellowish color with deep water close-to. This flat is the leading mark for entering Eek Channel; therefore it should always be made at low water.

(391) From here, the track veers northwest and follows the flats on the west side of the channel on a course of about **000°** for some 13 miles.

(392) It is reported that extensive changes have taken place north of 59°36'N. The chart is no longer a sufficient guide with respect to the channels.

(393) Navigation in this region is difficult—a pilot should be employed. The preferred route into Kuskokwim River is marked by seasonal buoys. There are no landmarks visible in the area.

(394)

Pilotage, Bethel

(395) Pilotage, except for certain exempted vessels, is compulsory for all vessels navigating the waters of the State of Alaska. (See **Pilotage, General** (indexed), chapter 3, for the pilot pickup stations and other details.)

(396) **East side of Eek Island.**–The channel along the north side of Eek Island, once used by power schooners, has shoaled until it is now bare at low water and is used only by small fishing boats. Small vessels now go as far as Apokak Creek. From Beacon Point the channel follows the east bank of the river.

(397) **Passage West of Eek Island**: Once in the west channel, follow the west bank of the river southwest of Eek Island for 4 miles. The course then bears out into the river towards Eek Island. From here the channel crosses to the east bank and continues to Bethel, crossing back and forth many times. There are no leading marks, and at some of the crossings it is necessary to wait for high water. A pilot is necessary.

(398) In 1994, the Coast Guard Cutter IRONWOOD reported good anchorage can be made just off Popokamiut, on the west side of the mouth of the river, in hard mud bottom.

(399) Vessels coming downriver stand out to sea from abreast of Carter Spit. In entering, this track is not used because of the possibility of running up a blind channel.

(400)

Currents

(401) The currents of Kuskokwim Bay and River are strong, attaining velocities of 5 knots at times. A strong tidal current sweeps past Cape Newenham, setting approximately north and south. Along the north side of the cape, tidal currents of about 1 knot have been observed setting northeast and southeast. In general, the currents set in directions parallel to the axes of the channels between the shoals. Cross currents have been observed in the shoal area approximately 1 mile north of Cape Newenham setting west at 1 to 2 knots; 2 to 3 foot waves have been observed in this same area from the south producing less than ideal conditions for navigation. The strongest of the currents appear to run approximately 0.5 to 1 mile offshore. These currents are observed to have the most force in the early morning hours and reduce in velocity in the afternoon. In the channel leading to Goodnews Bay, about 1 mile from the north end of South Spit, flood and ebb each has a velocity of about 2.5 knots, setting northeast and southwest, respectively. In the deep channels off Jacksmith Bay the flood current has a velocity usually of about 2 to 2.5 knots at strength, and the ebb from 2.5 to 3 knots. In the vicinity of Apokak Creek, the strongest current observed was 3.5 knots. The flood current is felt only about as far as Bethel.

(402) By arriving at the entrance to Eek Channel on the last of the ebb, a favorable current can be carried nearly to Bethel, providing there are no delays.

(403) See the Tidal Current prediction service at *tidesandcurrents.noaa.gov* for specific information about times, directions, and velocities of the current at numerous locations throughout the area, including Kuskokwin Bay and River. Links to a user guide for this service can be found in chapter 1 of this book. Variations from the predicted times and velocities, because of freshets and winds, may be expected.

(404)

Weather, Eek Island Vicinity

(405) The best weather usually occurs in March and April. During the summer, southeast to southwest gales are frequent and last from 2 to 5 days. These storms gradually blow themselves out and are generally followed by a few days of good weather. In the early fall, north winds are frequent and are usually accompanied by clear skies. After mid-September, strong gales become frequent and prolonged.

(406) Water can be obtained from small streams in Security Cove, Goodnews Bay and Carter Bay. In the vicinity of Eek Island, the river water is fresh at all stages of the tide; it is very muddy, but the silt settles readily.

(407)

Pribilof Islands

(408) The **Pribilof Islands**, in the Bering Sea about 200 miles northwest of Unimak Pass, consist of St. Paul, St. George, Otter and Walrus Islands; the latter two are small and uninhabited. St. Paul and St. George have the largest and most numerous fur seal rookeries in the world. The group is under the jurisdiction of the National Marine Fisheries Service and is patrolled during the sealing season by vessels of the U.S. Coast Guard, under provisions of the international treaty governing sealing. From June 1 to October 15, the fur seal breeding and birthing season, landing is forbidden at the rookeries in the vicinity of English Bay, Reef Point, Lukanin Point, Polovina Point and Northeast Point on St. Paul Island. Home to over 300 species of birds, these rocky islands are an important breeding, overwintering, resting, and refueling location for migratory and indigenous birds. Walrus and Otter Islands are bird reservations, and landing is prohibited at all times unless a permit is obtained from the National Marine Fisheries Service. (See **50 CFR 216.81** through **216.87**, chapter 2, for regulations.)

(409) Radiotelephone and radiotelegraph services are maintained on St. Paul Island and St. George Island. In addition, interisland radio and satellite communications are maintained.

(410) A supply vessel makes several trips a year between Seattle and the Pribilof Islands (St. George and St. Paul).

(411) Safe anchorage is always available on the leeward side of the islands. Residents of St. Paul Island say that the prevailing wind during the summer is from the northeast, which makes Village Cove on St. Paul Island a good anchorage in all but severe southwest winds. The bottom in Village Cove is black sand, and the holding ground is good. During southwest winds, good anchorage is available in Lukanin Bay on the southeast side of St. Paul Island.

(412)

Weather, Pribilof Island Vicinity

(413) Fogs are especially thick and prevalent in this vicinity in the summer, making navigation difficult and dangerous. Should a navigator plan to make landfalls in the Pribilof Islands during the summer, they should expect no land to be visible. One annoying characteristic of the area is very thick fog accompanying strong winds. Logs from survey vessels indicate that a typical summer day in the Pribilof Islands is as follows: Dense fog at daylight, vessels anchored 200 yards distant not visible, calm sea, light airs; by noon intermittent sun, a wet drifting fog, gentle breeze; by evening a dense fog, winds increased to force 6. Dense fog with visibility less than 0.5 mile is more common around St. Paul Island than around St. George Island. An unusual characteristic off North Anchorage, St. George Island, was clear visibility along the shore accompanied by dense curtainlike fog to seaward.

(414) Winds do not continue to blow from the same quarter for any length of time. Between December and April, northeasterly winds are the most common. After September 1, gales are frequent and violent, and blow from all directions.

(415)

Ice

(416) The Pribilofs are near the south limit of the ice in Bering Sea. On rare occasions the icefields extend as far as 35 miles south of St. George Island. In 7 years of National Weather Service ice records at St. Paul Island, no sea ice at all was reported in 3 years. In the other 4 years, navigation remained easy throughout 1 year and became restricted to full-powered vessels for short periods in March and April of 3 years; at no time did navigation become suspended or require the use of an icebreaker.

(417) In 1974, a pinnacle was reported 68 miles west-northwest of St. Paul Island in 57°39.2'N., 173°24.0'W. Depth of water over the pinnacle is not known.

(418)

St. George Island

(419) **St. George Island**, the southernmost of the Pribilof Islands, consists mainly of high volcanic hills and ridges, and its entire coast is a precipitous cliff except for a few miles on the north side and short intervals at Garden Cove and Zapadni Bay. The east and west extremities of the island, **Tolstoi Point** and **Dalnoi Point**, are bold promontories. The aptly named **High Bluffs**, on the north side of the island, is a prominent landmark. At 1,012 feet high, it is visible from St. Paul Island, a distance of nearly 40 miles, on a clear day. St. George Island is home to over 210 species of birds who use the island to nest.

(420) **St. George Harbor**, on the southeast side of Zapadni Bay, is the only harbor on St. George Island. The channel is dredged and in 2013 had a controlling depth of 13 feet. The entrance is protected by breakwaters and marked by a **076.4°** lighted range and a daybeacon. The north breakwater is marked by a light. There are two docks on the east side of the basin; north dock is 60 feet and south dock is 75 feet, both with 19 feet alongside and staging areas. An additional 250 feet of moorage

is provided by dolphins on the west side with 22 feet alongside. The harbormaster assigns berths (telephone 907-859-2263) and monitors VHF-FM channels 16 and 12. Water, sewage pumpout, a boat ramp, and marine supplies are available. The harbor is owned and operated by the village of St. George. Generally, at 2 miles or less from the island, the water depth is consistent with that of the surrounding sea. In thick weather, charted soundings should not be relied upon for safe navigation unless sure of position due to numerous shoals when approaching shore. When steering the range, expect depths of less than 12 fathoms on approach.

(421) Anchorage can be had at North Anchorage, Garden Cove, and Zapadni Bay, according to the direction of the wind; the anchorages are poor except with the wind directly off the land. The anchorage in **Zapadni Bay**, on the southwest side of the island, in 10 fathoms, affords shelter with winds from east-northeast to north-northwest; a reef extends about 0.2 mile offshore south of the anchorage. There is a rock awash 0.6 mile northeast of East Landing and small reefs at Zapadni Bay and North Anchorage. A rocky shoal, covered 1¾ fathoms, is 9.3 miles 078° from Tolstoi Point.

(422) With north winds, a landing may sometimes be made at **Garden Cove** south of Tolstoi Point, on the sand beach. The anchorage affords shelter from northwest winds, but with the exception of a small area the bottom is rocky.

(423)

Currents

(424) In the open water, the tidal current is rotary, turning clockwise. Along the north and south shores of the island the current in general sets east on the flood and west on the ebb. The largest velocity observed over a period of about 6 days in July and August was about 1.5 knots. With opposing wind and current, tide rips occur off Tolstoi and Dalnoi Points. These rips are not heavy enough to be of consequence, except that to strangers they appear to be breakers. Safe clearance can be afforded outside of 1 mile off Tolstoi Point and 0.5 miles off Dalnoi Point.

(425) The approach to **North Anchorage** is marked by a private marker about 0.5 mile north of St. George. The most prominent landmarks in the village of **St. George** are the white roofs of the quadrangle of sheds, low down at the water's edge. Also conspicuous is a tight group of buildings on the slope and ridge back from the beach. Most easily identified is the Russian Orthodox church whose bell tower has a green, onion-shaped roof topped by a white St. Andrew's cross. Pending good visibility, shore lights from town are readily apparent at night.

(426) Vessels should keep the street that extends through the village bearing **164°**. Good anchorage will be found about 700 yards from the landing. There is swinging room for a 400-foot vessel riding to 45 fathoms of chain.

(427) The landing is a square block of reinforced concrete next to a cutting in the rocks. The area around the landing and for about 75 feet to seaward practically bares at extreme low water. The landing can be used by small shallow-draft boats 3 hours on either side of high water. A launching ramp is at North Anchorage, although it is not maintained and suffers from numerous structural and navigational hazards.

(428) **East Landing**, just northeast of the village, is better protected from a west swell. A ledge awash is a short distance off the landing. If desired, a boat will come out to anchored vessels when landing is practicable.

(429)

Local magnetic disturbance

(430) Differences of as much as 11° from the normal variation have been observed on St. George Island.

(431)

Pilotage, St. George

(432) Pilotage, except for certain exempted vessels, is compulsory for all vessels navigating the waters of the State of Alaska.

(433) The Bering Sea is served by the Alaska Marine Pilots. (See **Pilotage, General** (indexed), chapter 3, for the pilot pickup stations and other details.)

(434) The Aleutian Pribilof Islands Association (APIA) maintains a designated HRSA Community Health Center in the village of St. George.

(435)

Communications

(436) St. George Airport provides air services multiple times a week, weather permitting. The majority of freight and supplies are delivered by ship from Anchorage, AK on a monthly or bimonthly schedule. Cargo from Seattle, WA arrives five or six times a year.

(437)

Otter Island to St. Paul Island

(438) **Otter Island**, off the south side of St. Paul Island, has an abrupt bluff 288 feet high at its southwest end, slopes gradually to the north and rises again in a crater, about 141 feet high, at its extreme east end. Foul ground, marked by kelp, extends about 0.8 mile from the island on its south, southwest and north sides. The north side, from **Crater Point** to **Northwest Reef**, is clear of dangers. Probably the best anchorage near the island is in 9½ fathoms, black sand and broken shells, with the northeast extremity of Crater Point bearing **185°**, distant 0.5 mile. This island must be approached with great caution in thick weather, and at all times a vessel should keep out of kelp. A 6-fathom shoal is 2.1 miles east-northeast of Otter Island.

(439) Between Otter Island and Reef Point, St. Paul Island, the tidal currents are strong, and with heavy winds the tide rips are dangerous especially on the ebb current. In 1976, the NOAA Ship SURVEYOR observed currents setting northwest at about 2.5 knots about 2.1 miles southwest of the southwest end of Otter Island.

(440) **Walrus Island**, off the east side of St. Paul Island, is low, about 39 feet high, level on top, and composed of irregular masses of volcanic rock. It is very hard to

pick up in thick weather. It is about 0.4 mile long and 0.1 mile wide. Anchorage in emergency situations can be had on either side of it, 0.3 to 0.5 mile offshore, in 10 to 15 fathoms. Landing can be made with smooth water, the best place being a small cove at the southwest corner. The island is a bad place to make in a fog. Parts of Otter and Walrus Islands are covered with sea birds in the breeding season.

(441) Walrus Island is a Steller sea lion rookery site. There is a 3-mile vessel exclusionary zone around the entire island. (See **50 CFR 224.103**, chapter 2, for limits and regulations.)

(442)

Currents

(443) Current observations made in July and August west of Walrus Island show that the current is rotary turning clockwise, with velocities exceeding 2 knots at times.

(444) **St. Paul Island**, the northernmost of the Pribilof Islands, is about 235 miles northwest from Unimak Pass. The west and southwest parts of St. Paul Island are high and mountainous, with precipitous cliffs at the coast. The rest of the island is a comparatively low, rolling plateau, with a number of extinct volcanic peaks scattered over its surface. **Bogoslof Hill**, 590 feet high, a conical crater near the center of the island, and **Polovina Hill**, double-peaked and 470 feet high, near the east end, are conspicuous and the best landmarks in clear weather when coming from south. From this latter hill the island stretches away in a low, narrow neck to **Hutchinson Hill**, about 100 feet high, on **Northeast Point**. West of **Lukanin Bay** the coast of the south side of the island is rocky, with bluffs at the points. The shore of the rest of the island is generally a sand beach, with rocks in the vicinities of the seal rookeries. A tall loran tower is about 2.2 miles north-northeast of the village of St. Paul, and an aerolight is about 1.1 miles east of the tower.

(445) A rocky ledge covered 2.4 fathoms with no visible kelp is 5 miles northeast of Northeast Point. Kelp-marked reefs extend about 0.4 mile southeast from the two low points south of Northeast Point. A dangerous ledge with two rocks covered 1.4 fathoms is 1.1 miles north of Hutchinson Hill. With a moderate swell the sea breaks over these rocks.

(446) On the north side of St. Paul Island, depths of 5 fathoms or more are 1 mile offshore.

(447) A shoal covered 2 fathoms is 7.5 miles west of St. Paul Island.

(448) Breakers extend 0.3 mile or more off **Southwest Point**.

(449) A dangerous ledge, usually marked by breakers, extends 0.6 mile southwest and south from **Reef Point**, the south point of the island.

(450) **Sea Lion Rock**, about 0.3 mile south of Reef Point, is prominent when approaching the point from an east or west direction.

(451) A reef extends about 0.3 mile off **Stony Point**, the northeast point of Lukanin Bay.

(452)

Pilotage, St. Paul

(453) Pilotage, except for certain exempted vessels, is compulsory for all vessels navigating the waters of the State of Alaska.

(454) The Bering Sea is served by the Alaska Marine Pilots. (See **Pilotage, General** (indexed), chapter 3, for the pilot pickup stations and other details.)

(455)

Anchorages

(456) The usual anchorage at St. Paul Island is west of Village Cove between Zapadni Point and Reef Point in the vicinity of the 10-fathom curve. The bottom, in general, is sandy, but rocky bottom will be found in the vicinity of Zapadni Point and Tolstoi Point. Anchorage can be found northeast from Reef Point, off **Black Bluffs** and East Landing, and in Lukanin Bay.

(457) Lukanin Bay has a sandy bottom and is used when west swells make the Village Cove anchorage undesirable. From the Village Cove anchorage the village of St. Paul is obscured by a bluff although it is in full view from the Black Bluffs anchorage.

(458) In the spring (April-May) as the ice edge moves north, the winds can radically change its configuration. Vessels anchoring in Village Cove or other areas around the Pribilof Islands should maintain a careful ice watch so as not to become entrapped.

(459) Vessels should not attempt to ride out a gale at anchor near the islands, unless to leeward and well sheltered. The surf is apt to make quickly and is dangerous on the weather side of the island.

(460) Prominent in the approach to the anchorage off **Village Cove** are the three large steel tanks on a bluff just west of the village. Also on the bluff, just to the north, are eight smaller white tanks. Vessels should steer **082°** for the center of the three large steel tanks and anchor in about 8 fathoms with Reef Point and the center of Sea Lion Rock in range.

(461) **Zapadni Point, Tolstoi Point**, and **Reef Point** 2.5 miles west-northwest, 0.6 mile northwest, and 1 mile southwest of Village Cove, respectively, are the best radar targets in the area at a range of 5 to 7 miles.

(462) In 1993, an obstruction with an unknown depth was reported 0.7 mile southeast of Zapadni Point in about 57°08'12N., 170°19'54W.

(463) Village Cove serves as a refuge for the fishing fleet of the Bering Sea and is protected by breakwaters marked by lights. There are three main docks in the harbor with depths of 9.5 to 23 feet alongside and deck heights of 11 feet. The small boat float has a depth of 15 feet alongside. Caution should be used when approaching the harbor as heavy swells may still break near the entrance.

(464) The harbormaster can be reached on VHF-FM channel 16, except on weekends and after normal business hours. At these times communications are routed through the Public Safety Office on VHF-FM channel 16.

(465) **St. Paul**, about midway along a peninsula extending from the south side of St. Paul Island, has small wooden bright-colored homes with dark-colored roofs, a church, hotel, a small hospital, several large buildings, and a machine shop with limited facilities. The hospital patients requiring surgery are transferred to Anchorage by jet medevac.

(466) A commercial airline provides weekly mail and passenger service to and from Anchorage via Cold Bay or Dutch Harbor when weather permits. A weather station is on St. Paul Island. The weather station monitors CB channel 9.

(467) Landing is forbidden at the fur seal rookeries on St. Paul Island during the breeding season, June 1 to October 15.

(468)

Weather, St. Paul Vicinity

(469) The climate is typically maritime, resulting in considerable cloudiness, heavy fog, high humidity, and rather well-restricted daily temperature ranges. Humidity remains uniformly high from May to late September, and during the summer period there is almost continuous low cloudiness and occasional heavy fog. June, July, and August are the foggiest months. On average, 205 days in a year have fog reported. The differences between average maximum and minimum temperatures for the entire year are only slightly above 8°F (4°C). Temperatures remain on the cool side even during the summer, and the highest temperature on record is 66°F (18.9°C) from August 2020. Extreme highs in summertime usually range around the middle fifties (12° to 14°C). Although record low readings fall well below the zero mark (<-18°C) and each month from December through April have seen below-zero (<-18°C) readings, such extremely cold days are rather rare. On the average, only 5 days each winter season have temperatures falling below the zero mark (<-18°C). The lowest temperature on record is -19°F (-28.3°C) in March 1971.

(470) Despite an environment of high humidity and days with precipitation numbering 320 for a given year, precipitation on St. Paul Island is surprisingly light. The annual average is slightly below 24 inches (610 mm), which is just below the average for Alaska as a whole. The greatest 24-hour precipitation on record fell slightly short of 2 inches (51 mm, October 1949). The wettest year on record, 1964, had 36.60 inches (929.6 mm) of precipitation and the driest year, 1977, saw only 9.82 inches (249.4 mm) for the year. April is generally the driest month, with a gradual increase of precipitation, until a mean monthly total of over 3 inches (76 mm) is reached during August and slightly below for September and October. This is followed by a gradual decrease during the succeeding months until the return of April. On average, 165 days per year record snowfall averaging about 56 inches (1422 mm) in a year. March is the snowiest month, averaging ten inches (254 mm) and 25 days with snow during the month. Only July and August have been snow free. Thunderstorms are extremely rare on St. Paul Island. The only isolated occurrence ever reported was in June 1939.

(471) Frequent windy periods are characteristic of the island area throughout the year. Frequent storms occur from October to April, and these often are accompanied by gale force winds to produce general blizzard conditions. The mean wind speed for the Weather Service Office is 14 knots, but the winter months average nearly 17 knots. Gales have occurred during every month except June and July. Under the influence of prolonged north and northeast winds between January and April, the ice pack occasionally moves south to surround the island. During recent years, the south limit of this movement has been between St. Paul and St. George Islands, some 40 miles (74 km) to the southeast of St. Paul.

(472)

Currents

(473) Around St. Paul, the current flows in a generally clockwise direction, following the trend of the shore. The greatest velocity occurs at Northeast Point and between Reef Point and Otter Island. Average velocity at strength of current is 1 to 2 knots, but with continued strong winds from one direction it may increase to 3 knots.

(474) There are heavy rips around Northeast and Southwest Points, also between Reef Point and Otter Island, where they are worse on the ebb. The tides and tidal currents are greatly influenced by the winds. See the Tidal Current prediction service at *tidesandcurrents.noaa.gov* for specific information about times, directions, and velocities of the current at numerous locations throughout the area. Links to a user guide for this service can be found in chapter 1 of this book.

(475)

Nunivak Island to Pinnacle Island

(476) **Nunivak Island**, in the Bering Sea near the Alaska mainland, is about 330 miles north of Unimak Pass. Dangerous shoals and uneven bottom have been reported and are shown on the chart; the island should be approached with extreme caution. An **Area to be Avoided** surrounding Nunivak Island is recommended for ships of 400 gross tonnage and upwards—see the beginning of chapter 8 for details.

(477) From west, Nunivak Island shows gentle slopes terminating seaward in reddish cliffs 150 to 462 feet high. The highest point of the west part of the island rises to 866 feet 10 miles east-southeast from Cape Mohican. Near the center of the island is **Roberts Mountain**, 1,675 feet high, the highest of a group; this mountain is built up of a series of volcanic benches, the top being the steep side of a breached crater. The east end of the island is low, for the most part, except for some low hills and **Twin Mountain**, a breached crater 627 feet high.

(478) In clear weather the island generally can be made out for 30 miles from any direction. The island is inhabited by herds of reindeer and musk oxen.

(479) In 1899 the U.S.S. CORWIN cruised completely around Nunivak Island, following the shore and outlying islands at a distance of about 2 miles, and found general depths of 7 to 10 fathoms. The coast is generally abrupt and rocky, with numerous bights in which anchorage was found in 3½ to 7 fathoms.

(480) **Cape Mohican**, the west point of Nunivak Island, is a narrow promontory about 2 miles long. The point of the cape is a cliff 266 feet high from which the terrain descends east to 150 feet for 2 miles before ascending gradually to the higher ground inland.

(481) **Cape Mohican Light** (60°12'41N., 167°27'28W.), 285 feet (86.9 m) above the water, is shown seasonally from a skeleton tower with a red and white diamond-shaped daymark on the end of the cape.

(482) A shoal about 1 mile wide extends 5 miles 055° from Cape Mohican and has depths of 1 to 5 fathoms over it reported in 2022; caution is advised. The 10-fathom curve extends 6.3 miles 058° from the cape.

(483) In 2022, a 4-fathom shoal was reported about 0.6 mile 241° from Cape Mohican. The shoal extends southeast, parallel to the shoreline, with a width of about 1 mile. From 4 fathoms at its northern extent, the shoal gradually deepens towards the southeast, reaching 10 fathoms 4.8 miles 167° from Cape Mohican. Navigation in the vicinity of Cape Mohican should always be with caution as the shoals in the vicinity appear to be sand wave formations likely to shift in position.

(484) **Nash Harbor**, on the north coast of Nunivak Island 16 miles east of Cape Mohican, is a good anchorage except with winds from northwest through north to northeast. The coast to the west of the harbor is fairly high and is backed by cliffs, while to the northeast it is low. The south side of the harbor has a sand-and-gravel beach at the foot of a 30-foot bluff. The bottom slopes gradually from 10 fathoms outside Nash Harbor to the beach at the head.

(485) The harbor is 1.5 miles wide and about 1 mile in depth. The bottom is sand or mud except near the rocky parts of the shore, and there are no dangers over a large 4- to 6-fathom area in midharbor. Boats usually land off the village of **Nash Harbor**, on the west side of a creek that empties into the southwest part of the harbor; however, there are boulders close to shore at this landing as well as in the cove on the west shore. The creek drains a lake, but the water is brackish because the lake level is affected by the tides. The lake freezes every winter and makes an excellent landing place for airplanes fitted with skis; it is also large enough for seaplanes to use in summer.

(486) **Cape Etolin**, 41 miles east-northeast of Cape Mohican, is the northernmost point of Nunivak Island. The cape is a narrow strip of land with a ridge of low hills midway along its outer part; it appears as two or more islands from a distance west. A small island is about 2 miles off the northwest end of the cape; between are ledges. A dangerous rocky area in a curving "S" shape extends northwest from Cape Etolin for about 1.5 miles.

(487) **Cape Etolin Light** (60°25'48"N., 166°09'38"W.), 40 feet above the water, is shown seasonally from a skeleton tower with a red and white diamond-shaped daymark near the north tip of Cape Etolin.

(488) **Mekoryuk**, about 2 miles west of the inner end of Cape Etolin, is the only village on Nunivak Island that is inhabited year round. A weather station is maintained at Mekoryuk, and the village has weekly mail service by air.

(489)

Anchorages

(490) Anchorage can be found northwest of Mekoryuk in 25 to 32 feet of water.

(491) Shoals covered 3 fathoms have been reported about 7.5 miles north and 15.5 miles northwest from Cape Etolin, and a shoal covered 4½ fathoms has been reported 12.5 miles north-northeast from the cape, all with deep water surrounding them. Keeping Cape Vancouver bearing north of **086°**, Cape Etolin can be rounded when coming from west in 10 fathoms. With Cape Vancouver bearing **086°** or east of this bearing, considerable shoal water and irregular depths are found.

(492) **Cape Etolin Anchorage**, the bight on the east side of the cape, has fair holding ground in 2 to 5 fathoms but is open to the northeast. Near the south side, and about 0.3 mile from the head of the bight, is anchorage in 3 fathoms; the holding ground is gravel and only moderately good. Farther out, it is deeper but more exposed to the strong tidal currents and rips of **Etolin Strait**, the wide passage between Nunivak Island and the mainland. Peak tidal currents push heavy swells into the anchorage in southern and northern winds.

(493) Several shoals have been reported in Etolin Strait and mariners are advised to use extreme caution in transiting the Strait. Mud flats and shoal areas extend up to ten miles offshore between the mouth of the Kolovinerak River and Cape Vancouver on Nelson Island.

(494) **Cape Manning** is 15 miles southeast of Cape Etolin. **Triangle Island** is 5 miles northwest of Cape Manning and 2 miles from the nearest shore of the main island, with foul ground reported between.

(495) **Cape Corwin**, 20 miles south of Cape Manning, is the easternmost point of Nunivak Island. The cape is low and has a rocky shore on its north side. The two peaks of Twin Mountain are 7 miles north-northwest of the point of Cape Corwin and can be seen for 25 miles in clear weather.

(496) **Cape Mendenhall**, 18 miles west-southwest of Cape Corwin, is the southernmost point of Nunivak Island. The cape is 255 feet high and has a low rock bluff 10 to 20 feet high on its east side.

(497) There is satisfactory anchorage of 8½ fathoms about 10 miles northwest of Cape Mendenhall. The anchorage is about 1.5 miles off the beach of the second bight northwest of the cape and is protected from northwest through north to east. As the ship approached on a northeast course, the water shoaled uniformly from 14 to 8½ fathoms. The fine gray sand bottom is good holding ground. Currents along

(507)


St. Matthew Island (Cape Upright)
Image courtesy of Kenneth D. Lempert, MD/U.S. Public Health Service (2009)

the coast are estimated to be as much as 1 knot. Many large sand dunes are visible on shore in this area.

(498) Another anchorage can be found between Cape Corwin and Cape Mendenhall, in the bite located about 5 miles northeast of Cape Mendenhall. The anchorage provides good holding ground in fine sand with protection from northerly and westerly weather. The seafloor slopes gently from shore, with depths of 2 fathoms about 1 mile from the beach to 8 fathoms at 3 miles offshore.

(499) From Cape Mendenhall the coast extends northwest for about 40 miles to what may be called the southwest cape of Nunivak Island. The few soundings obtained show deep water fairly close to shore, and it is safe to follow the shore at a distance of 2 miles. Depths of 4 to 6 fathoms have been found on an extensive shoal about 5 to 9 miles off this stretch of coast.

(500) The southwest cape has cliffs 100 to 150 feet high; the summit is gently sloping tundra. In the small cove east of the cape, landings can be made on the sandy beach in front of the few barabaras of **Tachikuga**, an abandoned native village. Water can be obtained from the stream just east of the abandoned village; at low water the stream is fresh to its mouth. Temporary anchorage is possible in 6 to 9 fathoms about 0.8 mile off the entrance to the cove. The bottom was found to be primarily fine brown sand with good anchor holding ability.

(501) From the southwest cape, the coast of Nunivak Island extends north for about 8 miles to Cape Mohican. Along this stretch are impassable cliffs 150 to 450 feet high, and there are no landing places.

(502)

Currents

(503) On the north and southwest sides of Nunivak Island the current has a large diurnal inequality. Northeast of Cape Mohican a 4-hour series of current observations in July 1951 showed a northeast current that at strength had a velocity of 1.8 knots. Observations made in June and August 1951 west of Cape Etolin showed tidal currents setting along the shore in both directions with velocities of about 1 knot at strength of current. On the east side of the island in Etolin Strait, it is stated that tidal currents are so strong that the middle portion does not freeze over in winter. See the Tidal Current prediction service at *tidesandcurrents.noaa.gov* for specific information about times, directions, and velocities of the current at numerous locations throughout the area, including Nunivak Island. Links to a user guide for this service can be found in chapter 1 of this book.

(504)

Ice

(505) Navigation is difficult from mid-December to mid-May and usually is suspended from early January to late March.

(506) **St. Matthew Island** and adjoining islands are 145 miles west from Nunivak Island. They are rocky,

uninhabited islands whose shores are poorly charted except for a small area between Sugarloaf Mountain and Pinnacle Island. St. Matthew Island is a succession of hills and low valleys. During the season of navigation, fog is prevalent in this vicinity. Anchorage can be made with an offshore wind on the north or south sides of the island.

(508) **Cape Upright**, the east point of St. Matthew Island, is high and vertical, and the land in its immediate vicinity is mountainous. A mountain 1,505 feet high is 0.7 mile back of the cape, and another mountain 1,280 feet high is 0.9 mile southwest of the cape. Off the cape is a detached rock 25 feet high. West of the highland of the cape is a low neck, apparently of sand, and the cape might be easily mistaken for a detached island.

(509) **Glory of Russia Cape**, the north point of St. Matthew Island, is also high and mountainous. A 1,475-foot peak is about 1.3 miles south of the cape.

(510) Numerous detached rocks along the shores of St. Matthew Island should not be approached too closely. On the island is an abundance of fresh water in streams and lakes.

(511) **Sugarloaf Mountain**, 1,380 feet high, is 11.5 miles west from Cape Upright. From Sugarloaf Mountain the coast trends about 0.8 mile southeast to the westernmost point of a wide bight that extends to Cape Upright. A rock is about 350 yards south of this point.

(512) Good anchorage may be had in about 14 fathoms, sheltered from winds between southeast and southwest, in a bight on the east side of St. Matthew Island, about 10 miles northwest of Cape Upright, with Sugarloaf Mountain bearing **220°**, and west of some rocks that show well out of the water and should not be approached closely. Landing is difficult with any swell, as the beach is stony and steep. In 1951, the PATHFINDER anchored frequently in 9 to 10 fathoms, about 3.5 miles west-northwest of Sugarloaf Mountain, with broken bottom and satisfactory holding ground. The PATHFINDER also anchored in about 14 fathoms, with protection from north gales, 4 miles east by south of Sugarloaf Mountain.

(513) **Sarichef Strait** is a 2.5-mile-wide passage between St. Matthew Island and Hall Island. Strong currents have been reported in the Strait. A least depth of 10 fathoms was reported in two passages of the strait near the middle, but records indicate that shoaler depths could be expected.

(514) **Hall Island**, about 3 miles north of St. Matthew Island, is 1,665 feet high and is rugged on its northeast, north and west sides; the southeast point is low. **Elephant Rock** is a large detached rock off **Cape Hall**, the north point of the island, and **Arre Rocks** are several smaller detached rocks off the southwest side of the island. Anchorage is available in 10 fathoms in the bight on the southeast side of the island.

(515) In 1993, the Canadian Survey Ship John P. Tully reported discolored water, confused and mounting seas and being abruptly set to the east with currents of about 3 knots when passing on the east side of Hall Island about 2 miles off Elephant Rock.

(516) **Pinnacle Island**, with its spires and needle formations making a striking appearance, rises abruptly from the sea with scarcely a place for a boat landing. The north end of the island is 8 miles south-southwest of Sugarloaf Mountain. Pinnacle Island is 1.4 miles long and 0.3 mile wide and rises to 1,250 feet midway of its length.

(517) An unusual submerged ridge extends from the north end of Pinnacle Island in a **021°** direction to the shore of St. Matthew Island. The ridge is about 300 yards wide between the 10-fathom curves. The least depth found in 1951 was 4 fathoms, and there were several depths of 5 fathoms. The best water over the ridge was 9 fathoms 1.6 miles southwest of the point below Sugarloaf Mountain. Tide rips occur along the ridge with fresh winds.

(518) Rocks and islets 55 to 95 feet high are off the south shore of Pinnacle Island. **Gull Rock**, 93 feet high, is 0.5 mile west-northwest of the south end of Pinnacle Island.

(519) A rock covered 23 feet was reported 127 miles southwest of St. Matthew Island in 58°38.0'N., 175°02.5'W.

(520)

St. Lawrence Island to Savoonga Vicinity

(521) **St. Lawrence Island** is in the north part of the Bering Sea about 120 miles south of Bering Strait. An **Area to be Avoided** surrounding St. Lawrence Island is recommended for ships of 400 gross tonnage and upwards—see the beginning of chapter 8 for details.

(522) The east end of this island is usually made by vessels bound into Norton Sound and in clear weather can be seen from a distance of 30 to 35 miles. From Southeast Cape a ridge of mountains extends in a north direction across the island, and another ridge extends in a north direction from Apavawook Cape to Northeast Cape. Between these two ridges a deep bight makes in from south, and at its head very low land extends north across the island. The shore of the east end of the island is generally a low sand beach with outlying rocks; the mountain ridges begin 0.5 to 2 miles back from the beach.

(523) **Northeast Cape**, east end of St. Lawrence Island, is low tundra land, with numerous freshwater lakes. The cape is 2 miles wide to the foot of a mountain that rises abruptly and has a peak 1,435 feet high. This peak can be seen on a clear day for 35 miles or more. At 0.3 and 0.6 mile from the end of the cape are two hummocks 94 and 280 feet high, respectively; the lower hummock is in 63°18'N., 168°42'W.

(524) Although the bottom is irregular off the point of the cape, no breakers were noticed while passing it in rough weather. The north shore of St. Lawrence Island, for 10 miles west of Northeast Cape, is a low sand beach and grassy tundra with numerous freshwater lakes. Anchorage with shelter from south or southeast winds can be had along this shore about 2 miles from the beach in 8 to 9 fathoms; the holding ground is not good, the

bottom being gravel. At a point on the north shore 6 miles west of Northeast Cape, breakers extend 1 mile offshore.

(525) From the Northeast Cape the east coast of St. Lawrence Island has a general south trend for 4 miles to a point where a 450-foot-high spur from the higher hills reaches to within 0.5 mile of the beach; along this stretch the 6-fathom curve is 0.8 to 1 mile offshore.

(526) The coast then trends south-southwest for another 4 miles then curves west and north for 5 miles, forming **Apavawook Cape**, which is so rounding that it has no definite point. This entire stretch of coast is a low, narrow strip behind which is a large lagoon. The mountains are about 2 miles inland and about 900 feet high.

(527) **Punuk Islands**, 4 to 5 miles south-southeast from Apavawook Cape, are a group of three small islands 1.5 miles long; the northeast end of the group is about 13.2 miles 192° from Northeast Cape. The northernmost and largest island has two marked rocky hummocks, the higher being 230 feet high; on the southwest end of the island are the remains of a native village. The southernmost island is an irregular mass of rocks, the highest point about 75 feet above water. Between these islands is a low, sandy islet, which is separated from the other two by narrow channels completely obstructed by ledges, over which the sea breaks. The shores of all the islands are foul, and a ledge extends south from the southernmost island; a rocky shoal covered 3½ fathoms is 1.4 miles south of the southernmost island; over 7 fathoms can be carried 2 miles south of the islands. A reef covered 2 to 3 fathoms extends about 0.7 miles north-northwest of the southernmost island. Vessels should approach these islands with caution.

(528) The Punuk Islands contain important resting areas (haulouts) for the endangered western population of Steller Sea lions from July through December, and Pacific walruses from October through December. Walruses are extremely sensitive to unexpected or unfamiliar sights, smells and sounds and can easily be startled, in some cases causing deadly stampedes. Steller sea lions are also sensitive to unfamiliar stimuli and can abandon a haulout if disturbed. Operating a watercraft in a manner which results in the disturbing, harassing, herding, hazing or driving of marine mammals is prohibited under provisions of the Marine Mammal Protection Act. In an effort to prevent disturbance to walruses and sea lions, marine vessel operators are requested to observe the following guidelines:

(529) Vessels less than 50 feet in length should remain at least 0.5 nautical mile away from a walrus or Steller sea lion haulout.

(530) Vessels 50 feet or more but less than 100 feet in length should remain at least 1 nautical mile away from a walrus or Steller sea lion haulout.

(531) Vessels 100 feet or more in length should remain at least 3 nautical miles away from a walrus or Steller sea lion haulout.

(532) All vessels should refrain from anchoring or conducting tendering or fishing operations within 3 nautical miles of a walrus or Steller sea lion haulout.

(533) There is a clear approach to good anchorage in north and west weather off **Maknik Lagoon**, northwest of Punuk Islands. The anchorage, in 6½ fathoms, is at 63°09'N., 169°15'W., about 1.5 miles off the beach. All soundings showed a uniform slope to the 6-fathom curve, where there is a break and a steeper slope to the beach. Maknik Lagoon is behind the low sand barrier beach.

(534) Heavy breakers have been observed in the channel between Punuk Islands and Apavawook Cape; vessels should not attempt to pass through. A depth of 3 fathoms is 1.7 miles northwest of the northernmost and larger island. Several areas with 3½ fathoms are in this passage. From east the islands can be approached as close as 1 mile. It is reported that 2.8 miles **220°** from Punuk Islands the flood current was observed setting about 024° with a maximum velocity of 1.1 knots.

(535) **Southeast Cape** is about 5 miles across on its south face; the east point of the cape slopes gradually to the water for 0.3 mile from the highland, and a reef extends about 0.5 mile southeast from the point. The west point is lower and slopes more gradually to the water for 3 miles from the highland, and a reef makes off from the point in a south direction for 2 to 3 miles. The bight between these points is very foul and should be avoided.

(536) **Kialegak Point**, about 5 miles north-northeast of Southeast Cape, is a long sandspit strewn with rocks that extends in an east direction from the highland of the coast. There are breakers about 0.8 mile **355°** from the end of the cape, and there may be others inside; a reef extends south from the south side of the sandspit for about 1 mile. The remains of a native village are on the sandspit.

(537) The bight between Cape Kialegak and Apavawook Cape has a uniform slope from 16 fathoms to the 10-fathom curve, where there is a steeper slope to the beach. The 10-fathom curve is about 2 miles off and parallels the shoreline. Good holding ground can be found in most parts of the bight with good anchorage in north and west weather. Within 3 miles of the Punuk Islands the holding ground is very poor and is not recommended.

(538) **Northwest Cape**, the northwest end of St. Lawrence Island, 660 feet high, is a steep, black bluff and flat on top. A wide sand beach is west of the bluff. **Gambell** is a native village with a school and a store, open the year round. Small quantities of oil and gasoline are available. A visiting nurse calls at the village periodically. A small airstrip is available. Mail and supplies are flown in weekly from Nome. Radiotelegraph communication is maintained.

(539) The water is deep close to Northwest Cape, and anchorage can be had in 9 fathoms, rocky bottom, 0.5 mile offshore on either side of the point of the sand beach with Gambell village bearing **225°**. In west winds, breakers have been observed that extend 400 yards northwest from the northwest tip of land about 1.7 miles west of Northwest Cape. The bay, 6 miles southeast of Northwest

Cape, affords anchorage with protection from south and west winds, in 3 to 9 fathoms; sand and rocky bottom.

(540) The west end of the island, south of Northwest Cape, is rolling land. From **Tatik Point** around to the bay east of **Southwest Cape**, the land is mountainous and abrupt close to the coast, being highest at Southwest Cape. Only a few families live at Southwest Cape.

(541) Several rock pinnacles, the largest of which is 25 feet high, are off the southwest tangent of Southwest Cape on the east side of the entrance to Murphy Bay.

(542) Between the highland east of Southwest Cape and **Siknik Cape** the land is low. A vessel reported striking a submerged rock about 2 miles offshore at a point about 16 miles northeast of Southwest Cape.

(543) A reef, bare at low water, makes off 1 mile in a 220° direction from Siknik Cape. The submerged part of this reef extends about 4 miles in a general **175°** direction from the bare part. This reef is dangerous, as the water shoals abruptly when approaching the cape.

(544) The rest of the island is generally high and rolling. There are some submerged rocks in the bight west of Southeast Cape and also some detached rocks showing off the north shore near **Kookoolik Point** and **Savoonga Point**. It is probable that with care an anchorage may be found almost anywhere around the island, but the shores must be approached with caution.

(545) **Savoonga**, at the extreme end of Savoonga Point, has a school and a native store open the year round. Small quantities of gasoline, diesel fuel and motor oil are available. Mail is delivered from Nome daily by aircraft. There is village clinic with a nurse. Radiotelegraph communication is maintained. Two white wind turbines, which generate electricity for the village, are visible 1 mile west of the village.

(546) A bar that extends northeast from the village breaks at low water. In 2009, the USCGC SPAR anchored 2 miles west-southwest of Savoonga Point in Koomlangeelkuk Bay near 63°40.4'N., 170°33.7'W., in 5 fathoms. The bay was found to be 3 to 7 fathoms about 0.1 mile from shore. The bottom is rocky and has poor holding ground in foul weather. Good anchorage has been reported about 1 mile west and 1 mile north of the village in 14 fathoms. Landing small craft at Savoonga is highly dependent on surf conditions. A barge landing point can be found on the southeast shore of Koomlangeelkuk Bay; this is also the best landing point for small boats in the vicinity of Savoonga.

(547)

Currents

(548) The current velocity about 0.8 mile off Savoonga is about 1 knot on the flood setting northwest and 1.5 knots on the ebb setting east. The current velocity at other places around St. Lawrence Island is generally less than 1 knot. See the Tidal Current prediction service at *tidesandcurrents.noaa.gov* for specific information about times, directions, and velocities of the current at numerous locations throughout the area. Links to a user guide for this service can be found in chapter 1 of this book.

(549)

Weather, Savoonga Vicinity

(550) During the ice-free months of May to November, the diurnal temperature range is only 5° to 10°F (3° to 6°C). From January through March, the range is 10° to 12°F (6° to 7°C). In the winter, passing cyclonic storms exert the major control on air temperatures. Mean monthly temperatures at Gambell range from 2.8°F (-16.2°C) in January to 49.3°F (9.6°C) in August. Extremes of -28°F (-33.3°C) have been recorded in March and 71°F (21.7°C) in July.

(551) Relative humidity at Gambell is high, usually 80 to 90 percent or more. At least a trace of precipitation occurs on 275 to 300 days a year, yet the annual total is only about 15 inches (381 mm), about half of which falls during July to October, the ice-free months. The greatest rainfall comes with southeast winds of cyclonic centers to the south of the island. Snow accumulation is at a maximum of about 2 to 2½ feet in March, and by the first week in June it remains only in drifts, some of which persist through the summer.

(552) During the winter, from October through April, the wind is prevailingly from the north or northeast and averages over 17 knots. The peak recorded velocity was 69 knots in October 1947 and was from the north. During the summer, the wind is more variable, being from the north or northwest about 30 percent of the time and from the southeast or southwest about 40 percent of the time. The mean summer velocity is 10 to 11 knots; the mean maximum is 33 to 35 knots.

(553) Throughout most of the year, and particularly in the summer from May to September, broken to overcast sky conditions prevail. Clear skies are seldom seen more than 2 or 3 days a month. The principal cloud types consist of fog, stratiform and rarely cumuliform clouds at various levels. Most are generally below 10,000 feet. Low ceilings are most common during the summer. The visibility is over 7 miles for about 70 percent of the period June through September. The best visibility is in September.

(554) Navigation is difficult from mid-December to late May and is suspended during most of March and April.

(555)

Warning

(556) The soil, surface waters and vegetation of St. Lawrence Island are potentially contaminated by the microscopic eggs of a parasite that causes a long-term and sometimes fatal infection of the liver known as alveolar hydatid disease. Although this parasite occurs elsewhere on the west and north coasts of Alaska, it is unusually common on this island, where it is carried by mice, dogs, cats and wild foxes. Visitors are warned to avoid contact with these animals and not to transport them under any circumstances from the island to other localities.

(557)

Communications

(558) Daily air service is available to Savoonga and Gambell from Nome. An aerolight is shown from the Gambell airport 0.5 mile south of the town.

(559) Ships visit St. Lawrence Island infrequently. A Northland Marine Lines barge calls at Savoonga and Gambell two to three times a year. An Alaska Native Service vessel makes a trip or two each year, and one or two visits by Coast Guard cutters can be expected annually. Local vessels from Nome call occasionally.

(560) Transportation about the island in summer is mostly by aluminum or fiberglass skiffs, which are powered by outboard motors. Four-wheeler ATVs are used year-round as the primary mode of transportation. The trip from Savoonga to Gambell is reported to be about 5 hours by ATV.

(561) ATVs are available to rent. Weasels have proved their value on snow, on the tundra, and in small lakes; such vehicles can move over most of the island, except on the coarsest boulder fields and the steeper slopes.

(562) Landings can be made on almost any part of St. Lawrence Island during the summer. The surf is not generally heavy, except where brisk offshore winds pile up the shallow offshore water into large breakers. Supplies for Gambell are landed by whaleboat on both the north and west sides of the spit, depending upon weather and sea conditions. At Savoonga, supplies can only be landed during periods when a north wind is not blowing because of the heavy surf.

(563)

Presence of Whales and Other Marine Mammals

(564) The waters around St. Lawrence Island are an important habitat for bowhead whales and other marine mammals, with the heaviest concentrations of whales, walrus and seals present during the months of September through June. Mariners are requested to maintain a sharp lookout, reduce the speed of the vessel and maneuver to avoid striking whales and other marine mammals.

(565)

Presence of native subsistence hunting and fishing vessels

(566) Small vessels (paddle, sail, outboard motor) are used by native subsistence hunters during the months of March to June and September to December in the waters west and north of St. Lawrence Island, up to 30 miles offshore. Mariners should maintain a sharp lookout for marine mammals and small vessels and exercise caution when operating in their vicinity. A wide, closest point of approach is requested by the subsistence hunters in this area.

(567)

Cape Vancouver to Kokechik Bay

(568) **Cape Vancouver** (60°32.0'N., 165°24.0'W.), about 16 miles northeast from Nunivak Island, is a bold promontory, 1,132 feet high. The shoal from the mouth of the Kuskokwim River is thought to extend along the coast to Cape Vancouver, so that on the south side of the cape the water is shoal; about 6 miles west of the cape a 1.5-mile circular shoal covered 1½ fathoms was reported in 1957. Immediately off the end of the cape is deep water that extends about 5 miles along the north side of the bight on which the native village of **Tununak (Tanunak)** is situated. This bight is a series of mudflats mostly bare at low water. The ship BEAR, anchored in 4½ fathoms about 1 mile off the south point of the bight, reported shoals extending northwest off the mouth of that bight into **Hazen Bay** Hazen Bay is also reported to be shallow.

(569) **Hooper Bay**, 60 miles north of Cape Vancouver, and the second bay south of Cape Romanzof, appears to offer the best anchorage for moderate-draft vessels in the area between Cape Vancouver and Cape Romanzof. The recommended anchorage is 0.2 mile southeast of the east end of the sandspit, about 2.5 miles southeast of the village of Hooper Bay. The least depth found in the approach to the anchorage was 3½ fathoms on the series of sand ridges that parallel the beach. The anchorage is in 8 fathoms in the channel between the sandspit and a sandbar to the east that bares at low water.

(570) Off the end of the sandspit, the channel is about 0.3 mile wide, and its axis is in a northeast-southwest direction. Both sides of the channel are very steep, and depths of as much as 13 fathoms were found close to the spit.

(571)

Currents

(572) See the Tidal Current prediction service at *tidesandcurrents.noaa.gov* for specific information about times, directions, and velocities of the current at numerous locations throughout the area, including Kokechik Bay. Links to a user guide for this service can be found in chapter 1 of this book. There are two floods and two ebbs each day; the flood sets northeast and the ebb southwest.

(573) The village of **Hooper Bay**, 62 miles north-northwest of Cape Vancouver and 17 miles south of Cape Romanzof, is the most prominent feature in the area. It is on the highest ground, and the school and tin-roofed buildings are visible for about 10 miles. To reach the anchorage, steer **075°** for the village until within 2.5 miles of shore, then steer **130°** until abeam of the east end of the sand dunes and within 1.1 miles of shore, then head for the anchorage off the sandspit.

(574) The village can be reached from the anchorage by small boat across the west end of the bay and up the creek along which the village is situated. The entrance to the creek is marked by stakes that should be left to starboard when entering. The limiting depth depends on the stage of tide, but in 1994 depths of 2 to 4 feet were reported at low water in the channel. The entrance to the creek bares at low water, and the entire west end of the bay is very shallow, but there is deeper water inside the creek. There are no docks or piers for mooring; most boats either make

fast to the shore or beach themselves. Services include telephone, mail, stores and a health clinic. There are daily flights to Bethel from a nearby airfield; radiotelephone communications are maintained.

(575) Small boats drawing 1 to 4 feet, depending on the season of the year, can travel inland from Hooper Bay to the Yukon River. The route follows the **Keoklivik River**, south and larger of the two emptying into Hooper Bay, to a junction with the **Kashunuk River** at the old village of **Chevak**, thence through a cutoff ending at the junction of the **Aphrewn River** and the Kashunuk River, thence up the Kashunuk River into Driftwood Slough about 5 miles south of the Yukon.

(576) Entering Keoklivik River can only be done by small boat. In 1994, the USCGC IRONWOOD reported that the river forms a delta at the mouth and a small channel leads through numerous sand bars, shoals and mud flats into the river. The transit should be made at low water to find the channel through the flats. Chevak village reportedly marks the channel with a buoy and stakes, but local knowledge is still required. Once inside the river, depths of 5 to 25 feet were reported to Chevak. The village can be contacted via VHF-FM channel 73 by using the voice call "Corporation." There are no piers or docks at Chevak, so small boats tie off to the shore or beach themselves. Telephone, mail, store and a Village Public Safety Officer are available. There are daily flights from Chevak to Bethel.

(577) **Driftwood Slough** has two entrances from the Yukon. The one most used is about 2 miles downriver from **Pilot Station**, which is about 115 miles above the mouth of Apoon Pass. The other entrance is about 12 miles above **Mountain Village**, which in turn is about 85 miles above Apoon Pass. The part of the slough leading from this latter entrance meanders considerably and is little used. At the Yukon, Driftwood Slough is about 250 feet wide and is 1½ to 2 feet deep during the dry season.

(578) Following the ice breakup in the spring, the least depth along the inland route is about 3 feet; by early July it is about 1 to 1½ feet; and by early September, after the rainy season in August, it may be as much as 4 feet. The shallowest part of the passage is about 20 miles south-southwest of Pilot Station.

(579) This inland passage may also be entered from the Bering Sea by way of the Kashunuk River, which empties into the sea between Hooper Bay and Hazen Bay, or from Hazen Bay by way of the Aphrewn River.

(580) **Kokechik Bay** is the funnel-shaped body of water on the south side of Cape Romanzof. The neck of the funnel is at the east end of the bay and is the mouth of the **Kokechik River**. On the seaward side of the bay a long narrow sandspit extends north from **Dall Point** for about 6 miles. On the spit is a ridge of low dunes that are visible about 5 miles to seaward on a clear day.

(581) About 0.8 mile north of the spit, a long narrow sand and mudflat, part of which bares at all stages of the tide, begins and extends to within 0.5 mile of Cape Romanzof. The gap between the spit and the flat is the best entrance to Kokechik Bay. Except for the deep water that extends 1 mile inside the entrance, the bay consists mostly of extensive flats 4 to 5 feet deep with numerous bars that bare at low water.

(582) About 1 mile off the entrance to Kokechik Bay is an extensive breaking shoal that bars approach from the north-northwest and west. The best approach to the bay is on an east-northeast course for Dall Point, which shows very well and is easily identified by radar in thick weather. From off Dall Point, steer a north course, paralleling the sandspit and about 0.8 mile off, and round the end of the spit at a distance of about 0.5 mile. The controlling depth along this course to the end of deep water 1 mile inside the entrance is 12 feet.

(583) Large vessels must anchor at least 5 miles west of the sandspit in 5 fathoms, sand bottom. Vessels up to 12-foot draft will find protected anchorage in the 10-fathom holes, one outside and the other inside the entrance to the bay. The outer anchorage, 0.8 mile northwest of the end of the sandspit, is between the previously described shoal and the spit and has mud bottom. The inner anchorage is 0.8 mile northeast of the spit and has sand and mud bottom.

(584)

Currents

(585) Tidal **currents** are estimated to have a velocity at strength of 1.5 to 2 knots in the entrance. See the Tidal Current prediction service at *tidesandcurrents.noaa.gov* for specific information about times, directions, and velocities of the current at numerous locations throughout the area. Links to a user guide for this service can be found in chapter 1 of this book.

(586)

Cape Romanzof to Black River

(587) **Cape Romanzof** (61°48.0'N., 166°06.0'W.), 85 miles north of Nunivak Island, is a bold and prominent headland with cliffs rising abruptly from the water over 1,200 feet along its west face; at the sharp extremity of the cape are remarkable perpendicular shafts of rocks on the side of the cliff. The cape is the west termination of the **Askinuk Mountains**; the highest at 2,363 feet is about 5 miles from the cape, and can be seen a considerable distance at sea. An aero radiobeacon is on the cape.

(588)

Current

(589) Past observations showed a diurnal tidal current velocity of nearly 0.5 knot about 7 miles southwest of Cape Romanzof.

(590) Wind effects are important at this location. Continued strong south winds will cause the current to set north continuously for days at a time, and a similar south current results from north winds. The greatest velocities during nearly a month of hourly surface observations were 2.2 knots north and 2 knots south; in each case the current was setting approximately with a wind of about 40 knots.

(591) The south end of **Sand Islands** is 4.5 miles northeast of Cape Romanzof. These two islands, **Neragon Island** and **Krekatok Island**, extend in a general north and south direction about 13 miles, including the interval between them. The north island is mostly covered at high water.

(592) The coast trends in an east direction from Cape Romanzof 15 miles to the mouth of **Kun River** and throughout most of this distance is bordered by abrupt cliffs and hills gradually diminishing in elevation.

(593) **Scammon Bay**, entered through a channel about 2.2 miles north of Cape Romanzof and just south of Neragon Island, is very shoal with numerous bars bare at low water and continues to the mouth of **Kun River**. There are two small coves along its south side, **Windy Cove** and **Kongishluk Bay**, respectively 1 and 9 miles from Cape Romanzof, but both are quite shoal. Depths off Cape Romanzof are 13 to 21 feet, but the water shoals quickly northeast, so there is little protection except for very light draft boats. A large shoal area with breakers is about halfway between the cape and Neragon Island, and another shoal with depths of 8 feet is centered about 3.3 miles north of the cape. Along the highland forming the south shore of Scammon Bay, the depths are 3 to 5 feet throughout its length.

(594) The village of **Scammon Bay** is on the south shore at the entrance of Kun River. Radiotelegraph communication is maintained.

(595) The coast is low and marshy from Kun River north to the Yukon Delta. The waters along this stretch are extremely shallow and are navigated only by river boats.

(596) **Black River**, 39 miles northeast of Cape Romanzof, is marked by **Black River Entrance Light** (62°21'20"N., 165°20'50"W.), 20 feet above the water and shown seasonally from a skeleton tower with a red and white diamond-shaped daymark on the east side of the entrance.

(597)

Norton Sound

(598) **Norton Sound** is one of the important arms of the Bering Sea. Some supplies for Yukon River by way of St. Michael pass through it. The north shore is important because of the mining operations there. The south side of the entrance to the sound is occupied by the extensive Yukon Flats and should be avoided by deep-draft vessels. The rest of the sound generally has soundings of 8 to 12 fathoms; the greater depths are near the north side. Off Cape Nome and Cape Darby are spots with depths of 15 to 19 fathoms. The bottom of the sound is very even, and the depths decrease to the shore with marked regularity. There is driftwood on all the shores of the sound.

(599)

Weather, Norton Sound Vicinity

(600) During the season of navigation the prevailing winds are south with variable force. Severe storms are usually from the southwest. June, with less severe winds, appears to be the best month for navigation. July is about the same, but the rainy season and southwest winds pick up in the latter part of the month and continue through August and part of September. September is usually somewhat drier, with more frequent winds from the north. Prevailing winds during October are north to northwest; the general weather is clearer and colder.

(601)

Fog

(602) The remarks on fog in the Bering Sea apply to the region west of Cape Nome but not to Norton Sound east of it. On entering the sound with thick weather in the Bering Sea, a vessel will find that the fog almost always thins out and gradually clears as the vessel proceeds up the sound. At St. Michael fogs are rare except in the spring when ice floes are close in to Norton Sound and the winds are west. With east winds the area is clear of fog.

(603)

Mirage

(604) In the vicinity of St. Michael and Stuart Islands and the coast south, mirage often distorts the appearance of the land and sometimes greatly magnifies small objects.

(605) Because of this abnormal refraction, positions obtained by astronomic sights (especially on the flats) cannot be depended on and may be several miles in error although the sight seemed good.

(606)

Yukon Delta to Canal Point

(607) The **Yukon Delta** extends about 90 miles from Black River, 40 miles northeast by north from Cape Romanzof, to Apoon Pass. The land along the coast is only a foot or two above high water, is covered with low marsh grass and is entirely lost to view when but a few miles offshore. The only landmarks visible in clear weather are the sharp peaks of **Kusilvak Mountains** and the Askinuk Mountains back of Cape Romanzof, all very distant and often obscured by clouds or mist. The extreme flatness of the land and the remarkable mirage effect, often seen over the shoals when bare, make the whole region deceptive at times.

(608) The river discharges by many mouths through the delta. The bars at the entrances have little depth, and the channels through the flats are narrow, crooked, and bordered by shoals bare at low water. They are also subject to constant change. Apoon Pass is the entrance used by the river boats.

(609) When well inside, the country on each side is covered with an almost continuous growth of willow and alder bushes. The water has a brownish white appearance, something like glacial water, without its fine, sharp grit. It has no unpleasant taste and is always fresh in the inner channels.

(610) The main channels are free from snags, though trees sometimes become temporarily lodged on the bars and quantities of driftwood are piled along the shores in places. Undoubtedly the ice carries off the snags when it goes out each season. The channels and banks show indications of changing rapidly both from erosion and

deposits. Very probably much of this is effected each year during the breaking up of the ice, its consequent jams, and the great floods following.

(611) The 3-fathom curve is about 6 miles off Cape Romanzof and about 10 miles off the Yukon Delta and the shore of Pastol Bay, then comes close in to the shore of Stuart Island. From the cape to the delta, detached shoals with depths of 2½ to 5 fathoms are as much as 30 miles from shore. Deep-draft vessels should avoid depths less than 8 fathoms.

(612) There are several settlements along the passes of the Yukon Delta. Strangers are advised to seek local knowledge before entering the Yukon Delta passes. Local independent pilots from Alakanuk and other settlements upriver monitor VHF-FM channel 16; telephone (907) 238-3629.

(613) **Yukon Delta National Wildlife Refuge** extends from Kuskokwim Bay north to St. Michael Island and includes Nunivak Island. The refuge is a Marine Protected Area.

(614)

Currents

(615) Currents varying from 0.5 to 1.5 knots have been observed in the delta channels. Greater velocities occur in the bar channels and up the river; none observed exceeded 3 knots.

(616) The prevailing **winds** in summer are northeast, east, and southeast. The strong blows are from the same directions, the most severe being the strong east winds that funnel from the Yukon Valley down low Unalakleet River Valley. In winter, 50-knot winds are common. The area has considerable mist and rain.

(617) **Kwemeluk Pass**, 54 miles northeast of Cape Romanzof, is the southern most of the Yukon Delta passes. **Sheldon Point Light** (62°32'21"N., 165°01'13"W.), 18 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark and marks the entrance to the pass on the south side. The village of **Sheldon Point** is on the south side 5 miles above the mouth; river barges call here at irregular intervals during the summer.

(618) **Kwikluak Pass**, which empties into the Bering Sea along the north side of the islands that separate it from Kwemeluk Pass, is the main south mouth of the Yukon River. **Yukon River South Entrance Light** (62°35'22"N., 164°57'42"W.), 20 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark and marks the entrance to the pass. Approaches to Kwikluak Pass are generally very shallow. Accurate soundings are not available due to the shifting shoals near the entrance. The approach recommended by the river pilot is **Acharon Channel**; however, local knowledge is required to make the transit safely. Once through the river mouth, passage upriver should only be made with a pilot or with local knowledge. According to the local pilot, the limiting draft of the south entrance at high water is 15 feet. Pilotage for the south entrance can be obtained by radiotelephone on VHF-FM channel 68; call sign, WTH-5951 or arrangements can be made by calling "City of Emmonak" on channel 68. A seafood company that owns a processing plant upriver sets a series of seasonal orange buoys marking the channel; however these buoys are subject to change and are not reliable as navigational aids.

(619) The villages of **Alakanuk** and **Kwiguk** on the northwest bank 12 and 18 miles, respectively, above the mouth of Kwikluak Pass, have telephone communications and daily air transportation to Anchorage. Diesel fuel is available at the village of Kwiguk. Alakanuk has radio service. The village of **Akulurak** is on the southeast bank 17 miles above the mouth.

(620) **Kwiguk Pass**, about 12.5 miles north of Kwikluak Pass, connects Bering Sea with Kwikluak Pass at the village of Kwiguk. A seasonal light marks the seaward entrance to the pass. **Emmonak**, is a native village about 10 miles inside the entrance. There are no piers or docks at the village; skiffs or boats are either anchored, beached or moored to shore. Using local knowledge, Emmonak can also be accessed from Kwikluak Pass. Pilotage can be obtained by radiotelephone, by calling Emmonak on VHF-FM channel 68; call sign, WTH-5951. Emmonak has fuel, water, mail, telephone and airline services.

(621) **Kawanak Pass** and **Kwikpak Pass** have a common outlet to the sea about 30 miles north of Kwikluak Pass. A light marks the entrance to Kawanak and Kwikpak Passes.

(622) **Head of Passes** on Yukon River is the junction of Kwikluak and Kwikpak Passes at 62°30'N., 163°51'W.; the junction is 42 miles from the mouth of Kwikluak Pass and 53 miles from the mouth of Kwikpak Pass. Kawanak Pass and Apoon Pass join Kwikpak Pass 26 and 22 miles, respectively, above its mouth. By way of Kwikpak Pass, Head of Passes is 49 miles from the mouth of Kawanak Pass and 55 miles from the mouth of Apoon Pass.

(623) **Pastol Bay**, at the northeast extremity of the Yukon Delta, is about 25 miles wide between the delta on the west and Point Romanof on the east and has general depths of 1 to 6 feet.

(624) **Apoon Pass**, at the head of Pastol Bay, is the principal approach to Yukon River from St. Michael. In common with the rest of this region, the surrounding country is only 1 to 2 feet above high water. The banks of Apoon Pass, to within about 2 miles of its mouth, are mostly covered with willow and alder bushes 8 to 10 feet high. At the mouth the land is more marshy, and a large area to the west appears to be entirely an open marsh. The channels and banks of the pass are subject to rapid changes from erosion and deposit.

(625) The open country east of Apoon Pass is mostly marsh, ponds and tundra. The only high ground is **Hogback Hill**, a rounded ridge about 300 feet high, 7 miles east of the pass and 2 miles back of the coast. A range of hills and mountains 10 to 20 miles back of the coast extends southwest to the first great bend in the Yukon.

(626) The approach to Apoon Pass is across unmarked shallow flats. The entrance to the pass is marked by a light. Because the depths are only 1 to 2 feet, all but the shallowest draft vessels must cross the flats at or near high water.

(627)

Tide and currents

(628) The tides at the entrance to Apoon Pass are greatly affected by winds that may be strong enough to entirely obliterate the natural tides; north and east winds lower the water level, and south and southwest winds raise it. The ordinary outflowing **current** in Apoon Pass is much less rapid than that in other passes, but there is a tidal inflow and outflow with velocities that depend upon the particular range of the tide.

(629) **Chaniliut**, on the south side 1 mile above the mouth of Apoon Pass, has a school and radiotelephone service. **Kotlik** is at the mouth of **Kotlik River**, which empties into the south side of the pass 5 miles above the mouth.

(630) A seasonal light marks the junction of Apoon Pass and **Okwega Pass** 8 miles above the mouth.

(631) **Old Fort Hamilton** is on the southeast side about 22 miles above the mouth of Apoon Pass. The abandoned village of **Hamilton** is near Old Fort Hamilton.

(632) **Nunachik Pass** and **Little Apoon Pass** make off to the west from Apoon Pass just above Old Fort Hamilton. Apoon Pass joins Kwikpak Pass 25 miles above the Apoon mouth. **New Fort Hamilton**, on the east bank of Kwikpak Pass, is 40 miles from the Apoon mouth.

(633) **Yukon River**, one of the largest of the world, is the largest and most important river in Alaska. It is navigable for flat-bottom boats along its entire course from the mouth to near the head of **Lake Bennett**. No one company operates vessels along the entire river. Transfer points are at **Marshall**, 153 miles above Apoon Pass; **Tanana**, 628 miles above Apoon Pass; **Nenana**, 50 miles southwest of Fairbanks on the Tanana River; and **Dawson**, Canada, 1,197 miles above Apoon Pass. The **Porcupine River**, **Teedriinjik River**, **Tanana River**, **Koyukuk River** and **Innoko River** are the principal tributaries of the Yukon in Alaska.

(634) Between Tanana and the delta, **Ruby**, 526 miles above Apoon Pass, is the only town on the south side of the river.

(635) River steamers may ascend to Whitehorse, Yukon Territory, Canada. The White Pass and Yukon Railway connects Skagway, Alaska, and Whitehorse, Canada, the head of riverboat navigation. The Alaska Railroad connects Seward and Fairbanks; the latter is on Chena River flows into the Tanana River.

(636) Although the Yukon River is navigable all the way from the Bering Sea to Whitehorse, it can neither be entered by oceangoing ships nor navigated by them. The river itself is shallow in many places and, like the Mississippi, is a maze of bars, bayous and side channels for much of the length. At the river mouth is a vast delta with sand flats reaching far out to sea. Such channels as the currents have made are too shallow for the passage of oceangoing ships and are perpetually shifting. The riverboats are built especially for this shallow-water work as are those used on the Mississippi.

(637) The mouth of **Pastolik River**, about 2 miles from the outer end of Apoon Pass, affords anchorage for small vessels. The Apoon flats extend in front of the entrance, and it can only be entered at high tide.

(638) With the exception of the promontory of Point Romanof, the immediate coast is low and flat all the way from Apoon entrance to St. Michael Island. **Point Romanof**, 360 feet high, stands well out about 12 miles west from the high hills of the coast range. It appears in clear weather like an island in the sea. **Point Romanof Light** (63°12'00"N., 162°50'00"W.), 25 feet above the water, is shown seasonally from a skeleton tower with a red and white diamond-shaped daymark.

(639) After passing Point Romanof, **Crater Mountain**, on the mainland back of St. Michael Island; and St. Michael, Stephens and Stuart Mountains, on St. Michael and Stuart Islands, appear above the horizon and are excellent landmarks.

(640)

Anchorages

(641) An anchorage for medium-sized vessels is in the mouth of the right-hand stream of **Pikmiktalik River**, 8 miles northeast of Point Romanof. The depth over the bar is about 2½ feet. A shoal extends out from the south point at the entrance.

(642) In moderate weather the ocean swell is not felt between the Apoon entrance and Stephens Pass but in heavy weather and west weather, which is more likely to occur during the latter part of the season, a choppy sea develops and is heavier off Point Romanof than elsewhere. In general, this passage is safe for river steamers in the summer season. During the latter part of the season, however, high winds become more frequent, and the boats are obliged to watch their opportunities.

(643)

Anchorages

(644) Riverboats anchor on the flats or in the channel, wherever exigency demands. In the south end of St. Michael Canal in the south branch just above the junction is a good and safe anchorage in all kinds of weather. The depth is only about 3 feet on the outside bar, and it has to be crossed at high water.

(645) Good protection is available from all but southwest weather in 6 to 9 feet in the cove on the south side of Cape Stephens. **Stebbins**, on the shore of the cove, has a school and a nurse. Radiotelegraph service is maintained. Mail is delivered from St. Michael and Unalakleet.

(646) **Stuart Island**, northwest of St. Michael Island, is separated from the latter by **Stephens Pass**, which has a minimum width of about 0.6 mile. Stephens Pass has no discernable deep water channel. Vessels must be able to clear a shoal of 2.2 fathoms on the northeast side of the pass. The island is divided into two approximately

equal parts by a narrow north-south waterway that is used considerably by small launches and native craft. **Stuart Mountain**, 480 feet high, east of the center, is the highest point. The rest of the island is low and rolling, with some small, scattered peaks. The shore of the island is very irregular. From **North Point** to **Observation Point** and around through Stephens Pass is a line of conspicuous bluffs about 170 feet high; the rest of the coast is much lower. From Observation Point to the west point of the island the north shore is free from outlying dangers; 5 fathoms can be carried 1 mile from the beach. Off the west point, some detached rocks extend about 300 yards. On the east face of the island, well toward the southeast point, a shoal makes out about 3 miles. **Cape Stephens Light** (63°32'27"N., 162°18'49"W.), 200 feet above the water, is shown seasonally from a skeleton tower with a red and white diamond-shaped daymark on the southeast side of Stephens Pass.

(647) **Egg Island**, 16 miles east of Stuart Island, is small and affords little protection in heavy weather, but it is the only lee to be had in north gales. The water off the west shore is deep, 6 fathoms being found close inshore. **Egg Island Light** (63°36'40"N., 161°44'35"W.), 90 feet above the water, is shown seasonally from a skeleton tower with a red and white diamond-shaped daymark on the highest part of the island.

(648) **St. Michael Island**, separated from the mainland by St. Michael Canal, is mostly low but has two conspicuous rises: **St. Michael Mountain**, 450 feet high, near the center of the island, and sharp conical **Stephens Hill**, 331 feet high, overlooking Cape Stephens and Stephens Pass.

(649) **St. Michael Canal** is a narrow, crooked tidal slough that forks and comes together again. Distances through the canal are 18 miles by way of the north fork and 20 miles by way of the south fork. The south fork is generally used because it is wider. Depths in the canal are probably less than the 6 feet of the old improvement project but are sufficient for the traffic of the area; the depth over the bar at the southwest entrance is about 3 feet. **Canal Point** is on the north side of the southwest entrance.

(650)

St. Michael Bay

(651) **St. Michael Bay** is the harbor on the east side of St. Michael Island. **Orizaba Reef** extends 1.5 miles off **Rock Point** and is **051°** from St. Michael Mountain.

(652) **Whale Island**, close off the east end of St. Michael Island, is 95 feet high and small; on approaching the harbor its east end is seen as a vertical bluff. **Whale Island Light** (63°29'27"N., 161°59'50"W.), 53 feet above the water, is shown seasonally from a skeleton tower with a red and white diamond-shaped daymark on the east end of the island. Four tanks are about 0.75 mile northeast of the village of St. Michael. The passage between Whale and St. Michael Islands is blocked by rocks, bare at low water. East and north of the island the water deepens rapidly.

(653) **Beulah Island**, about 0.3 mile north-northwest from Whale Island, is 50 feet high, small, and rounded. Between Beulah Island and Whale Island the water is shoal.

(654) **Saint Michael**, near the east end of St. Michael Island, is about 55 miles from Apoon Pass via Stephens Pass. The village shows little evidence of the days when it was of major importance in the Yukon River traffic. Gone are most of the buildings of the Army post, the warehouses of the trading companies and the tall masts of the telegraph company; the waterfront is littered with the rotting hulks of the once great river fleet.

(655) The Alaska Commercial Company operates a store at Saint Michael. The village has a church, school and health clinic and maintains facilities for transfer of freight from ocean to river vessels.

(656) Limited amounts of diesel fuel and supplies can be obtained at the store. Yutana Barge Lines reportedly has a fuel terminal at Saint Michael and uses two sunken barges as makeshift docks. Gasoline and lodging are also available in Saint Michael. A marine railway operated by Yutana Barge Lines can handle vessels to 100 tons and 9 feet in draft with limited machine shop facilities.

(657) Telephone and radiotelephone services are maintained. The village and Yutana Barge Lines can be contacted on VHF-FM channel 10 by calling "79 Yutana." Mail and daily flights to Nome and Unalakleet are available. Yutana Barge Lines runs boats in the summer on an irregular schedule from Saint Michael to Nenana, on the Yukon River.

(658)

Anchorages

(659) The harbor and anchorage for seagoing vessels is an open roadstead exposed to winds from northwest through north to east. Larger vessels anchor in the offing between St. Michael Bay and Egg Island and in heavy north gales shift their anchorage to get a lee under Egg Island or go to sea. Anchorage is found about 0.5 mile southeast of Whale Island in 3½ to 4 fathoms, bottom dark-blue mud, and good holding ground. Care should be taken to avoid the 18-foot boulder.

(660) Good anchorage in 30 feet is 3 miles off Whale Island Light on the following bearings: Egg Island **038°**, Crater Mountain **205°**, Whale Island Light **227°**, North Point of Stuart Island **294°**—use 45 fathoms of chain.

(661) Light-draft vessels and river steamers can find shelter from north and west winds by anchoring near the east side of the island, in 3 to 8 feet. The shores of St. Michael Bay are strewn with loose rocks that are often frozen in the ice in winter and dropped as it goes out in the spring. Light-draft vessels, when anchoring in shoal water, should be careful not to anchor over any of these loose, scattered rocks.

(662)

Currents

(663) About 0.8 mile offshore in St. Michael Bay, the current velocity is about 0.8 knot. Like the tide itself, the

tidal current is chiefly diurnal and sets southeast on the flood and north on the ebb.

(664) Saint Michael being the end of deepwater navigation, all the Yukon traffic beyond this point has to be conducted with vessels drawing 5 feet or less. The larger launches leaving St. Michael Bay go around the north side of St. Michael Island and through Stephens Pass, between St. Michael and Stuart Islands. They give a wide berth to the reef off Rock Point, on the north side of St. Michael Island, and, after passing between the islands, make a straight course slightly west of Point Romanof. When the summit of Point Romanof is abeam, about 1.5 miles, the direction is changed and a course is steered for Apoon Pass. The most dangerous part of the passage is the 14 miles around the north end of St. Michael Island, which is exposed to the deepwater swell from the north. Small-craft can avoid this swell by going through St. Michael Canal.

(665)

Routes

(666) **Routes for small craft between Isanotski Strait (False Pass)** (55°05'N., 163°30'W.) and **Saint Michael.** After passing out of Isanotski Strait, clear of the outlying breakers, the course is shaped for the east side of Amak Island. Shelter can be found on the south, southeast and east sides of the island.

(667) Leaving Amak Island, the next course is set for Cape Newenham. Shelter can be obtained on either side, according to the wind. From Cape Newenham the course is set for Nunivak Island. If heavy north or northeast winds are encountered before the island is reached, shelter is sought in the depth of the bight on the south side. Weather conditions being good, it is only necessary to touch at this island if needing water. The anchorage on the north side, about 12 miles east of Cape Etolin, is considered the best. (See Nunivak Island earlier in this chapter.)

(668) From the north end of Nunivak Island the customary course is to cross over diagonally to a little north of Hazen Bay and then coast along just outside the shoals in 3 to 5 fathoms of water until Cape Romanzof is reached. If the weather is unfavorable or water is required, an anchorage in Scammon Bay is made close inshore on the south side, in a bight where a stream empties.

(669) After leaving Scammon Bay, by giving the spit on the north side of the entrance a good berth, the remaining distance to Saint Michael is made by skirting along on the outer part of the Yukon Flats, in 2 to 5 fathoms, where the courses are exclusively guided by sounding. On this crooked stretch, after the mountains of Cape Romanzof and the Kusilvak Mountains disappear, no land will be visible until the high peaks on the mainland south from Stuart Island are sighted; a little later the summits of Stuart and St. Michael Islands become visible. After Stuart and St. Michael Islands become defined, the course is shaped to go through the pass between them and then skirt around the north side of St. Michael Island to Saint Michael.

(670) In the summer, north and east winds prevail a large part of the time between Cape Newenham and Cape Romanzof. The tidal currents in Etolin Strait are strong and at times cause heavy tide rips.

(671)

Unalakleet Vicinity

(672) The coast from St. Michael Bay to Cape Darby is generally low and rock strewn, and the depths when approaching it shoal gradually from 6 fathoms toward the beach; a depth of 3 fathoms can be taken as close as 0.8 mile except in a few places. There are no outlying dangers, but a reef makes off about 0.5 mile from the shore 2 miles south of **Black Point**, about 26 miles east from Saint Michael. **Tolstoi Point** and its vicinity are high and rocky, and from there to Unalakleet River the shore is low.

(673)

Anchorages

(674) Anchorage with good protection from south winds can be found in **Klikitarik Bay**, 15 miles east of Saint Michael. There are several native campsites along this coast, but the only permanent settlement is Unalakleet.

(675) **Unalakleet** (63°53'N., 160°47'W.), at the east end of Norton Sound, is the largest village on the sound east of Nome. Approach to Unalakleet is generally from the northwest because of shoaling that occurs east and southeast of **Unalakleet River** entrance. In 1994, the USCGC IRONWOOD found good water by approaching from northwest on an east-southeast heading until intercepting longitude 160°50.0'W., then turning east, keeping the river entrance off the bow. The river entrance is marked by seasonal buoys; however, local knowledge is required to transit safely. An aerolight is about 0.5 mile north of the entrance. The North River aero radiobeacon has been found valuable as an aid to surface navigation.

(676) **Unalakleet River South Spit Light** (63°52'04"N., 160°47'16"W.), 15 feet above the water, is shown seasonally from a skeleton tower with a red and white diamond-shaped daymark on a sandspit south of the river entrance.

(677) Good anchorage for vessels with moderate draft, in 32 feet, sticky mud bottom, was found in 63°53.0'N., 160°56.0'W. Ranges were 3.5 miles from Unalakleet, 15.8 miles from Tolstoi Point and 16.3 miles from Besboro Island. This position provided good holding ground but was highly exposed. There were not any sheltered anchorages in this area. Vessels have anchored in 5 fathoms with 60 fathoms of chain about 2 miles offshore. An alternate anchorage is about 6 miles north of Unalakleet.

(678) Services available in Unalakleet include telephone, radiotelephone, mail, a school, a church, fuel, Alaska Commercial store, Troopers Post, haul out and garbage services. The village also has a health clinic with a Physicians Assistant. Daily jet air service to Nome and Anchorage is available.

(679)

Weather, Unalakleet vicinity

(680) Unalakleet does not fall into any single climatic regime. The proximity of Norton Sound places it principally under a marine influence during those months (late spring, summer, and early fall) that the sound is free of ice. The summer temperatures are cool with a relatively small number of days annually with readings above 70°F (>21°C). The summer extreme of 87°F (30.5°C) in July reflects the fact that occasionally in summer warm dry continental conditions prevail for brief periods. In winter the extreme temperatures are those of a cold continental climate, but the average minimums for the season are in between the normal values for marine and continental climates at this latitude.

(681) Precipitation also appears to be variable between marine and continental influences. The increased amount of precipitation in summer has an abrupt beginning and ending that closely coincides with the marine predominated period. The relatively low average annual snowfall relates to the dry continental winter. Because of the variable influences the coastal section of this west central part of Alaska is frequently described as being part of a transitional climatic zone between marine and continental climates.

(682) Even though the Unalakleet River Valley is broad with no extreme elevations on either side, surface winds are channeled by the valley such that prevailing directions are either east or west. Fall storms moving through the Bering Sea occasionally produce winds of several hours duration blowing from the west with velocities in excess of 43 knots, and because of the low elevation, the village and airport may be flooded by the wind-caused high tides. During winter, flooding does not occur because Norton Sound is frozen from November until about May. In the spring storms with sufficient intensity to produce wind caused floods are rare. Occurrences in summer are also quite rare but more likely than in spring, especially during the latter part of the season.

(683) **Besboro Island** is 1,040 feet high and very prominent; on a clear day it can be seen from Saint Michael. It affords a poor lee, as the wind draws all around the island. A shoal covered 2 to 4 ½ fathoms makes off 2 miles in a northeast direction from the north end of the island. The west side of the island is bold-to, and the east side can be approached as close as 0.5 mile, with a depth of over 5 fathoms.

(684) **Shaktoolik River Entrance Light** (64°22'43"N., 161°14'10W.), 14 feet above the water, is shown seasonally from a skeleton tower with a red and white diamond-shaped daymark on the spit at the entrance to **Shaktoolik River**, 7.5 miles east of Cape Denbigh.

(685) **Shaktoolik** is 2 miles south of Shaktoolik River entrance. Vessels can anchor 4 miles off the village in 7 fathoms, mud bottom. Tugs and barges and small boats beach themselves, or tie off, to the gradually shoaling shale beach near the village, but the approach is extremely shallow and should be made with caution. Some small boats pass over the bar at the mouth of the river and follow the shallow slough on the backside of the spit southeast to the village. In 1994, the USCGC IRONWOOD reported very shallow depths in the river entrance and slough. Local knowledge is required. West winds cause considerable surf in the area. A Public Safety Officer, telephone, mail, fuel and a native store can be found in Shaktoolik. Two local rescue teams can be contacted on VHF-FM channel 5. Daily flights to Nome and Unalakleet are available. Radiotelegraph service is maintained.

(686) **Cape Denbigh** is a moderately high rounded hill, joined to the mainland by a low narrow neck. The head of the bight, east of the cape, is shoal, but in the approach the water shoals gradually. A good anchorage in northeast winds can be had east of the cape in depths suitable to the draft of the vessel. The south end of the cape is bold-to, and its west side, 2.5 miles north of the point, can be approached close-to in 4 fathoms. The water shoals rapidly inside to a depth of 4 fathoms when approaching the shore.

(687) Protection from east weather is found in the lee of **Reindeer Hills**, just north-northeast of Cape Denbigh.

(688) **Norton Bay** is generally shoal. About midway between **Point Dexter** and **Bald Head** is a depth of about 6 fathoms, and from this depth the water shoals gradually as the shores are approached in any direction inside of Bald Head. In some places the 6-foot curve is 5 miles or more from the beach. The north shore of the bay for 15 miles west of Bald Head is comparatively low, and the water is shoal for some distance from the shore. From a point 15 miles west of Bald Head to Cape Darby the land is high and wooded along the coast; a few native villages are found in this stretch. For 20 miles northeast from Cape Darby, a depth of 4 fathoms can be taken 0.3 mile from the shore and in some places much closer. The water shoals gradually on approaching the coast, but the south and east sides of Cape Darby have deep water close-to. During strong north winds the water is lowered considerably in Norton Bay.

(689) The entrance to **Koyuk River**, flowing into the northeast end of Norton Bay is narrow, usually less than ¼ miles wide, and subject to change, local knowledge is required to enter the river. The village of **Koyuk**, on the north side of the mouth of the river, offers telephone, mail, fuel, stores, a Public Safety Officer and a volunteer search and rescue group. Daily flights to Nome are available. The village can be contacted on VHF-FM channel 10 by calling "Public Safety Koyuk."

(690) Small boats land or moor in a narrow channel that separates the spit at **Moses Point**, 13.1 miles west-southwest from Bald Head. An aero radiobeacon is just west of the channel. Small boats from the native village of **Elim**, about 7.5 miles to the southwest, beach themselves at Moses Point or anchor in the small bay just off the village. Vessels can anchor to a hard bottom with good holding ground about 1 mile off the village in 4½ fathoms of water. Services available in Elim include telephone, mail, fuel, store, small medical clinic, Public

Safety Officer and daily flights to Nome. The village can be contacted on VHF-FM channel 11 by calling "City Office Elim" or "Public Safety Elim."

(691) **Cape Darby** is the south extremity of **Kwiktalik Mountain**. The cape is high and rounded terminating at the water in steep rocky bluffs.

(692) **Rocky Point** is a high bold promontory with irregular rocky cliffs. **Rocky Point Light** (64°23'53'N., 163°09'00W.), 175 feet above the water, is shown seasonally from a skeleton tower with a red and white diamond-shaped daymark at the west entrance to Golovnin Bay.

(693) **Golovnin Bay**, on the north side of Norton Sound, has its entrance between Cape Darby and Rocky Point, with a width of 10 miles. It extends in a general north direction for 12 miles to the entrance to Golovnin Lagoon. The east shore is high and bold, with occasional sand and gravel beaches.

(694) **Carolyn Island**, low and rocky, is 0.2 mile off the east shore, about 8 miles north of Cape Darby.

(695) The west shore of Golovnin Bay for about 3 miles north of Rocky Point is high and bold, but beyond this is a low sand beach with a prominent point about 5 miles north of Rocky Point. The head of the bay on the west side of the entrance to Golovnin Lagoon is between a sandspit projecting from the east shore and a low sand island extending north from the west shore and connected with it at low water.

(696)

Currents

(697) The tidal current in Golovnin Bay is chiefly diurnal. The current velocity is about 0.5 knot off Carolyn Island, floods north and ebbs south. See the Tidal Current prediction service at *tidesandcurrents.noaa.gov* for specific information about times, directions, and velocities of the current at numerous locations throughout the area. Links to a user guide for this service can be found in chapter 1 of this book.

(698) Deep water can be carried close under Cape Darby and Rocky Point. East of Rocky Point is an extensive middle ground on which the least depth found was 23 feet; on its east edge it rises abruptly from 42 to 24 feet. Except for this middle ground, the bay is free from dangers south of the low point on the west shore, the deepest water being on the east side, and ranging from 66 feet close under Cape Darby to 24 feet 0.5 mile northwest of Carolyn Island. In the south part of the bay the highland may be approached closely, but off the low land the 18-foot curve is in places nearly 1 mile offshore.

(699) In 2023, a shoal with a least depth of 28 feet was reported in 64°20'N., 163°06'W., about 4 miles south-southeast of Rocky Point.

(700) In the north part of the bay an extensive shoal, with 4 to 9 feet, makes out in a northeast direction from the west shore to within 0.8 mile of the east shore; its extremity is about 2 miles 093° from the north point of South Spit on the south side of the entrance to Golovnin Lagoon. The channel leading to the entrance to Golovnin Lagoon is on the east side of the bay, passing around the east end of the shoal and following the east shore at a distance of 0.4 to 0.7 mile, with an average width of 800 yards. The least depth in the channel is 13 feet, but 15 feet has been taken in at high water. The tide is influenced by the prevailing winds, which have a tendency to bank up the water in heavy south weather and to lower it with north and northeast winds.

(701)

Anchorages

(702) Northwest of the north end of South Spit, in the entrance to Golovnin Lagoon, anchorage may be had in 36 to 42 feet, with protection from all winds. For vessels whose size prevents the use of this anchorage, the best is off the point on the west side of the bay in about 24 feet. This is unsafe in south weather but is the most convenient for communicating with the head of the bay. By shifting anchorage from one side to the other in Golovnin Bay, good shelter is found from east or southwest or west winds.

(703) An anchorage with good holding ground in 42 feet is about 7.5 miles north-northeast of Rocky Point Light. Keep at least 1 mile south of Carolyn Island.

(704) **Golovin**, on the north spit at the entrance to Golovnin Lagoon, is a distributing point for the mining district of the Fish River country. Small boats are beached or made fast to the shore on the north side of the spit. The village has telephone, mail, a school, roadhouse, cold storage plant, two salteries, several stores and an airport.

(705) **Golovnin Lagoon** is very shallow and is navigable for small vessels of 3½-foot draft to the mouth of the **Fish River**, which empties into the head of the lagoon. The channel through the lagoon is narrow and tortuous, and local knowledge is required. In 1994, the USCGC IRONWOOD reported significantly greater depths once inside the river. The village of **White Mountain** is just above where the river forks, about 7 miles above the mouth. Above the village, the river reportedly becomes very shallow with several gravel beds. The village provides telephone, mail, fuel, stores, a Public Safety Officer and daily flights to Nome. The village may be contacted on VHF-FM channel 5 by calling "City Office White Mountain."

(706) For about 22 miles, from Rocky Point to Topkok Head, the land is high and bold, in many places rising abruptly. Beyond this to Cape Nome the coast is low, with high land farther back. Immediately behind this lowland is a large shoal lagoon with two small entrances, the west one called Port Safety. Between Rocky Point and Cape Nome the water is deep and the bottom regular; by giving the shore a berth of 1 mile a depth of 6 fathoms or more will be found.

(707) **Topkok Head** is 22 miles west of Rocky Point and is the first highland close to the coast east of Cape Nome. Its seaward face rises abruptly from the water 586 feet and is a well-known and conspicuous landmark.

(719)



(708) A yellow bluff, 572 feet high, on the east side of **Bluff**, about 6 miles east of Topkok Head, is conspicuous, but not as much so as Topkok Head.

(709) In 1968, it was reported that small craft could find some protection from west winds in indifferent weather in a small cove west of Bluff. The cove can be recognized by a small low house somewhat back from a point. Caution should be exercised in this area to avoid being swept into the cove as a result of sudden wind changes.

(710) **Solomon** is an abandoned mining village at the mouth of the **Solomon River**, 11 miles west of Topkok Head and 17 miles east of Cape Nome. A road runs north to Council and west to Nome via a bridge at Port Safety. The depth on the bar at the entrance and inside Solomon River is about 3 feet, but local knowledge is necessary to keep in the best water. In 1968, it was reported that no lights were visible from offshore and that there were no good marks for entering the river. A few old steel oil tanks were reported to stand on the north side of the river west of the entrance.

(711) It was further reported in 1968 that small craft should make a straight-in approach to the river entrance from well outside. Once inside, however, the river to the west was particularly good, and small craft could tie up to the shore on either the north or south sides; the north side appeared to be a little deeper.

(712) An anchorage approximately 2 miles offshore in 8½ fathoms, hard gravel and sand bottom, is on the following bearings: Cape Nome **254°**, largest house in village **358°**, Topkok Head **079°**. Use 45 fathoms of chain. The only protection against heavy winds is to stand out to seaward.

(713) **Port Safety**, about 8 miles east of Cape Nome, is a small anchorage for vessels of less than 7-foot draft. A bridge crosses the entrance to Port Safety; vertical clearance is unknown. The channel is narrow and has a reported depth of 7 feet. Sheltered anchorage for several small vessels can be had in the narrow sloughs that lead between the flats inside the entrance.

(714) **Cape Nome** is a bluff about 650 feet high, 1 mile broad and rounded down to the water on either side, where the land at the shore is low, with higher land farther back. The water off this cape is quite deep. An active rock quarry with a pier is at the base of Cape Nome.

(715) From Cape Nome to Cape Rodney, the coast, except abreast of Sledge Island, is a comparatively straight stretch of low sand beach, with no projecting points, and higher land some distance back. Abreast of Sledge Island for a distance of several miles the hills slope down to the beach, giving this part of the coast the appearance of a point. The stretch of beach is broken by a number of small rivers. The entrances to **Nome River**, **Penny River** and **Sinuk River** have shifting bars, but there is generally enough water in the channel over these bars to permit boats of 3-foot draft to enter. When approaching the coast between Cape Nome and Sledge Island, the water shoals regularly and gradually until a depth of 3 fathoms

is reached; inside this depth the bottom is irregular, especially near the mouths of the rivers.

(716) An isolated area with a depth of 7 fathoms, 4 feet is in 64°20'15"N., 167°09'46"W., and another area with a depth of 6 fathoms, 5 feet is in 64°18'03"N., 166°44'10"W.

(717)

Nome

(718) **Nome**, the metropolis of northwest Alaska, is on the beach at the mouth of the **Snake River**, 11 miles west of Cape Nome. An aero radiobeacon is 2.5 miles east of Nome, and an aerolight is at the Nome Airport.

(720)

Channels

(721) The entrance channel to Nome Harbor leads northeast between a causeway on the west and a breakwater on the east, both marked on the outer ends by seasonal lights. The entrance channel continues northeast through the mouth of the Snake River and turns southeast to an inner harbor. The entrance to the inner harbor is marked by a **29.9°** lighted range and private, seasonal buoys. Mariners are cautioned that the inner harbor channel range does not mark a safe passage to the outer harbor; a course east of the inner range is recommended for vessels transiting the breakwater.

(722)

Anchorages

(723) The general anchorage for deep-draft vessels is in 7 to 8 fathoms about 1 mile from the beach abreast of Nome. Vessels of less draft anchor in about 6 fathoms a little closer to the beach. In strong south winds vessels should anchor farther offshore.

(724)

Tides

(725) The water levels are influenced more by the wind than tide. An offshore wind sometimes causes a level of from 2 to 3 feet below mean lower low water for days at a time; a level of 14 feet above mean lower low water has been noted as a result of storms.

(726)

Currents

(727) About 2 miles offshore in Nome roadstead the tidal current averages about 1 knot at times of strength. It is chiefly diurnal. The flood sets east and the ebb northwest.

(728)

Weather, Nome and Norton Sound vicinity

(729) The moderating influence of the open water of Norton Sound is effective only from early June to about the middle of November. Storms moving through this area during these months result in extended periods of cloudiness and rain. The nearly continuous cloud cover during July and August results in an average of 45 cloudy, 12 partly cloudy, and only 5 clear days for the 2-month period. During the summer the daily temperature range is very slight. The freezing of Norton Sound in November causes a rather abrupt change from a maritime to a continental climate. Most low-pressure systems during this period take a path south of Nome, resulting in strong east winds, accompanied by frequent blizzards, with the winds later becoming north and reaching Nome across the colder frozen areas of north Alaska.

(730) Temperatures generally remain well below freezing from the middle of November to the latter part of April; February is usually the coldest month of the year. Temperatures usually begin to rise near the end of February and continue to rise until they reach a maximum in July. Occurrences of below-zero (-18°C) temperatures have been noted in every month from October through May. An unusual aspect of the yearly temperature trend is the short period of thawing weather in January. Despite the generally low temperatures, the maximum during the month is often above freezing and the "January thaw" generally expected by old time residents is a usual occurrence. The extreme maximum for the station is 86°F (30°C) recorded in July 1968 and 1977 while the extreme minimum is -54° F (-47.7°C) recorded in January 1989.

(731) Precipitation reaches its maximum during the late summer months and drops to a minimum in April and May. For a locality with better than 200 days a year with precipitation, average annual precipitation at Nome is light at only 15.8 inches (401.3 mm). Precipitation extremes have ranged from 24.25 inches (616 mm) in 1950 to 7.42 inches (188.5 mm) in 1962. Snow has fallen as early as August but usually does not accumulate on the ground until the first part of November. Every month has recorded snowfall except July. The accumulated depth increases during November, December and January, reaching a maximum depth usually in late February or early March. The snow cover decreases rapidly in April and May and normally disappears by the middle of June. The average annual snowfall is nearly 59 inches (1,499 m) with extremes of 102 inches (2,591 mm) and 18.6 inches (472.4 mm).

(732) Average wind speeds for each month are not excessive, ranging from around 9 to 10 knots. Severe windstorms do occur with winds over 61 knots recorded several times. Velocities exceeding 61 knots have been recorded during all months from October through March. The strongest gust recorded at Nome was 62 knots in December 1977. These strong winds during the winter when there is snow cover produce blowing snow conditions that severely hinder transportation in the area.

(733) Navigation is difficult because of the ice from early December to early June and is usually suspended from late December to mid-May.

(734) The National Weather Service maintains a weather station at the Nome Airport and monitors VHF-FM channel 16 and 2182 kHz.

(735)

Quarantine

(736) Quarantine is enforced in accordance with regulations of the U.S. Public Health Service. (See Public Health Service, chapter 1.) A hospital is in Nome.

(737)

Wharves

(738) There are three open cell sheet-pile docks on the causeway in the outer harbor: City Dock (south), Middle Dock and West Gold Dock (north). The City Dock can accommodate vessels up to 425 feet in length, 230 feet for Middle Dock and 250 feet for West Gold Dock. The City Dock is primarily used to moor tank vessels that conduct bulk oil transfers, cruise ships and container barges. Middle Dock and West Gold Dock are normally used to moor barges exporting gravel, handling heavy equipment and loading and offloading containers. The Middle Dock is equipped with a Ro/Ro ramp. Larger vessels may moor at Middle and West Gold Docks when no vessels or smaller vessels are moored at adjacent docks. The reported alongside depth at these three docks is 22 feet. Prior clearance for mooring must be obtained from the Harbormaster on VHF-FM channels 12 and 16. A mooring request form is available on the port's web site.

(739) Restrictions on the size and maneuverability of vessels that can enter and moor in the port outlined in the port tariff are summarized as follows: No self-propelled vessel over 420 feet in length shall enter the port; all self propelled vessels over 200 feet in length shall have twin screw and/or an operational bow thruster; and no vessels moored or requiring moorage in the outer harbor shall depart or enter when sustained winds at the breakwater are 25 knots or greater.

(740) Exceptions to the above operating restrictions may be allowed when the pilot and/or the vessel operator, upon consultation with the Harbormaster, determine safe transit and moorage can be assured through tug assistance or the vessel's maneuverability being enhanced by other factors. In no case shall vessels over 450 feet be offered moorage or be allowed to enter the port.

(741) The outer harbor is exposed to swell from the south. The harbormaster may request that vessels depart or delay mooring if storms with swell over 6 feet are anticipated.

(742)

Supplies

(743) Water and some provisions can be obtained. Diesel fuel is available in the Port of Nome with a fuel truck.

(744)

Communications

(745) Nome has cellular service, including high speed data and wireless local area networking at hotels. Air service for passengers, mail and freight is available the year round. From Nome, roads extend to Council and Teller and to the Kobuk River south of Taylor.

(746)

Sledge Island to Cape York

(747) **Sledge Island**, 31 miles west of Cape Nome and 4.5 miles offshore, is a rocky flat-topped island except near the south extremity where the highest point, a 760-foot jagged mountain, exists. Ruins of abandoned habitations are on the sandspit on the north end of the island and along the beach about midway of the east side. These are probably ruins of the former village of **Aziak**. Except for the sandspit, the shores of the island are rocky and steep.

(748) **Sledge Island Light** (64°29'46"N., 166°11'56"W.), 32 feet above the water, is seasonally shown from a skeleton tower with a red and white diamond-shaped daymark on the north point of the island. The island may be safely approached from any direction except the east where a depth of 3 fathoms is 1 mile east of the light. Small vessels seeking shelter close in on the north side are cautioned to stay clear of the submerged bar making off northwest from the spit. It was reported that the cove just west of the spit provides a good anchorage. A depth of 6½ fathoms is about 3.7 miles offshore and about 7.5 miles east of Sledge Island. The passage between Sledge Island and the mainland has irregular bottom but has depths of 5 fathoms or more. Tide rips have been observed in the passage and on the east side of the island during heavy weather.

(749) With heavy south winds, vessels at anchor in the Nome roadstead usually seek shelter behind Sledge Island. Ice is reported to hang on longer in this area than to the east toward Nome.

(750)

Currents

(751) Current observations were made in the passage between Sledge Island and the mainland for a period of 6 days in 1950. The tidal current is diurnal with average velocity at strength of northwest current of 1 knot and average velocity at strength of southeast current of 0.5 knot. Maximum velocity observed during the period of the observations was about 1.5 knots setting northwest. See the Tidal Current prediction service at *tidesandcurrents.noaa.gov* for specific information about times, directions, and velocities of the current at numerous locations throughout the area. Links to a user guide for this service can be found in chapter 1 of this book. Vessels when in this vicinity should give special attention to the currents. Above Cape Rodney there is no perceptible current south or east; the general set is north and west.

(752) From **Cape Rodney** to **Cape Douglas**, the shore is a low sand beach, and the high land is farther inland from the beach than east of Cape Rodney. This coast is seldom approached close-to; the water is comparatively shallow and dangerous; shoals and ledges are found between Cape Douglas and Point Spencer.

(753) Vessels are cautioned to exercise care when approaching the shore south of Cape Rodney and to give the shore off Cape Douglas a berth of at least 15 miles; an

irregular bottom with depths of 6 fathoms has been found by reconnaissance lines off this cape with indications of lesser depths inshore. From a point about 8 miles northeast of Cape Douglas, the area to the north, covering the approaches to Port Clarence, has been surveyed.

(754) **Cape Rodney Light** (64°38'35"N., 166°23'47"W.), 24 feet above the water, is shown seasonally from a skeleton tower with a red and white diamond-shaped daymark on the point.

(755) **King Island**, 1,196 feet high, is about 34 miles west of Cape Douglas. It is triangular in shape, about 1.5 miles long and about 1.2 miles wide and rugged and rocky and has nearly perpendicular cliffs, deep water and generally rocky bottom on all sides. **Ukivok** is a native village on the south side. An **Area to be Avoided** surrounding King Island is recommended for ships of 400 gross tonnage and upwards—see the beginning of chapter 8 for details.

(756) The King Island Native Community and the King Island Native Corporation has issued a public notice, formally asserting their respective jurisdictional rights, to prohibit and dissuade all unauthorized parties from making landfall to explore and wander throughout the perilously unstable **Ukivok** village site. The island is restricted to anyone without the approved and signed mandatory access documents. These documents may be obtained by contacting King Island Native Corporation office personnel by phone, 907–443–2209; fax, 907–443–8049; or mailing address, P.O. Box 682 Nome, AK, 99762. King Island remains a safe haven for maritime emergenciesonly. Vessels may anchor off the village, but close inshore, in about 15 fathoms, muddy bottom, with good protection from northwest winds. In clear weather, the island is an excellent landfall for vessels coming from the south and bound for Port Clarence.

(757) **Cape York** (65°25.0'N., 167°30.0'W.) is a high, rocky, nearly vertical cliff, with numerous ravines and a range of high rugged mountains immediately back of it. The cliff is about 10 to 12 miles in extent. There is no distinct promontory and no exact point along the cliff that can be defined as the cape.

(758) The area from Cape York to Port Clarence has been surveyed with no depth less than 6 fathoms being found 1.5 miles from the shore. The general depths fall off to a submarine valley about 2 miles offshore, extending east, with depths of not less than 10 fathoms, to within 6 miles of the entrance to Port Clarence. A rock is reported about 0.8 mile from the shore southeast of **York** village.

(759) Between Cape York and the high land of Cape Prince of Wales is a bight, with comparatively low rolling land back of it, that extends across the peninsula to the north shore. The beach is low, and the water shoals gradually when approaching the shore. The east part of the bight is slightly shoaler than the west part, about 6 fathoms will be found 1 mile offshore, and in the west part of the bight 8 fathoms will be found at the same distance from the beach. When standing west alongshore and when abreast of Cape Mountain, the water deepens suddenly to 20 fathoms.

(760)

Port Clarence

(761) **Port Clarence**, a large bay indenting the Seward Peninsula about 35 miles southeast of Cape Prince of Wales, provides the only good harbor close to the Bering Strait. The bay is formed by a low sandspit that extends from the mainland in a north direction for about 10 miles to **Point Spencer**. The buildings of a former USCG Loran station are on the northern part of the spit and are the most conspicuous objects in approaching the entrance. An unmaintained airstrip is near the former Loran station.

(762) **Point Spencer Light** (65°16'38"N., 166°50'56"W.), 22 feet above the water, is shown seasonally from a skeleton tower with a red and white diamond-shaped daymark on the north end of the point at the entrance to Port Clarence. The light and the buildings of the former USCG Loran station are the most conspicuous landmarks to aid the navigator in making the entrance into Port Clarence.

(763) The channel between Point Spencer and **Point Jackson** is 4 miles wide and free of dangers, with depths of 7 to 8 fathoms. The north half of the bay has a general depth of 7 fathoms as close as 1 mile from shore with depths shoaling gradually to the beach. The south half of the bay shoals gradually to the bars and flats along the low shoreline at the south end. Along the west side of the bay the sandspit may be approached fairly close except for the shoal 2 miles south of Point Spencer that makes into the bay from the spit with depths of 2 fathoms, 1 mile off. To the east the water shoals to the entrance to **Grantley Harbor**, which is connected with Port Clarence by a narrow channel marked by a seasonal daybeacon and light. **Grantley Harbor Light** (65°16'37"N., 166°20'52"W.), 15 feet above the water, is shown from a skeleton tower with a green and white diamond-shaped daymark on the north side of the entrance to the harbor. The channel is subject to continual change; local knowledge is advised. The current is strong with many eddies and tide rips.

(764)

Anchorages

(765) Anchorage with good holding ground is available anywhere in Port Clarence with the best holding ground on the eastern side. Being very careful in the entrance, shallow-draft vessels will find greater protection in Grantley Harbor.

(766)

Routes

(767) In approaching Port Clarence from the south in fog or misty weather, the low sand and shingle spit forming the west side of Port Clarence is not visible until close-to. The best procedure is to make a landfall on King Island from the east keeping in depths greater than 10 fathoms to avoid the foul ground north from Cape Rodney. From King Island a course may be set a little east of Cape York to within 3 miles of the coast, thence on course

096°through the entrance into Port Clarence, where good anchorage may be obtained.

(768)

Tides

(769) The diurnal range of the tide at Port Clarence is subject to radical changes due to meteorological conditions. Moderate to strong south or southwest winds of several days' duration will raise the height of the tide in the area without appreciably increasing the range. This is actually a datum change and is appreciable along the entire south coast of the Seward Peninsula. It is reported that continued strong north winds produce a lowered datum, but to a lesser extent.

(770)

Currents

(771) Along the outside coast west of Point Spencer and south of Cape York there is a general west set of 1 to 2 knots. This velocity is appreciably affected by direction, force and duration of the wind.

(772) Current observations in the entrance to Port Clarence indicate that the velocity seldom exceeds 0.5 knot 2 to 3 miles north of Point Spencer. One mile east of the point, velocities up to 1 knot were observed, the larger velocities generally setting west or north.

(773)

Weather, Port Clarence Vicinity

(774) The weather, in general, is better than in the Aleutian Island area, with less fog and fewer bad storms during the short summer navigation season. Fog and high winds are generally of short duration so that it is seldom that planes cannot land at Teller or Brevig Mission at least once a week. The winter weather is generally better than the summer for plane service, as there is little or no fog during cold weather.

(775) The first surface fog appears after the spring break-up and is of an intermittent character, generally local, and forming and disappearing at intervals as short as one-half hour. As the season advances, the fog is more prevalent, of greater density and longer duration, but in general it offers no serious obstacle to surface navigation.

(776) During the summer, prevailing winds are from the south, with occasional northerly spells. In 2017, NOAA Ship Fairweather found that the strength of winds associated with storms typically exceeded forecasts by 10 to 15 knots. The low-lying land provides no meaningful shelter from south winds, and sea waves build considerably on the north side of the port.

(777) **Brevig Mission** is a small village on the north shore of Port Clarence about 9.5 miles northeast of Point Spencer. Approaches to the village are easily made from any general direction, but approach from the southwest is best. There is deep water all the way to the shore at the village, and the gravel beach makes a good landing spot to beach a skiff. The beach at Brevig Mission is steep. The water depths hold fairly consistent until within close proximity to shore. The beach is exposed to winds and weather coming from the south. In these conditions, a beach landing is difficult due to storm surge. Services available in Brevig Mission include telephone, mail and a store. The village has a Public Safety Officer and volunteer Search and Rescue teams. Several airlines provide daily flights to Nome.

(778) **Teller**, a village about 12 miles east of Point Spencer, is on the base of the south spit at the entrance to Grantley Harbor. The village can be seen from Port Clarence however, most small vessels and skiffs beach or tie-off to shore on the Grantley Harbor side. Enter Grantley Harbor by heading to the northeast corner of Port Clarence until the north and south spits are visible. A seasonal light is near the end of north spit, and a daybeacon is at the end of south spit. The best water is in the north part of the entrance maintaining a distance of about 150 yards from the north shore. However, local knowledge or an updated chart must be consulted as the channel is not linear. When inside Grantley Harbor, the deepest approach to the village is made by continuing east for another 500 yards then turning toward the center of the village. The deepest water is close to the beach on the north side of town.

(779) There are no piers, wharves or docks along the shore at Teller. The village has a Public Safety Officer and volunteer Search and Rescue teams. Services available at Teller include telephone, fuel and mail. The village has airline service that offers daily flights to Nome. In addition, the village has a road that connects with Nome but is only passable during the summer months.

(780) **Imuruk Basin** is a shallow body of water southeast of Grantley Harbor; the two are connected by narrow, difficult **Tuksuk Channel**.

(781) **Kuzitrin River** rises in the Seward Peninsula and flows in a west direction about 75 miles to Imuruk Basin. The anchorage for oceangoing vessels is in Port Clarence, the head of navigation for powerboats and other vessels up to 12 feet in draft in the mouth of Kuzitrin River. Shallow-draft lighters can navigate the Kuzitrin for about 15 miles to **Shelton**. The river is open from June to October.

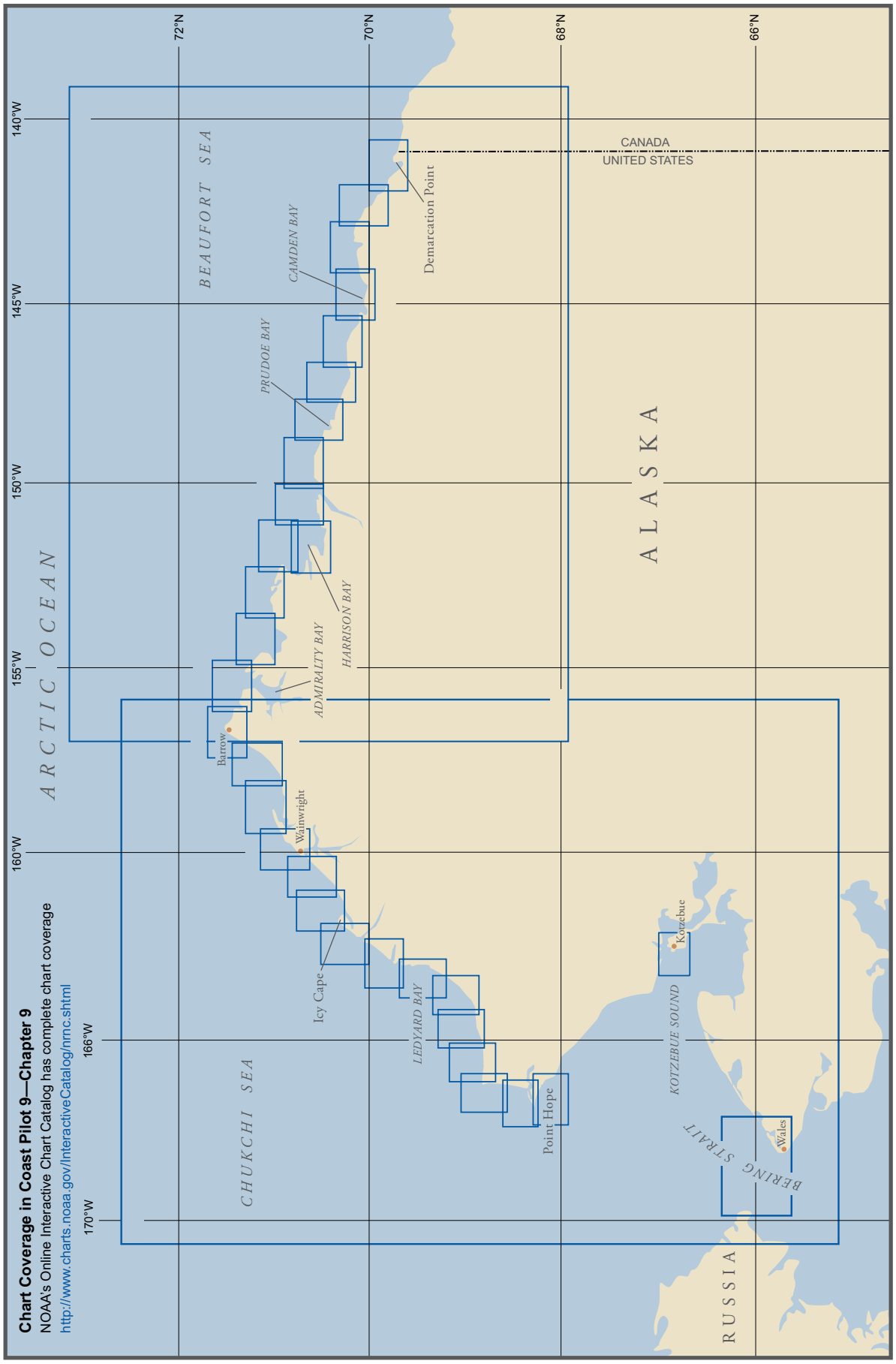


Chart Coverage in Coast Pilot 9—Chapter 9
NOAA's Online Interactive Chart Catalog has complete chart coverage
http://www.charts.noaa.gov/InteractiveCatalog/nrnc.shtml
72°N
70°N
68°N
66°N
140°W
145°W
150°W
155°W
160°W
166°W
170°W
BEAUFORT SEA
CHUKCHI SEA
ARCTIC OCEAN
ALASKA
RUSSIA
CANADA
UNITED STATES
CAMDEN BAY
PRUDOE BAY
Demarcation Point
HARRISON BAY
ADMIRALTY BAY
Barrow
Wainwright
Icy Cape
LEDYARD BAY
Point Hope
KOTZEBUE SOUND
Kotzebue
BERING STRAIT
Wales

Arctic Ocean

(1) This chapter describes the Arctic Ocean coastline of Alaska from the Bering Strait to Demarcation Point, at the boundary between the United States and Canada, and the waters of Kotzebue Sound and Prudhoe Bay. Also discussed are the Diomede Islands, Barter Island and many of the off-lying coastal islands and the more important towns and communities in this area including Wales, Kotzebue, Wainwright and Barrow.

(2)

Bering Strait to Demarcation Point

(3) **Bering Strait**, 44 miles wide between Cape Prince of Wales, Alaska, and Cape Dezhneva, Siberia, is the gateway from the Bering Sea in the Pacific Ocean to **Chukchi Sea** in the **Arctic Ocean**. The north limit of Chukchi Sea is a line from Point Barrow, Alaska, to the northernmost point of Wrangel Island, Siberia.

(4) The Arctic coast of Alaska has a general length of 921 nautical miles and is mostly low; tidal shoreline totals 2,191 miles. The lowlands have their greatest depth in the wide triangular plain with its apex near Barrow and its base against the **Brooks Range**, 150 miles to the south. The west end of Brooks Range is near Cape Lisburne and the east end is near Demarcation Point; actually it is not one but a series of ranges, some reaching elevations of more than 8,000 feet.

(5) Most of the coastal plain is low, rolling tundra cut by numerous streams and lakes. The **tundra** is a cover of grasses, lichens and shrubs which, for a short time during the summer, is brightened by flowers; during the rest of the year it presents a dreary aspect. Tundra is poorly drained and most of it is permanently frozen below the surface; this permanently frozen ground is known as **permafrost**. During the summer, the tundra thaws to a depth of a foot or more but is kept moist because water cannot penetrate the permafrost.

(6) The **frost mounds** seen occasionally along the coast are produced by frost action on the tundra and vary widely in size and duration. A large frost mound is known as a **pingo** has a fissured summit and may emit drinkable water. **Frost blisters** usually form along sloping ground and may shift in position from year to year; they seldom exceed 25 feet in height.

(7) Arctic coastal villages generally consist of small wooden homes build on stilts, unpaved roads, tank farms and a few larger public buildings such as native village community centers and schools. Fuel and supplies are brought in on barges that are beached or lightered from offshore. Whaling occurs in the arctic region year round. Landmarks are often not consistent from year to year, and occasionally entire communities are relocated a few miles due to coastal erosion.

(8) There are few harbors, port facilities or aids to navigation along the Arctic coast. Depths near shore may change as much as 6 feet because of ice gouging; storms also shift the sands in shallow water, but there is little evidence of such shifts in the deeper water. **Abnormal refraction** is a common occurrence; a pingo may loom like a mountain, and landmarks may be sighted much farther from shore than the normal limit of visibility.

(9) The area has satellite coverage which is adequate enough to obtain GPS position fixes; DGPS correctors are not broadcast in the area.

(10)

Caution

(11) Caution is required when navigating in Arctic waters. Despite advancements in hydrographic surveying and charting in the region, substantial areas of the Arctic still lack modern or adequate hydrographic data. The risks associated with marine navigation are compounded by a rapidly changing Arctic, including new maritime routes and increasing vessel traffic. Mariners are encouraged to promptly report uncharted dangers and chart discrepancies to NOAA's Office of Coast Survey. For additional details, refer to the Cautionary Note at the end of this chapter.

(12)

Currents

(13) Observations totaling about 6 days were made in the Bering Strait off Cape Prince of Wales during the summer of 1950. When not opposed by north winds, the current flowed north with velocities that sometimes exceeded 2.5 knots.

(14) From Bering Strait to Point Barrow the current sets north along the shore and has a velocity of not less than 1 knot when not opposed by winds or stopped by ice. A current from Kotzebue Sound joins the current from Bering Strait north of Cape Krusenstern, and the resultant velocity in July and August is 1.5 to 2 knots as far as Point Hope. The **Tigara Peninsula** deflects the current—resulting in a westerly flow—and extending at least 4 miles west of Point Hope. After rounding Point Hope the velocity decreases to about 1 knot.

(15) North of Point Lay the current is stopped if the ice has not opened up from the shore; if the ice is open to Point Barrow, the current continues along the shore but, because of the constricted space between shore and ice, increases in velocity to 2 or 3 knots at Point Barrow. The general current is affected by the winds and may be

decreased or even stopped by north winds, but when such winds abate the current resumes; when the wind is with the current the velocity is increased. Well offshore, the currents are variable and not so strong; they are influenced considerably by the winds but there is a definite general set north. East of Point Barrow the currents are irregular and unpredictable but seem to be caused mostly by winds and moving ice.

(16)

Weather, Arctic Ocean

(17) During July, August and September, winds in the Bering Strait are most often out of the north or south at 13 to 15 knots. Gales blow less than one percent of the time, although winds reach 28 knots or more up to five percent of the time. This same flow is present over the open waters of the Chukchi Sea, where average wind speeds range from 14 to 18 knots and gales occur about two percent of the time. In September, north winds become more frequent in the Bering Strait and Chukchi Sea, signaling a return to winter. At Kotzebue winds out of the southwest through west are prevalent during the summer. In September, they return to the prevailing east winter flow; northeast winds are also common in winter. Gales blow two percent of the time in November, December, January and February, while winds at Kotzebue and Cape Lisburne reach 28 knots or more about three to seven percent of the time in winter.

(18) Off the North Slope in July, August and September, winds blow mainly out of the northeast through east, at average speeds of 11 to 14 knots. Gales occur less than one percent of the time in July and August but one to two percent of the time in September. Southwest through west winds are also common in summer. North through northeast winds prevail during the winter. At Barrow, northeasterlies and easterlies blow the year round at average speeds of 10 to 14 knots. Gales are infrequent and unlikely in March through August. At Barter Island, winds from the northeast through east and southwest through west make up about 75 to 85 percent of the observations. Westerlies are slightly more frequent in midwinter, while easterlies, which are frequent at all times, reach a peak in early summer. Winds from the west are strongest, averaging 17 to 18 knots during the winter, when gales blow two to four percent of the time. Winds have reached 75 knots at Barter Island. Strong winter winds often blow parallel to the coast from Barrow to Barter Island.

(19) In these north seas, advection or sea fog is the primary restriction to visibility during the warmer months of the year. It is most prevalent from June through September, affecting the exposed coasts as well as open seas. It is most dense during the morning hours. In July and August, visibilities drop below 2 miles 10 to 25 percent of the time in the Bering Strait, Chukchi Sea and off the north coast of Alaska. They fall to 0.5 mile or less 5 to 20 percent of the time and are worse off the North Slope. At Barter Island, visibilities of 0.5 mile or less occur on 11 to 16 days per month from June through September, and visibilities of 0.25 mile or less occur both here and at Barrow on about 3 to 5 mornings per month during this period. Cape Lisburne is subjected to 3 to 7 days per month when visibilities fall to 0.5 mile or below. At Kotzebue, midsummer visibilities are good, while from November through June, poor visibilities occur on 3 to 7 days per month on the average. In winter, snow and blowing snow can reduce visibilities to less than 0.5 mile. The snow that accumulates is often so dry and powdery that a 10-knot wind can pick up enough to reduce visibilities to less than 5 miles. Ice fog and steam fog or arctic smoke also reduce visibilities in winter. Radiation fog can occur on calm, clear nights.

(20) Winters are cold and summers are cool along this coast. In November, average daily maximums drop to the low teens °F (-11 to -9°C) or below, while average minimums are around 0°F (-17.8°C). February is generally the coldest month. Average maximums range from just above 0°F (>18°C) at Kotzebue to -14°F (-25.6°C) at Barter Island. Low temperatures in the -20°F (-28.9°C) range are common. Extremes of -59°F (-50.5°C) or below have been recorded. The big increase in temperature starts in March. By April, daytime highs in the 10 to 20°F (-12 to -7°C) range and nighttime lows in the -5 to 5°F (-21 to -15°C) range are common. By June, temperatures are often in the 40s (5 to 10°C) during the day and 30s (-1 to 4°C) at night. Warmest weather usually occurs in July. At Kotzebue, the average maximum is 59°F (15°C), while the average minimum is 48°F (8.9°C). Along the North Slope, these readings are 8 to 10°F (4 to 6°C) cooler. Extremes can reach the mid-70s to mid-80s (23 to 30°C).

(21) Since the air in this region holds relatively little moisture, particularly in winter, annual precipitation amounts are light, ranging from 5 to 15 inches (127 to 381 mm). The greatest amounts occur along the shores of the Chukchi Sea and Kotzebue Sound. While amounts are light, there are many snowy or rainy days. Some form of measurable precipitation falls on about 200 to 300 days each year. Snow falls in every month but is the most frequent precipitation form from October through May. About 30 to 50 inches (762 to 1,270 mm) fall each year. Heaviest amounts of precipitation are most likely in July, August and September, when 2 to 4 inches (51 to 102 mm) per month are common.

(22)

Ice

(23) Unless there is an unusually late spring, the ice begins to break in Bering Strait and Kotzebue Sound by early June. Heavy drift ice from Kotzebue Sound is often found between Cape Blossom and Point Hope in late June.

(24) At Point Hope and Cape Lisburne, the pack ice breaks off from the shore ice in May and moves off and closes in again with changing winds, gradually working off to the north and west. Young ice forms in the spaces

thus left but gradually gets thinner until it disappears in June.

(25) From Cape Beaufort to Point Barrow the pack moves gradually north, clearing from point to point. A shift of the wind to west brings the pack in on shore when a few hours before it was out of sight from the land.

(26) At Point Barrow, the pack breaks off from the flaw or shore ice in the spring and moves off and on until June. When the pack moves off in June, it begins to take a northwest movement and continues to do so until it is out of sight. The movement of the pack, on and off, continues well into July, after which time heavily massed floe ice, much broken and heavily jammed together, may be expected. Mariners are cautioned that the prevailing north currents near Point Barrow will tend to carry vessels, which are beset, farther into the ice mass. The shore ice leaves the beach late in July but remains in sight until the middle of August, or perhaps all summer. In exceptional seasons the pack remains on the point the year-round. East of Point Barrow, ice conditions are very uncertain. When the pack ice moves offshore it does not go very far, and the shore and drift ice extend well inshore from its edge. The current along the west shore of Alaska sets northeast from Point Barrow; the movements of the ice to the east of Point Barrow are due entirely to the winds.

(27) In the fall, young ice forms earlier to the east than to the west and can be seen as early as mid-August. The prevailing winds are northeast and soon bring the pack down to the east of Point Barrow. When this ice movement commences vessels proceed to the west of the point.

(28) At Point Barrow young ice begins to form around heavy ice about mid-September, and by the end of the month it forms in open water and makes rapidly along the beach. By this time the pack has moved close to shore. The young ice makes out to the pack during the first week of October, and then the ice is in for the winter. The pack shuts down on Icy Cape the first week in November, and after that time there is no open water between Point Barrow and Icy Cape except when the flaw opens.

(29) Freezeup normally begins at Kotzebue in late October, and a southbound vessel should try to clear Bering Strait by early November.

(30)

Small-boat operation in ice

(31) Launches usually can proceed through the looser-packed floe ice during calm weather, but slow speed and maneuverability are essential. Passage frequently can be made close to shore when large floes have been driven in to the beach. Large bergs may also make leads through the more solid floes. Small ice cakes can be pushed aside in the looser areas. Caution must be observed to avoid the underwater projections of the larger bergs and the growler type of berg which is low in the water and difficult to see. The bergs have a tendency to roll or break with disturbances of any sort. Native launches prefer to operate close-to and in the lee of ice floes to take advantage of the smoother seas and will sometimes leave the mainland to proceed in the lee of offshore ice.

(32) Aids to navigation are maintained only during the navigation season. (See Light List.)

(33)

Maritime Activity

(34) There have been increases in cargo vessels and oil exploration vessels transiting and operating in these waters in addition to tugs with barges and small native subsistence vessels recently due to receding ice.

(35) Automatic Identification System (AIS) receiving stations are located throughout the area to monitor vessel operations and to assess compliance with recommended safety measures. Mariners should ensure that all information broadcast via their AIS including cargo, destination and vessel type is updated and accurate.

(36)

Presence of Whales and Other Marine Mammals

(37) The Bering Strait region is a major transit area for bowhead whales and other marine mammals, with the heaviest concentrations of whales, walrus and seals present during the months of May to June and September to October in the areas of the Chukchi and Beaufort Seas. Mariners are requested to maintain a sharp lookout, reduce the speed of the vessel and maneuver to avoid striking whales and other marine mammals.

(38)

Presence of Native Subsistence Hunting and Fishing Vessels

(39) Small vessels (paddle, sail, outboard motor) are used by native subsistence hunters during the months of May to June and September to October in the waters north of the Bering Strait as far as 30 miles offshore. Mariners should maintain a sharp lookout for marine mammals and small vessels and exercise caution when operating in their vicinity. A wide closest point of approach is requested by the subsistence hunters in this area.

(40)

Cape Prince of Wales, AK to Diomede Islands

(41) **Cape Prince of Wales**, on the Alaska side of Bering Strait, is the west extremity of **Seward Peninsula**. **Cape Mountain**, 2,289 feet high, is a mile back of the steep rocky shores on the southwest side of the cape. A radar dome is atop the mountain and a parabolic antenna is 1.7 miles east-northeast of the mountain.

(42) **Tin City**, an abandoned village, is on the beach about 2 miles southeast of Cape Mountain. The bight off Tin City affords north weather anchorage in depths of 10 fathoms a mile from a sand beach that is steep enough for good landing. There is a Government airstrip and radar facility near Tin City. In July 2010, a 2-knot northwesterly current was experienced by NOAA Ship FAIRWEATHER while anchored there.

(43) **Wales**, 2.5 miles northwest of Cape Mountain, is at the south end of a low sandy beach that extends 4 miles north, then turns northeast toward Shismaref Inlet. The village has a mission, a school, a store and radiotelephone communication. Small planes carrying mail and a few passengers land on the beach in front of the village.

(44) **Cape Prince of Wales Light** (65°38'01"N., 168°07'09"W.), 20 feet above the water, is shown seasonally from a skeleton tower with a red and white diamond-shaped daymark on the beach 2 miles north of Wales.

(45) Anchorage off Wales is in depths of 10 fathoms 0.8 mile from the beach. A narrow naval **restricted area** extends nearly 4 miles due west from the beach midway between Wales and the light. (See **33 CFR 334.1330**, chapter 2, for limits and regulations). Caution is advised to avoid being dragged north over the restricted area and on to Prince of Wales Shoal by the nontidal current that usually has a velocity of more than 1 knot.

(46)

Ice

(47) Average breakup in Bering Strait at Wales is in early June and average freezeup is about the first of December. Navigation is difficult from early December to early June and is usually suspended from late December through April.

(48) **Prince of Wales Shoal** is a narrow ridge of sand, covered 3½ to 5 fathoms, that extends about 35 miles north-northeast from the west extremity of the cape. Vessels bound south through Bering Strait should be careful not to fall too far east and be caught between the shoal and the north shore of Seward Peninsula. The shoal is unmarked because of ice conditions and the remoteness of the locality. Changing current and wind conditions offshore of the shoal often cause confused, choppy seas that may be dangerous for small craft.

(49) **Fairway Rock** (65°38'N., 168°44'W.), 15 miles west of Cape Prince of Wales, is 394 feet high, square headed, and steep sided.

(50) The **Diomede Islands**, midway between Cape Prince of Wales and the Siberian mainland, have nearly perpendicular sides and are without beaches; the tops of the islands are broken tablelands. The waters around the islands are deep, the bottom is mostly rocky but varies locally from stone to broken shell to mud, and anchorage is poor. The U.S.-Russia boundary passes between the two islands.

(51) **Little Diomede Island** (Alaska), with an elevation of 1,634 feet, is 20 miles west-northwest of Cape Prince of Wales and 8 miles north-northwest of Fairway Rock. **Diomede** (native name Inalik), the only village on the island, is midway along the west shore. A helipad is on a filled jetty west of the village. A yellow, white, and green rotating aerobeacon shows atop a cylindrical white water tank just east of the helipad when incoming or outgoing aircraft are expected. The aerobeacon is obscured between approximately 000° and 180°. Diomede has a health clinic and a native store. Very limited amounts of food and fuel are available. Mail is delivered on regular helicopter flights via Nome and Wales. A shoal extends west from the helipad toward the south end of Big Diomede Island across the U.S.-Russia boundary. Vessels approaching Little Diomede Island from the south and east may run close along the south shore, keeping in depths greater than 14 fathoms until the village is sighted, and anchor south of the shoal. Approach from east also has been made along north shore at distances decreasing from 1 mile to 0.4 mile and anchorage in depths of 17 fathoms 0.7 mile north of the spit.

(52) **Big Diomede Island** (Russia), 2.1 miles northwest of Little Diomede Island, rises to a height of 1,667 feet; close to the west shore are some bare rocks, and a light is shown from the north end. Natives report numerous uncharted shoals between the islands; passage should not be attempted by large vessels.

(53)

Cape Dezhneva, RU to Selawik National Wildlife Refuge

(54) **Cape Dezhneva**, 19 miles northwest of Big Diomede Island, is the east extremity of the mountainous peninsula at the northeast end of the Russian mainland. This peninsula, which rises to a height of 2,638 feet, resembles an island when seen from the offing because of the low, marshy land back of it. The coasts of the peninsula consist mainly of dark-colored cliffs rising in jagged terraces steeply from the sea. A light is shown from the southeast side of the cape. A radiobeacon is at the light. A submerged rock is a mile off the northeast face of the cape. Anchorage, with good protection from offshore winds, can be found in depths of 8 fathoms both north and south of the meeting place of lowlands and mountains. Anchorage is also possible in depths of 10 fathoms, muddy bottom, east of the cape.

(55) From Cape Prince of Wales to Shishmaref Inlet, 60 miles northeast, the coast is a low sand beach backed by lagoons and marshes. The mountains in the interior can be seen on a clear day; **Potato Mountain** (65°40'N., 167°35'W.), 1,406 feet, and **Ear Mountain** (65°55'N., 166°19'W.), 2,329 feet, are distinguishable.

(56) **Shishmaref Inlet** is large and extends about 15 miles into the land. Across its mouth is **Sarichef Island**, narrow and about 5 miles long. **Shishmaref Light** (66°15'32"N., 166°02'25"W.), 20 feet above the water, is shown seasonally from a skeleton tower with a red and white diamond-shaped daymark about 1.0 mile from the northeast end of the island.

(57) **Shishmaref**, 0.3 mile west of Shishmaref Light, is the most important settlement along this section of the coast. The village has a school, store, clinic and airstrip. An aerobeacon is at the airstrip. Limited supplies of gasoline, diesel fuel, food and water are available. The church steeple is the most conspicuous structure. Mail is delivered daily on flights from Nome.

(58) Anchorage can be had in depths of 3 to 5 fathoms 0.75 to 1.3 miles west-northwest of Shishmaref Light, sand bottom. Beach landings can be made only in calm weather on the seaward side of Sarichef Island because of shallow water that extends 250 yards from shore. A large stone breakwater wall extends along the seaward side of Shishmaref 0.1 mile southwest of the end of the breakwater wall is a sandy beach where barges are beached. This is also the preferred seaward landing point for small craft as well.

(59) The navigable channel into Shiskmaref Inlet rounds the southwest end of Sarichef Island with reported depths of up to 12 feet in the center of the channel year-round. However, vessels are not recommenced to transit through this channel without a native pilot. A second channel rounds the northeast side of Sarichef Island and is not recommended for passage into Shishmaref Inlet. A dangerous bar extends out 0.5 mile from the point on the north side of this channel. Vessels drawing as much as 7 feet may be beached on the channel side of the sandy northeast end of Sarichef Island; drafts of 3 feet may be taken to within 100 yards of the inner beach southwest of Shishmaref, and native skiffs follow unmarked channels completely around the island. Local residents moor on the lagoon side of Shishmaref. Native pilots are available at Shishmaref. Although tidal variations in Shishmaref are only a few feet, Shishmaref Inlet is very susceptible to water build-up from storm winds blowing from the northwest. Storm tides in Shishmaref Inlet have been reported between 6 and 8 feet in autumn and winter gales before the freezeup.

(60)

Ice

(61) Average breakup at Shishmaref is in the latter part of June and average freezeup is about the second week of November. Navigation is difficult from the first of December until late June and usually is suspended from late December until early June.

(62) For 60 miles northeast and east from Shishmaref Inlet the coast is a line of low bluffs and small sand dunes that end in a very low spit at **Cape Espenberg**, which is difficult to make out. Native settlements are scattered along the coast from Cape Espenberg to Cape Prince of Wales.

(63) **Northwest Corner Light** (66°34'50"N., 164°24'24"W.), 75 feet above the water, is seasonally shown from a skeleton tower with a red and white diamond-shaped daymark 19 miles west of Cape Espenberg. Directly north of the light and extending approximately 1.3 miles offshore, there is shoaling with abrupt depth changes of up to 4 meters. **Cape Espenberg Light** (66°33'27"N., 163°36'29"W.), 28 feet above the water, is shown seasonally from a skeleton tower with a red and white diamond-shaped daymark on the cape.

(64) **Kotzebue Sound**, at the northeast end of Seward Peninsula, is entered between Cape Espenberg and Cape Krusenstern, 33 miles to the north; depths are 6 to 9 fathoms throughout most of the sound.

(65) The 30-mile west side of Kotzebue Sound from Cape Espenberg south is relatively shallow, with depths of 3 fathoms as far as 5 miles from shore; the land on this side is mostly low but a small hill is conspicuous about halfway between the cape and the south shore.

(66) The 45-mile south shore of Kotzebue Sound proper is higher, rockier, and bolder than the west shore; inshore depths too are greater, with 4 and 5 fathoms quite close to the promontories. **Cape Deceit Light** (66°05'57"N., 162°45'02"W.), 200 feet above the water, is shown seasonally from a skeleton tower with a red and white diamond-shaped daymark on the extremity of **Cape Deceit**, which is halfway along the south shore.

(67) **Deering**, on the east side of Cape Deceit, has a school, stores and radio communication. Anchorage is not recommended about 1.5 miles east of Cape Deceit Light, where a submerged cable runs in a northeast direction from Deering. Larger vessels have been observed anchoring 1 to 2 miles north or northwest of Cape Deceit Light in depths of 5 fathoms; during a 2024 survey, a seabed sample near this area showed mostly stiff mud.

(68) **Kiwalik Lagoon**, in the southeast corner of Kotzebue Sound, is shallow and has a mud bottom. A narrow channel winds through the lagoon to **Kiwalik River**, which can be navigated only with local knowledge. Shallow-draft boats can operate in the lagoon during periods of high water, but the lagoon is almost dry when the water is lowered by adverse winds.

(69) **Kiwalik**, on the gravel spit on the west side of the lagoon entrance, has a rough landing strip that will accommodate small planes. **Candle**, about 6 miles upriver from Kiwalik, has stores, a school and a gravel airstrip.

(70) **Spafarief Bay**, also in the southeast corner of Kotzebue Sound but north of Kiwalik Lagoon, has depths of 3 to 5 fathoms.

(71) Tundra-covered **Chamisso Island**, 231 feet high and about 1 mile long, is 11 miles north across Spafarief Bay from Kiwalik Lagoon and 2.5 miles south of Choris Peninsula. The earth and rock bluffs that rim the island range in height from 15 feet at the south end to 80 feet at the northwest end. The shores are mostly broken boulders separated by short stretches of sand beach. Shallow water extends 0.3 to 0.5 mile from the north and east sides of the island. Early in the open season freshwater can be obtained on Chamisso Island.

(72) Tiny **Puffin Island**, 0.3 mile northwest of Chamisso Island, has steep rocky shores; there are two conspicuous rocks south of the island. The waters are deep on the north and west sides of Puffin Island, but the passage between the islands is foul.

(73) **Choris Peninsula**, 300 feet in elevation, is a 6-mile south projection from much larger and longer Baldwin Peninsula. The north of two hills on the small peninsula is joined to Baldwin Peninsula by a narrow neck of

land about 20 feet in elevation. The outer end of Choris Peninsula is the widest part, 2 miles, of the entire feature; the bluffs are 50 to 95 feet high and there are projecting rock ledges. The passage between Choris Peninsula and Chamisso Island has depths of 3½ to 6 fathoms.

(74) **Eschscholtz Bay**, behind Choris Peninsula, Chamisso Island, and Spafarief Bay, extends 20 miles east along the south side of Baldwin Peninsula and is mostly shallow. The shore at the head of the bay is rimmed with long muddy flats that bare at low water in some places as far as 0.3 mile from the beach. **Buckland River**, which empties into the head of Eschscholtz Bay, is large but shallow and has little traffic; **Buckland**, 10 miles upriver, has a radio station.

(75) North of Choris Peninsula, **Baldwin Peninsula** is low for some distance, then rises to low bluffs which continue to the mouth of Hotham Inlet, 40 miles to the northwest. The faces of the bluffs are deeply furrowed by the gradual melting and sliding of the surface ice and frozen mud.

(76) **Cape Blossom** is a distinctive point in the Baldwin Peninsula bluffs, which are highest at the point and slope to either side.

(77) **Hotham Inlet** entrance, 15 miles north of Cape Blossom and 30 miles east-southeast of Cape Krusenstern, is obstructed by vast mud flats and sandbars, some of which are bare at low water; the 3-fathom curve extends as much as 9 miles from shore and nearly as far south as Cape Blossom. The inner waters of Hotham Inlet, which have been known locally as **Kobuk Lake**, are 4 to 15 miles wide and extend 45 miles southeast behind Baldwin Peninsula. Landings cannot be made at many places in Hotham Inlet because of the extensive mud flats. The waters are little influenced by tides and are mostly fresh because of the near absence of any east current; prolonged southeast winds lower the level.

(77.010) The only option for entrance into Hotham Inlet from Kotzebue Sound is via the Kotzebue channel. Once alongside the Kotzebue outer seawall, the channel directs northeast towards the mouth of the Noatak River before rounding the northwestern edge of the Baldwin Peninsula. Continuing east, the channel dips slightly into the bay at the north end of the peninsula before rounding the northeastern corner of Baldwin Peninsula, also known as Pipe Spit. Caution is advised when rounding Pipe Spit as the spit extends in a northern direction into the channel. South of the spit there is little to no channel to be had through Hotham Inlet; charted depths are 1 to 2 fathoms. Local knowledge is recommended transiting the area as there is a high likelihood of shifting seafloor season to season.

(78) **Selawik National Wildlife Refuge** includes areas of Hotham Inlet and Selawik Lake and is a Marine Protected Area.

(79)

Kotzebue to Cape Thompson

(80) **Kotzebue** is located on Baldwin Peninsula near the mouths of the Kobuk and Noatak Rivers, about 11 miles north of Cape Blossom and on the outer south side of Hotham Inlet entrance. It is the second largest city in Arctic Alaska and is the shipping and transportation hub for the Northwest Arctic Borough. Kotzebue has a school, a hospital, hotels, stores, gas stations, churches, banking facilities and an airport. The airport has radiotelephone communication and is marked by a rotating white and green aero-light and an aero-radiobeacon. Just south of the western end of the Kotzebue runway, a cell phone tower is marked by a white strobe light. A 410-foot radio tower marked with a white strobe light is south of the airport. A parabolic antenna south of the airport is visible upwards of 15 miles from Kotzebue on clear days. There is a heavily trafficked harbor east of town with a pier in good condition. Shoals outside the harbor are constantly shifting. During ice-free months privately maintained buoys mark the entrance to the channel. The channel is difficult to follow and is restricted to vessels with drafts under 6 feet; local knowledge is advised. Local pilots are available. Kotzebue is served by Northland Towing and Crowley Marine. Crowley maintains a fuel farm at Kotzebue from which its tugs and barges conduct re-supply runs to other Arctic villages.

(80.010) Vessels drafting less than 6 feet can reach Kotzebue's outer seawall but entry into the harbor requires a draft of 3 feet or less. The harbor approach includes two fixed bridges. The outer bridge offers greater clearance than the inner Kotzebue Boat Harbor Bridge, which has a reported clearance of approximately 8 feet.

(81) Deep-draft vessels approach Kotzebue as closely as possible and lighter their freight ashore. The trip by small boat from the anchorage to Kotzebue is about 15 miles and over many sandbars that are constantly shifting; local pilotage is advised.

(82) Good anchorage was reported in mud bottom outside of the channel and southwest of Cape Blossom in 5 to 7 fathoms of water. The anchorage outside of Kotzebue is sheltered from north and east winds. Mariners are advised to use caution during west winds as vessels may be damaged by drifting ice when present.

(83) The report further stated that the vessel after passing through Bering Strait found Ear Mountain (65°55'N., 166°19'W.) and Midnight Mountain (65°47'N., 164°35'W.) to be good marks. Upon rounding Cape Lowenstern, the vessel attempted to enter Kotzebue Sound, but encountering solid ice in the approach, had to turn about and head in a generally north direction keeping about 60 miles offshore to avoid broken ice and growlers to a point about 4 miles southwest of Kivalina. From this point the vessel headed in a generally south direction keeping about 10 miles offshore to the anchorage.

(84) In addition to the aids used in anchoring, the following were reported good marks in the south approach to the anchorage, the 2,070-foot peak northwest of Igichuk Hills, a tripod or post on Cape Krusenstern and the old unlighted radio towers in about 67°18.5'N., 163°40.0'W.

(85) Cape Mountain, 2,289 feet high, at the west end of Seward Peninsula, and the bluffs behind Cape Krusenstern were reported to be good radar targets, but the actual cape and shoreline proved deceptive.

(86)

Currents

(87) The average velocity of the tidal current is about 0.5 knot at the anchorage southwest of Cape Blossom; the flood sets southeast and the ebb northwest. Observations at this location show a northwest nontidal flow that sometimes has sufficient velocity to overcome the flood of the tidal current and produce a continuous northwest current of varying velocity for days at a time. This northwest flow attains maximum velocities of 1 to 2 knots at times of the tidal current's ebb strength. See the Tidal Current prediction service at *tidesandcurrents.noaa.gov* for specific information about times, directions, and velocities of the current at numerous locations throughout the area. Links to a user guide for this service can be found in chapter 1 of this book.

(88) Strong currents and tidal interfaces were observed outside of Kotzebue. The currents circulate within Kotzebue Sound at speeds between 1 to 2 knots. In the northeast corner of the sound, these currents interface with the outflow from the Noatak River and can create unexpected sets and drifts.

(89)

Weather, Kotzebue Vicinity

(90) Kotzebue is 26 miles inside the Arctic Circle and very near the north end of a long narrow peninsula bounded on the north and west by Kotzebue Sound and on the east by Hotham Inlet (known locally as Kobuk Lake). These water bodies produce a maritime type of climate when the water is ice-free which is roughly from late May to late October, although the west portion of the sound is not completely frozen until about December and not completely free of ice again until the middle of July. Local topography is nearly uniform with a general low relief, so that there are no significant terrain barriers in the immediate area to impede surface air-flow or produce pronounced local variations in temperature and precipitation. The mountainous Seward Peninsula to the south, however, does deflect some low pressure systems that originate in or beyond the Bering Sea area and move toward this region.

(91) During the ice-free period cloudy skies prevail, fog occurs, daily temperatures are relatively uniform, relative humidity is high and west winds predominate. These normal conditions are altered only by cyclonic storms or by pressure systems strong enough to overcome local circulation tendencies.

(92) When the water surrounding the peninsula becomes frozen, the climatic characteristics approach the continental type. The change from maritime to approximately continental conditions becomes progressively more pronounced as the ice cover advances across the sound toward the Arctic Ocean. A similar, but inverse, change occurs as the ice diminishes.

(93) Average winter temperatures are not as severe as might be expected at this latitude. Cyclonic storms and the influence of the Arctic Ocean, which is often relatively free of ice, moderate the winter temperatures. Average winter maximums at Kotzebue are in the positive single digits 1°F to 10°F (-17°C to -12°C) while overnight lows average around -10°F (-23.3°C). During the summer months daily maximums average in the middle 50s Farenheit (12°C to 14°C) with overnight lows in the low to middle 40s Farenheit (6°C to 8°C). Extremes for Kotzebue have included a maximum of 85°F (29.4°C) in July 1958 and a minimum of -52°F (-46.8°C) in February of 1964 and 1968.

(94) Annual precipitation is very light. The total for a normal year is about nine inches (229 mm), and over half of that usually occurs in three months, July, August and September. The wettest year on record, 1990, had only 14.76 inches (374.9 mm) of precipitation. Snow falls on an average of 124 days during a given year and has fallen during every month. The snowiest month is November. The annual average snowfall is 49 inches (1,245 mm) with extremes of 88 inches (2,235 mm) and 21 inches (533 mm).

(95) The National Weather Service in Kotzebue broadcasts weather conditions and a week-long forecast twice daily on VHF channel 68 at 0930 and 1530. The forecasters can be contacted on VHF channel 16 during the day.

(96)

Ice

(97) Average breakup in Kotzebue Sound at Kotzebue is about the last of May and average freezeup is in the latter part of October. Navigation is difficult from late October to the latter part of June and usually is suspended from the second week in November to mid-June.

(98) **Noatak River**, which empties into the north side of Hotham Inlet entrance, has numerous rapids and is not navigated for any great distance by anything larger than a canoe. The natives portage from the headwaters of Noatak River to Chipp River and follow the latter to Beaufort Sea. **Noatak**, about 35 miles upriver from Hotham Inlet, has an airstrip and a radio station.

(99) **Kobuk River** empties into the east side of Hotham Inlet through a many-mouthed delta that extends inland for about 30 miles; depths off the delta are 2 to 4 feet for as much as 3 miles. The delta channels are difficult to navigate but the river proper is comparatively wide and deep. The natives portage their canoes from the headwaters of Kobuk River to Koyukuk River, a tributary of the Yukon.

(100) **Noorvik**, 25 miles up Kobuk River from Hotham Inlet, has a hospital, airstrip and radio station. **Kiana**, at the junction with **Squirrel River** 45 miles up the Kobuk from the inlet, has stores, a school, an airstrip and a radio station. Much farther up Kobuk River from the inlet are **Shungnak**, 150 miles, and **Kobuk**, 155 miles; both have airstrips and Shungnak has a school, a mission and a radio station.

(101) A narrow passage 4 miles long and 1 mile wide connects the southeast end of Hotham Inlet with **Selawik Lake**, which extends 35 miles farther east and averages 15 miles in width. A depth of 2 fathoms can be taken around the lake by giving the shores a wide berth. **Selawik River**, which empties into the east end of the lake through a maze of islands, has several entrances that are obstructed by mud flats; navigable entrance depth is uncertain but presumably is shallow. **Selawik**, near one of the entrances, has a school, a mission, a radio station and an airstrip.

(102) The coast is low from Hotham Inlet to Cape Krusenstern, and shallow water extends nearly half the distance from the mouth of the inlet toward the cape; the edge of the shoal is steep and should be approached carefully. For the rest of the distance there are depths of 4 to 6 fathoms close to the beach.

(103) Behind **Cape Krusenstern** is a high, prominent range of mountains that can be seen from great distances. On closer approach, the mountains are seen to fall away toward the cape in a series of steps and must not be mistaken for the low cape when shaping a course into Kotzebue Sound. A shoal extends 3 miles northwest from the north side of the cape.

(104) North of Cape Krusenstern the coast is a low, shingle beach backed by numerous lagoons that discharge through small shallow openings. The high ground behind the cape continues at some distance inland to **Mulgrave Hills**, about 30 miles north of the cape. Beyond the hills is a wide plain that extends another 30 miles before the mountains again approach the coast and slope down to the water.

(105) About 38 miles north-northwest of Cape Krusenstern is the Cominco-Red Dog Mine port site and loading facility. A large red, white, and blue building with a dark blue roof depicting an Alaska State flag is predominant and visible well offshore. Large bulk carriers anchor approximately 4 miles south of the facility and have their loads barged out to them. The pier (67°34'24"N., 164°03'59"W.) is public but space is limited. The mining camp maintains telephone and radiotelephone communications year round; telephone 907-645-2184. Air service is available. Two lights, loading facility lights, and mooring buoys mark the site. Local knowledge is advised in approaching the area; pilots can be reached on VHF-FM channel 7A.

(106) About 42 miles north-northwest of Cape Krusenstern is the inlet to a lagoon that extends another 8 miles northwest behind the barrier beach that separates it from the ocean. **Kivalina**, on the barrier beach north of the inlet, has a prominent landmark of a brown building with large erosion mitigation sandbags. The village has a school, a volunteer search and rescue organization (VHF-FM channel 16), a store and a telecommunications center on VHF-FM channel 68. Small-craft anchorage is available along the inner side of the village where the channel bears in close to shore. Shifting shoals extend as much as 0.3 mile from either side of the inlet, and entrance should not be attempted without local pilotage. Mariners transiting the area are requested to contact the Kivalina telecom center on VHF-FM channel 68 for information on whaling activities. Severe fall storms have caused storm surges large enough to warrant the evacuation of the town; anchorage off Kivalina offers no protection from these storms.

(107)

Ice

(108) Average breakup at Kivalina is in the latter part of May and average freezeup is in the latter part of October.

(109)

Pilotage, Kivalina/Cape Krusenstern

(110) Pilotage, except for certain exempted vessels, is compulsory for all vessels navigating the waters of the State of Alaska.

(111) The Chukchi Sea area is served by the Alaska Marine Pilots. (See **Pilotage, General** (indexed), chapter 3, for the pilot pickup stations and other details.)

(112) At **Cape Thompson** (68°07.0'N., 165°57.0'W.), 80 miles northwest of Cape Krusenstern, the mountains drop directly to the water in a series of steep bluffs, and cliffs about 500 feet high and 6 miles long. Thousands of sea birds nest along the bluffs and their eggs are an Eskimo source of fresh food supply in early summer.

(113) The coast is without distinct promontories. About midway along the Cape Thompson cliffs is a rugged mountain face that has at its south end a distinct series of strata in an irregular semicircle. In the ravine south of this point is a small stream from which freshwater can be easily obtained. Directly off the stream, anchorage can be had in depths of 5 fathoms, sandy bottom. At other places along the cliffs the bottom is mostly rocky.

(114) In the bight 1 mile north of Cape Thompson, the water is fairly deep close to shore and remains calm in the severest north and east storms. Good anchorage, with sand bottom, is available for small craft. A 69-ton vessel has been brought to within 75 yards of the shore without grounding. Good water can be obtained from any of several streams.

(115)

Cape Thompson to Point Hope

(116) From Cape Thompson the mountains continue north to Cape Lisburne, while the coast curves northwest and west to Point Hope.

(117) **Point Hope**, 22 miles northwest of Cape Thompson and 102 miles from Cape Krusenstern, is the seaward extremity of a low tongue of land that projects 16 miles

west from the general line of the coastal mountains. The point has a steep shingle beach that is backed by numerous lagoons. Point Hope is the most important and oldest settlement along this part of the coast and has a telecommunications center and volunteer search and rescue center that can be contacted on VHF-FM channels 16 and 68. There is an airport here, a school, police and fire station. Services include a radio and cable television station, internet and cellular service. There are no port facilities or dock at Point Hope. Limited quantities of marine gasoline and diesel fuel are barged to the beach south of the airport. An aero radiobeacon (68°21.0'N., 166°47.2'W.) is at the airport, about 1.4 miles northeast of the tip of Point Hope.

(118) Subsistence whaling at Point Hope occurs in the spring (April–May) and fall (September–October) as far as 30 miles offshore. Vessels transiting in the vicinity of Point Hope during these times are requested to contact the Alaska Eskimo Whaling Commission and the Point Hope communications center on VHF-FM channel 68.

(119) Depths of 4 fathoms are found 7 miles northwest of Point Hope—a strong westerly 2-knot-current is just south of here. A 2¼-fathom shoal extends about 2 miles from shore 6 miles east-southeast of the point. Vessels have anchored in depths of 6 fathoms about 0.8 mile south of Point Hope and in 5 fathoms 0.5 mile northeast of the tip of the point.

(120) In 2018, NOAA Ship *Fairweather* anchored about 3 miles west-southwest of Point Hope in 20 fathoms and 5 miles northeast of the point in 10 fathoms. The west-southwest anchorage affords little protection from weather and experiences strong current, but held well. the northeast anchorage is preferred for weather from the south and offers some protection from swell with good holding in sandy bottom.

(121)

Ice

(122) Average breakup at Point Hope is in the latter part of June and average freezeup is about the second week of November. Navigation is difficult from the latter part of November until mid-July and usually is suspended from early December until the latter part of June.

(123)

Marryat Inlet

(124) **Marryat Inlet**. 10 miles east-northeast of Point Hope is the entrance to a large inlet; a draft of 5 feet can be taken through the inlet but those not familiar with the channel should be cautious about entering. When the ice breaks in the inlet, there is a strong outflowing current and the moving ice is more or less dangerous. Depths off the inlet range from 1½ fathoms near shore to 3½ fathoms at a distance of 4 miles.

(125) North of Marryat Inlet the mountains slope down to rugged shore cliffs. The few ravines in the cliffs have running streams with shore outlets where freshwater can be obtained.

(126)

Cape Lisburne

(127) **Cape Lisburne** (68°52'54"N., 166°12'36"W.) is a bare brown mountain 35 miles north-northeast of Point Hope. This rugged headland is distinctively marked by a radar dome (68°52'12"N., 166°09'06"W.), pinnacles and rocks near its summit, and its shore faces are very steep. The cliffs are rookeries, and during the summer months the sky is sometimes darkened by flights of birds. The wind rushes down from the mountains in gusts of great violence and varying directions, and at such times passing vessels should stay well off the cape.

(128) Several beaches near the rocky point at Cape Lisburne are important resting areas (haulouts) for Pacific walruses from July through October. Walruses are extremely sensitive to unexpected or unfamiliar sights, smells and sounds and can easily be startled, in some cases causing deadly stampedes. Chukchi coast walrus haulouts are particularly sensitive as they are mainly comprised of females, many with calves which are especially vulnerable to being trampled and killed during stampedes due to their small size. Operating a watercraft in a manner which results in disturbing, harassing, herding, hazing or driving of walruses is prohibited under provisions of the Marine Mammal Protection Act. In an effort to prevent disturbance to walruses, marine vessel operators are requested to observe the following guidelines during haulout occupancy periods:

(129) Vessels less than 50 feet in length should remain at least 0.5 nautical mile away from a walrus haulout.

(130) Vessels 50 feet or more but less than 100 feet in length should remain at least 1 nautical mile away from a walrus haulout.

(131) Vessels 100 feet or more in length should remain at least 3 nautical miles away from a walrus haulout.

(132) All vessels should refrain from anchoring within 3 nautical miles of a walrus haulout.

(133) Maintain a 1 nautical mile buffer from active walrus haulouts when loading or unloading barge cargo at Cape Lisburne.

(134)

Cape Sabine

(135) The coast turns abruptly east from Cape Lisburne. The land is lower; the hills are rounded and slope to the sea. Toward **Cape Sabine** (68°55.0'N., 164°36.0'W.), 35 miles east of Cape Lisburne, is a series of ridges that terminate at the coast in bluffs. Cape Sabine is the outer end of one of the ridges and projects but slightly from the general line of the coast. Veins of coal 1 to 4 feet thick show plainly along the tops of the bluffs at Cape Sabine; some of the veins have been worked, but use of the coal is limited because of its poor quality and the difficulty of mining it.

(136)

Cape Beaufort

(137) From Cape Sabine, the land continues of a rolling character until near **Cape Beaufort** (69°02.0'N., 163°50.0'W.), a dark mountain that comes down to the coast 52 miles east by north of Cape Lisburne. There is no appreciable break in the coast at Cape Beaufort, and it probably was named a cape because it is the most north extension of high ground along the coast of Alaska. At this point the mountains recede inland and the coast continues low.

(138)

Kasegaluk Lagoon

(139) About 18 miles north of Cape Beaufort is the south extremity of **Kasegaluk Lagoon**, which extends to within a few miles of Wainwright Inlet. South and east of Icy Cape the lagoon is blocked by an extensive area of marsh; there is no passage behind the cape even for native skin-boats. Separating the lagoon from the ocean is a narrow sand barrier, only a few feet above the water; south of Icy Cape are several small, shallow passages through the barrier, and there are two larger openings north of the cape. The land on the inner side of the lagoon is mostly low, but there are some small bluffs with rolling terrain behind them. south of Icy Cape, Kasegaluk Lagoon has **Kukpowruk River**, **Kokolik River**, **Utukok River**, and several smaller streams emptying into it, but its whole expanse is filled with flats and bars that make it scarcely navigable even for native canoes.

(140)

Kukpowruk Pass

(141) **Kukpowruk Pass**, 41 miles north-northeast of Cape Beaufort, has a controlling depth of about 6 feet into Kasegaluk Lagoon and south for about 2 miles through a narrow channel along the inner side of the barrier beach; the channel leads to fair anchorage, protected from all directions. Northeast winds will lower the water level about 3 feet, and the pass changes from year to year because of ice scouring. There is no channel north through the lagoon to Point Lay.

(142)

Point Lay

(143) **Point Lay** is a slight bend in the barrier beach 49 miles north-northeast of Cape Beaufort. The original village of Point Lay, destroyed by a fire, is on the beach 3 miles south of the point. Ruins of the original village are visible on the barrier island. Approximately 700 yards south of the ruins is an uncharted entrance to the lagoon. The lagoon is extremely shallow and is navigable only by small craft. Depths in the lagoon can be dramatically reduced by east winds, and passes through the barrier islands to the lagoon are often blocked by shallow or exposed sand bars. The village of Point Lay has a telecommunications center and volunteer search and rescue center that can be contacted on VHF-FM channels 16 and 68. Subsistence harvesting of Beluga whales occurs at Point Lay during the months of June and July, and vessels should contact the Point Lay telecommunications center on VHF-FM channel 68 if transiting in the area during this time. Anchorage is in depths of 6 fathoms 1.5 miles off the village. There is a prominent aero radiobeacon (69°44.1'N., 163°00.6'W.) at the airport on the mainland 2 miles south-southeast of the village.

(144) The barrier island opposite Kasegaluk Lagoon from the community of Point Lay is an important resting area (haulout) for Pacific walruses from July through October. Walruses are extremely sensitive to unexpected or unfamiliar sights, smells and sounds and can easily be startled, in some cases causing deadly stampedes. Chukchi coast walrus haulouts are particularly sensitive as they are mainly comprised of females, many with calves which are especially vulnerable to being trampled and killed during stampedes due to their small size. Operating a watercraft in a manner which results in disturbing, harassing, herding, hazing or driving of walruses is prohibited under provisions of the Marine Mammal Protection Act. In an effort to prevent disturbance to walruses, the Native Village of Point Lay requests that all vessels remain 5 nautical miles offshore of this area during periods of haulout occupancy. If vessels must transit closer than 5 nautical miles for safety or operational reasons, operators are requested to observe the following guidelines:

(145) Vessels less than 50 feet in length should remain at least 0.5 nautical miles away from a walrus haulout.

(146) Vessels 50 feet or more but less than 100 feet in length should remain at least 1 nautical mile away from a walrus haulout.

(147) Vessels 100 feet or more in length should remain at least 3 nautical miles away from a walrus haulout.

(148) All vessels should refrain from anchoring within 3 nautical miles of a walrus haulout.

(149) Please maintain a 1 nautical mile buffer from active walrus haulouts when loading or unloading barge cargo at Point Lay.

(150)

Ice

(151) Average breakup at Point Lay is in late June and average freezeup is in early November. Navigation is difficult from early November to late June and usually is suspended from mid-December to late June.

(152)

Icy Cape Pass to Akoliakatat Pass

(153) **Icy Cape Pass**, 2 miles southwest of the cape, has a controlling depth of about 5 feet, but entrance requires knowledge of bar and channel conditions. Fair anchorage is available in depths of 5 to 7 feet in Kasegaluk Lagoon southwest of the pass. A radar tower and an airstrip are

on the mainland opposite the pass. Water can be obtained from a stream southwest of the tower.

(154) **Icy Cape** (70°19.9'N., 161°53.0'W.), 40 miles northeast of Point Lay and 125 miles from Cape Lisburne, is a sharp turning point in the low flat barrier beach that separates Kasegaluk Lagoon from the ocean. A house and a tank are near the point of the cape.

(155) **Blossom Shoals**, which extend 6 to 8 miles off Icy Cape, are a number of ridges that parallel the coast. In the approach to the shoals, the bottom is lumpy and depths are irregular. The shoals are usually given a wide berth, and it is recommended that vessels rounding the cape stay in depths greater than 12 fathoms.

(156) The shoals are the approximate south limit of the inshore ice during the July–September season for navigation in this area. The ice moves inshore and offshore with the winds and, as the shoals form a salient at this part of the coast, open water may extend north or south of them, but access from one open-water area to another may be blocked by ice on the other side of the shoals.

(157) Blossom Shoals show evidence of ice scour and probably change from year to year. Surveys made in 1948–1950 found depths of 10 feet 0.9 mile off Icy Cape, 16 feet 2 miles off, 20 feet 3.3 miles off 19 feet 4.4 miles off, 26 feet 6.4 miles off, and 37 feet 7 miles off.

(158) There are deep channels between the outer shoals. One that has been recommended by the survey party rounds the cape at a distance of 3.8 miles with no depths less than 35 feet. About 6 miles off the cape, and just inside the outermost shoal, is a passage with minimum depths of 10 fathoms.

(159) Behind the barrier beach that extends east from Icy Cape, **Kasegaluk Lagoon** has midchannel depths of 9 to 11 feet; numerous shoals project from both sides of the lagoon. The ice in the lagoon breaks up about 10 to 15 days after the sea ice has moved out. New ice forms about the middle of September and soon becomes about 6 inches thick. Launches not more than 4½ feet in draft may pass around **Nokotlek Point**, on the mainland 18 miles east of Icy Cape, through a very narrow channel.

(160) **Akoliakatat Pass**, 12 miles east of Icy Cape, has a narrow channel close to shore on the west side; a controlling depth of about 7 feet can be carried into Kasegaluk Lagoon at normal tide levels. Anchorage can be found back of the pass in depths of 7 to 10 feet, good holding ground. The current in the pass may reach a velocity of 2 knots with strong southwest or northeast winds. A continuous period of northeast winds will lower the water as much as 3 feet below normal levels.

(161)

Pingorarok Pass

(162) **Pingorarok Pass**, 22 miles east of Icy Cape, has a controlling depth of 5 feet into Kasegaluk Lagoon through a very narrow channel on the east side. Breakers usually mark the shoals on both sides of the entrance.

(163)

Wainwright Inlet Pass to Kuk River

(164) **Wainwright Inlet** (70°36.5'N., 160°06.5'W.), 39 miles east-northeast of Icy Cape, is the entrance to **Wainwright Lagoon**. The narrow winding channel between **Point Collie** on the east and **Point Marsh** on the west has a controlling depth of 6 feet at normal water level, but passage should not be attempted without the aid of local guides. Shoals extend 0.7 mile off the inlet and are well defined by breakers during moderate weather; during west storms the breakers stretch across the channel. Ice that may enter the inlet during southwest storms follows the channel, where the current reaches a maximum velocity of about 2 knots.

(165) **Wainwright**, on the beach 2.5 miles northeast of the inlet, has stores, a hotel and restaurant, a school, a church and an airstrip. Wainwright bans the possession, sale and importation of alcohol. Limited quantities of fuel are also available in town and include marine gasoline and diesel. Subsistence hunting of marine mammals occurs around Wainwright year round but is heaviest during the spring Bowhead whale season. Vessels should contact the Alaskan Eskimo Whaling Committee when transiting near Wainwright during the spring and summer months. Wainwright operates a volunteer search and rescue service that can be contacted on VHF-FM channel 16. Vessels are requested to check in with Wainwright SAR with their vessel name and position when transiting near Wainwright on VHF-FM channel 16.

(166) A rotating green and white aerolight (70°38'17"N., 160°01'05"W.) is located near the Wainwright airstrip (70°36'36"N., 159°51'54"W.)

(167)

Ice

(168) Average breakup at Wainwright is about the last of June and average freezeup is about the first of October. Navigation is difficult from early November to mid-July and usually is suspended from early December to early July.

(169) **Kuk River**, which empties into the head of Wainwright Lagoon, has an even bottom and no definite channel. Depths decrease gradually from 10 feet at the lagoon to a reported 4 feet some 30 miles upriver. Three outcroppings of usable coal are 8 to 18 miles from the mouth.

(170)

Point Franklin Pass to Seahorse Islands, inlcuding Peard Bay

(171) **Point Franklin** (70°54.4'N., 158°47.2'W.), 70 miles east-northeast of Icy Cape, is the east end of the barrier sand beach that extends 8 miles along the northwest side of Peard Bay. A prominent 120-foot steel tower is about 2 miles west of the point.

(172) A mile east of Point Franklin is the north extremity of the narrow barrier **Seahorse Islands**, which extend

south-southeast for 3 miles. The largest island has an elevation of about 20 feet and is the greatest along this series of barriers. Between Point Franklin and the Seahorse Islands is a narrow, winding channel with a least depth of about 4 feet; this channel may vary from year to year.

(173) A shoal makes out to north from Point Franklin. Depths less than 1 fathom extend out 1.2 miles; the 5-fathom curve is about 2 miles offshore, and the 10-fathom curve is 2.6 miles offshore.

(174) Protection from south to west weather is available northeast of Point Franklin and the Seahorse Islands. This shelter does not afford protection from ice.

(175) A current sets northeast along the shore except during strong northeast winds. It is estimated that the velocity is 1 to 2 knots under ordinary conditions. This northeast current forms a big eddy that circulates in a clockwise direction in the bight east of Point Franklin. The eddy extends about 20 miles to the northeast of the point and 5 to 6 miles from shore.

(176) When there is ice in this vicinity **abnormal refraction** can be expected at any time. A large amount of refraction can be expected at all times, whether or not ice is present.

(177) **Peard Bay**, behind the barrier beaches of Point Franklin and the Seahorse Islands, has uniform depths of about 20 feet over the greater part of its area. The bottom, which is mud and clay, is excellent holding ground. A depth of 12 feet can be carried into Peard Bay through a narrow channel just off the south end of the Seahorse Islands. A depth of about 8 feet can be carried into the bay on either side of the 4-foot shoal that is about 1 mile southeast of the south end of the islands. The bay affords good protection from heavy south and southwest winds. A small spit in the southeast part of the bay affords protection for small boats from winds from any direction.

(178) At the southwest end of Peard Bay is **Kugrua Bay**, into which **Kugrua River** empties. A draft of about 4 feet can be carried into Kugrua Bay; depths in the middle of the bay are 10 to 12 feet. In the northeast corner of the bay is a sandspit that affords good protection from all weather for small boats.

(179)

Skull Cliff to Barrow

(180) From Peard Bay east and northeast to Barrow the coast is rimmed with mud bluffs 25 to 90 feet high and furrowed by numerous small streams; the highest is **Skull Cliff** (70°56'N., 157°30'W.), 20 miles east of the bay. The coast has no projecting points or shoals, and the 5-fathom curve is 0.5 to 1 mile from shore, but depths may vary as much as a fathom from year to year because of ice gouging. There is no protection from heavy weather.

(181) The **Will Rogers Memorial** (71°09.3'N., 157°03.5'W.) is a 12-foot concrete monument on the northeast side of a wide stream 10 miles southwest of Barrow.

(182) **Barrow**, 8.5 miles southwest of point Barrow, is the government seat of the North Slope Borough and the largest community north of the Brooks Range. Barrow has a hospital, several churches, schools, a telecommunications center operating on VHF-FM channel 68 and several stores; limited quantities of supplies include gasoline, diesel fuel, food and clothing. Air-freight and commercial flight service are available throughout the year. Subsistence hunting of marine mammals occurs at Barrow year round as far as 30 miles offshore and is heaviest during the spring and fall Bowhead whale seasons. Vessels transiting the area during the whaling seasons are requested to contact Barrow on VHF-FM channel 68. Vessel traffic is at its heaviest during the summer months after the whaling season and consists of tugs carrying fuel and supply barges. Barrow is a destination for small cruise ships carrying as many as 400 passengers. The North Slope Borough also operates a volunteer search and rescue operation and can be hailed on VHF-FM channel 16. An aerolight (71°17'17"N., 156°46'18"W.) is at the airport. Three miles northeast of Barrow is the Barrow Arctic Science Consortium (BASC), the University of Ilisagvik and an aerolight (71°19'40"N., 156°40'38"W.). About 0.8 mile northeast of the Barrow Arctic Science Consortium is an airstrip and an aerolight (71°20'08"N., 156°38'20"W.). The dome (71°19'40"N., 156°37'57"W.) northeast of the laboratory is also very prominent.

(183) Barrow is not a port of entry.

(184) Barrow has no pier facilities. Marine cargo bound for Barrow is lightered from barges to landing craft. Anchorage can be had 1,200 yards off of Barrow in 30 feet of water to receive supplies and to transfer personnel by small boat. The anchorage is exposed to weather from all directions.

(185)

Point Barrow

(186) **Point Barrow** (71°23'N., 156°28'W.), the northernmost point of land in the United States, is the seaward end of a gravelly sandspit that extends 3 miles northeast from the rest of the mainland. The point is also the northeast corner of Chukchi Sea and the southwest corner of Beaufort Sea. The north limit of **Beaufort Sea** is a line from Point Barrow to Lands End, Prince Patrick Island, Canada.

(187)

Currents

(188) The current northwest of the point was observed to flow constantly in a northeast direction at an estimated strength of 3 to 4 knots; along the northeast side of the point the current flowed in a northwest direction at an estimated strength of 1 knot. Judging from the movement of the icebergs, there seemed to be an eddy centered several miles northeast of the point.

(189)

Caution

(190) Mariners are advised that in the shallow waters of the Beaufort Sea, water levels are strongly influenced by meteorological conditions. Strong offshore winds can produce water depths up to 2½ feet less than those shown on the charts.

(191) A number of oil drilling platforms are in the Beaufort Sea between 151°W and 147°W. These platforms are generally manmade gravel islands about 500 feet in diameter. In 1992, a majority of the platforms were reported abandoned, and the lights marking the structures were removed. A few are reported completely awash. The status of all known platforms is periodically published in the 17th Coast Guard District Local Notice to Mariners.

(192)

Weather, Barrow Vicinity

(193) Barrow is the location of the most northern Weather Service Office (WSO) operated by the National Weather Service. Although this station generally records one of the lowest mean temperatures for the winter months, the surrounding topography prevents the establishment of the lowest minimum for the state. With the Arctic Ocean to the north, east and west and level tundra stretching 200 miles to the south, there are no natural wind barriers to assist in stilling the wind, permitting the lowering of temperatures by radiation, and no downslope drainage areas to aid the flow of cold air to lower levels. Consequently, temperature inversions in the lower levels of the atmosphere are not as marked as those observed at stations in the central interior.

(194) Temperatures at the Barrow WSO remain below the freezing point through most of the year, with the daily maximum reaching higher than 32°F (0°C) on an average of only 109 days a year. The mean daily maximum for the station is only 15°F (-9.4°C) while the mean daily minimum is 4°F (-15.6°C). The mean annual temperature is 10°F (-12.2°C). Daily minimums drop below the freezing point (0°C) 324 days of the year, and freezing temperatures have been observed in every month of the year. February is generally the coldest month, with a normal mean of -17°F (-27.2°C), and the lowest temperature at the station on record, -56°F (-48.8°C), was reached in February 1924. March temperatures are but little higher than those observed in the winter months. In April, temperatures begin a general upward trend, with May becoming the definite transitional period from winter to the summer season. During the latter month an average of five daily maximum temperatures climb above the freezing point. July is the warmest month of the year, with a normal mean of 40°F (4.4°C). The record high for the station is 79°F (26.1°C), recorded in July 1993. During late July or early August, the Arctic Ocean is generally ice free for the first time in summer. The end of the short summer is reached in September. By November about half of the daily mean temperatures are 0F (-17.8°C) or below.

(195) Precipitation at Barrow is extremely light with a mean annual value of 4.57 inches (116 mm). The wettest months are July and August when nearly a half of the annual precipitation total may fall. Despite such limited amounts of precipitation, precipitation is recorded an average 252 days per year. Snowfall averages about 29 inches (737 mm) each year, occurs an average of 211 days each year and has been recorded during every month.

(196)

Ice

(197) Average breakup at Barrow is in late July and average freezeup is in early October. Navigation is difficult from mid-October to late July and usually is suspended from early December to early July.

(198) The ice barrier that extends from 0.5 mile off Barrow to 1.5 miles northwest of Point Barrow can be dangerous to navigation. Formed when onshore winds drive icebergs aground, the barrier may break and drift seaward during heavy offshore winds. While aground the barrier keeps the main ice pack from drifting onto the beach and often gives protection along its inner side to shallow-draft vessels. During periods of offshore winds, leads may open in the barrier through which, when winds reverse to onshore, small bergs sometimes drift to block the inshore waters and stop all navigation. **Caution:** A vessel beset in the ice near Point Barrow will tend to drift north and farther into the ice mass.

(199) During the 1945 survey the main ice pack was never out of sight from Point Barrow. When the pack opened to the west it closed to the east and vice versa. Icebergs 30 to 50 feet high floated around continuously; some grounded at about the 5-fathom curve and remained stationary for a week or more until the wind changed with sufficient force to dislodge them.

(200) In general, the main ice pack drifts with the winds and currents during July through September and permits intermittent navigation outside the ice barrier. Outside navigation is impossible when the pack drifts shoreward; inside passage possibly can be made behind the barrier, but charted depths may not be too reliable because of berg gouging.

(201) Medium-draft vessels should be able to round Point Barrow at a distance of 1 mile; 30-foot drafts should stay at least 3 miles off. **Caution:** A 1957 report places a 25-foot shoal 7 miles northeast of Point Barrow; this may indicate a possible northeast extension of Point Barrow spit. If passage must be made east of Point Barrow, August is the best month for the attempt.

(202) Mariners should be aware that Alaskan Natives engage in subsistence whaling in the Beaufort Sea near Point Barrow in the spring from March through June and in the fall from September through November. Vessel operators are requested to contact the Alaska Eskimo Whaling Commission at 907-852-2392 or 800-478-2392 or aewcdir@barrow.com prior to entering this area for information about the location and avoidance of traditional Native hunting parties.

(203)

Point Barrow to Dease Inlet, including Admiralty Bay

(204) **Elson Lagoon** extends from Point Barrow to **Christie Point**, on the mainland 21 miles to the southeast. The lagoon is 2 to 5 miles wide and has depths of 8 to 11 feet. Between the lagoon and Beaufort Sea are the barrier **Plover Islands**, which are low and difficult to distinguish except in periods of good visibility. The islands and the mainland are barren stretches as viewed from offshore and are covered by snow and ice most of the year; there is nothing distinctive in the area.

(205) **Eluitkak Pass**, the most west entrance to Elson Lagoon, is between tiny **Doctor Island** and the spit that extends 2.5 miles southeast from Point Barrow; depths in the pass equal or exceed those in the lagoon. **Deadmans Island** and **Tapkaluk Islands** are southeast of Doctor Island.

(206) **Ekilukruak Entrance**, 15 miles southeast of Point Barrow, is between Tapkaluk Island and **Cooper Island**, 4 miles to the southeast; the passage into Elson Lagoon has depths of 5 to 7 feet. Cooper Island is one of the largest of the Plovers and is midway along the chain.

(207) **Sanigaruak Pass** (71°11.5'N., 155°23.5'W.), 24 miles southeast of Point Barrow, is a narrow and poorly defined channel through the Plover Islands at the west end of **Sanigaruak Island**; the controlling depth is about 6 feet into Elson Lagoon. **Igalik Island**, last major island of the Plover group, is between Sanigaruak Island and Tangent Point to the southeast.

(208) **Dease Inlet**, behind the southeast Plover Islands, is 10 miles wide between Christie Point and Tangent Point and extends inland about 20 miles. The inlet has depths of 8 to 10 feet except for the shallows near the beaches. The principal entrances are from Elson Lagoon and Sanigaruak Pass. **Tiny Island** and **Oarlock Island**, known as the **Kikiktak Islands**, are 10 to 15 miles up Dease Inlet from Christie Point; on Tiny Island is a small freshwater lake. **Admiralty Bay**, at the head of Dease Inlet, has depths and bottom similar to the outer part of the inlet; several rivers empty into the bay.

(209) During the 1945 survey of this area, the winter ice did not break up in Elson Lagoon until July 28 and started forming again on September 13. The survey launches had a difficult time getting out of Dease Inlet on September 15 as the entire inlet and lagoon were frozen over to a thickness of 1 inch. In the winter, the ice freezes to a thickness of 6 to 10 feet.

(210)

Tangent Point to Drew Point

(211) **Tangent Point** (71°08.8'N., 155°05.8'W.), 30 miles southeast of Point Barrow, is the low, flat, tundra promontory on the east side of the entrance to Dease Inlet. There is a shallow entrance channel between the point and the islands to the northwest.

(212) The islands along the coast from Tangent Point to the southeast end of Fatigue Bay are low sand barriers separated from the mainland by mud flats and shallow lagoons. These rapidly changing islands have steep beaches on their seaward sides, with depths of 8 feet or more only 100 yards off. Deep channels open and close through the islands during summer storms.

(213) **Fatigue Bay (McKay Inlet)** extends southeast for about 6.5 miles from Tangent Point. The southeast part of the bay, south of Tulimanik Island, is the only shelter for small boats between Tangent Point and Cape Simpson. This shelter, however, is extremely limited because of the shallowness of the lagoons behind the islands. Remarks concerning frequent changes in channels are particularly applicable to the southeast part of Fatigue Bay.

(214) The bluffs along the coast from near the southeast end of Fatigue Bay to Cape Simpson vary in height from 4 to 15 feet; the land behind is marshy and has numerous lakes. Launches may proceed safely along this stretch of coast at a distance of about 100 yards.

(215) **Cape Simpson** (70°59.4'N., 154°34.0'W.) is a low promontory 14 miles southeast of Tangent Point. There are shoals and sandbars near the cape but no shelter for small boats.

(216) **Smith Bay**, between Cape Simpson and Drew Point, 14 miles to the southeast, extends 8 miles back of the entrance points and has general depths of 3 to 10 feet. Along the west shore of the bay, rapid erosion of the 10- to 20-foot bluffs has caused shoaling, and launches drawing 3 to 4 feet must stay 0.2 to 0.5 mile off, but there is still some protection from west weather.

(217) The delta of **Ikpikpuk River**, which empties into the head of Smith Bay, is building out steadily. Extensive shoals are forming as much as 3 miles out, and the 3-foot curve is 1 to 2 miles off the delta. The southeast side of the bay is very shallow; the 3-foot curve is 2 to 3 miles offshore.

(218) Along the east side of Smith Bay are intermittent bluffs. The only possible landing place for small craft is on **Drew Point**, at the entrance. Boats drawing less than 2½ feet can anchor south of the sandspit at the point.

(219)

Pitt Point

(220) **Pitt Point** (70°55.5'N., 153°08.2'W.), 69 miles east-southeast of Point Barrow, is about halfway between Smith Bay and Harrison Bay. On the southeast side is a large, shallow lagoon that is separated from Beaufort Sea by a narrow sand barrier. Heavy seas open and close passages that have been used by native launches. There are depths of 8 to 10 feet 200 yards off Pitt Point.

(221)

Cape Halkett

(222) **Cape Halkett** (70°48.0'N., 152°11.0'W.) is a low promontory 20 miles east-southeast of Pitt Point. A 1-foot shoal is 0.7 mile east of the cape; between the shoal and

the cape are depths of 5 feet. In 1984, a submerged obstruction covered about 18 feet was reported about 6.1 miles east of the cape in about 70°47'57"N., 151°53'18"W.

(223)

Cape Halkett to Oliktok Point

(224) **Harrison Bay** is between Cape Halkett and Oliktok Point, 50 miles to the east-southeast; the inland extent is about 15 miles from the general line of the coast. The inner part of the bay is very shallow, and the Colville River delta projects several miles from the southeast side. **Pacific Shoal**, 3 to 5 feet deep and 5 miles in north-south length, is centered about 8 miles southeast of Cape Halkett. In 1969, a vessel with a draft of 26 feet reported touching bottom in 70°57.5'N., 150°33.5'W. In 1992, a shoal with a depth of 7 feet was reported in about 70°40'56.8"N., 150°55'28.6"W.

(225) **Saktuina Point** (70°34.9'N., 152°02.3'W.), 14 miles south from Cape Halkett, is the easternmost tip of the narrow peninsula that forms the north side of Kogru River. The **Eskimo Islands**, 1 mile east of Saktuina Point, have bluffs up to 20 feet in height.

(226) **Kogru River** is a series of connected lakes that form a 10-mile-long lagoon that empties into Harrison Bay between Saktuina Point and the Eskimo Islands. Entrance depth is about 4 feet and greater depths are reported inside.

(227) **Atigaru Point**, 7 miles east of Saktuina Point, is a low headland with extensive bars and shoals to the east and southeast. Natives report fair anchorage for small craft 3 miles south of the point.

(228) **Colville River**, the largest along the Arctic coast of Alaska, has a delta that extends 20 miles along the southeast side of Harrison Bay. There are three major channels and numerous minor channels through the delta. It is probable that a draft of 3 feet can be taken over the entrance bars and upriver to the rapids a few miles below the mouth of **Anaktuvuk River**, which empties into the Colville River 75 miles from Harrison Bay.

(229)

Oliktok Point to Beechey Point

(230) **Oliktok Point**, the first prominent mainland point east of Colville River, is a triangular sandflat with elevations of as much as 5 feet. Excellent small-boat anchorage is found in depths of 5 feet behind the small bar that extends northwest from the point; this anchorage is exposed to southwest weather, but protection from such can be found east of the island. A lighted artificial island is about 3.1 miles southwest of the south tip of the island in about 70°29'45"N., 150°14'48"W.

(231) **Thetis Island** is 6 miles northwest of Oliktok Point and 5 miles off the Colville River Delta. Good anchorage, with protection from southwest winds, is found in depths of 12 feet east of the island.

(232) **Spy Island**, 3 miles north of Oliktok Point and 4 miles east of Thetis Island, is the westernmost of the **Jones Islands**; the island is very low and floods during storm high waters. **Pingok Island**, largest and highest of the Jones group, is 6 miles long in an east-west direction and has several dunes or mounds. **Bertoncini Island** and **Bodfish Island** are about 2 miles east of Pingok Island; both are tundra covered and have bluffs along their shores. **Cottle Island**, 1.5 miles north of Beechey Point, is 3 miles long and is the easternmost of the Jones group. Bars and shoals obstruct the passages between Pingok and Cottle Islands. An artificial island is about 4.5 miles north-northeast of Cottle Island in about 70°35'05"N., 149°05'45"W.

(233) On the mainland back of the Jones Islands is **Milne Point**, which is 8 miles east of Oliktok Point and is rimmed with bluffs about 5 feet high. **Beechey Point** is 14 miles east of Oliktok Point; launches can find fair shelter in depths of 4 feet behind the small sandbar that extends northwest from Beechey Point.

(234) **Simpson Lagoon**, between the Jones Islands and the mainland, has depths of 6 feet and affords protected passage from Oliktok Point to Beechey Point. In 2007, the remnants of a man-made island, covered 2 feet, were about 4.0 miles northeast of Oliktok Point and in about 70°32'13.7"N., 149°41'05.5"W. In 2000, a 2-foot shoal was reported about 460 yards west of the man-made island in about 70°32'12.8"N., 149°41'46.4"W.

(235)

Return Islands to Foggy Island

(236) The **Return Islands** begin 0.5 mile southeast of Cottle Island and continue southeast another 11 miles. **Long Island** is the westernmost and longest, about 5 miles, of the Return group; the passage between Cottle Island and Long Island has depths of 2 feet. Off the southeast end of Long Island are bars and shoals that extend back into Gwydyr Bay, but depths of 5 feet can be carried into the bay between the bars and low, crescent-shaped **Egg Island**, next island to the southeast. Southeasternmost of the Return group is **Stump Island**, which is about 2 miles long and extends to within 0.5 mile of mainland Point McIntyre. The passage between Egg Island and Stump Island has depths of 3 feet, but there is little water between Stump Island and Point McIntyre.

(237) **Gwydyr Bay**, the lagoon area between the Return Islands and the mainland, has depths of 3 to 5 feet as far east as low **Storkersen Point**, which is 10 miles from Beechey Point; the best entrance to the bay is west of Egg Island. **Kuparuk River** empties into the south side of Gwydyr Bay west of Storkersen Point. There is little water between Storkersen Point and **Point McIntyre**, 3 miles to the southeast.

(238) From the Return Islands to Brownlow Point, barrier islands parallel the coast and are separated from it by **Stefansson Sound**, an extensive lagoon. The mainland is low tundra with very little relief except for three prominent mounds west and southwest of Tigvariak Island. The mainland shore consists of low bluffs, up to 35 feet in

height, cut by river flood plains and deltas. The barrier islands are low sand and gravel reefs less than 8 feet in elevation; the larger islands have some sparse vegetation. Between the islands are many shoals and bars that are awash. The lagoon between the island and the mainland has depths of as much as 30 feet but also has many areas too shallow for navigation by small boats. The lagoon is 2 to 10 miles wide and extends in a continuous line from the Return Islands to Brownlow Point. Vessels following the coast may avoid the heavy ice that is nearly always present off the barrier islands by passing inside the islands by way of one of the deeper entrances. Ice frequently blocks these entrances, but passage usually can be made through leads.

(239) The **Midway Islands**, 7.5 miles northeast of Point McIntyre, are very low and have little driftwood on them; good anchorage for vessels drawing up to 6 feet can be found behind **Reindeer Island**, the west island of the group.

(240) **Cross Island** is 6 miles east of the Midway Islands. Somewhat protected anchorage for vessels drawing up to 10 feet can be found behind the crescent-shaped island and the several small islets that extend to the south. Large ice floes remain hinged to the north and east sides of the island during the entire open season. Two miles southeast of Cross Island is a shoal that extends 4 miles in a southeast direction. **Dinkum Sands**, a gravel reef that bares, is halfway along the shoal.

(241) **Prudhoe Bay** (70°20'N., 148°20'W.), southeast of Point McIntyre, has shoals across most of its entrance. **Gull Island**, a small island midway along the shoals, is a conspicuous radar target. The bay proper has depths of 6 to 9 feet and affords good holding anchorage with protection from all but northwest weather. The best access route has depths of 4 feet and parallels the west shore at a distance of 0.4 mile.

(242) On the northwest side of Prudhoe Bay, about 1.5 miles southeast of Point McIntyre, a causeway extends about 2.2 miles offshore. A barge dock is on the east side of the causeway and a seawater treatment plant is near the outer end. Private daybeacons mark the intakes and outfalls of the seawater treatment plant. In 1969, a 360-foot wharf connected to the shore by a 1,200-foot causeway was constructed in the southeast corner of the bay, about 3.3 miles from Heald Point. Depths of 4½ feet are reported along the wharf.

(243) Cargo is hauled from Seattle by oceangoing tugs and barges that anchor about 6 miles offshore; the cargo is transferred to shallow-draft barges and moved to the wharf for transfer to shore.

(244) **Heald Point**, on the east side of Prudhoe Bay entrance and 8 miles from Point McIntyre, is a 15-foot-high tundra bluff with a narrow sand beach at its base. Three small sand islets extend northwest from the point. The submerged remains of an artificial island with a reported depth of 1 foot is about 2.9 miles north of the point. Put River aero radiobeacon (70°13'25"N., 148°24'50"W.) is about 8 miles south-southwest of Heald Point.

(245) The delta of **Sagavanirktok River** extends the 9 miles from Heald Point to Foggy Island. The waters off the delta are extremely shallow, and small boats find landing very difficult. **Howe Island**, 5 miles east of Heald Point, is near the middle of the delta area and is prominent from seaward; the island is 1 mile long and 0.2 mile wide and has an elevation of 35 feet near its east end. A mile east of Howe Island is **Duck Island**, a small silt mound, and 4 miles east of Howe Island is **Point Brower**, the north extremity of tundra-covered **Foggy Island**, which is part of the delta and separated from the mainland by two branches of the river.

(246)

Foggy Island to Belvedere Island

(247) **Foggy Island Bay**, which extends 12 miles along the mainland between Foggy Island and Tigvariak Island, has depths of as much as 20 feet but has wide shallow areas along its east and west sides.

(248) **Tigvariak Island**, close to the mainland, is 2 miles long and 1 mile wide and has elevations up to 30 feet. The tundra of Tigvariak Island is dotted with lakes and ponds from which freshwater is obtainable; the shores of the island are mostly sand beaches backed by bluffs ranging in height from 5 to 30 feet. At the east end of the island is **Reliance Point**, a sandspit that extends 0.8 mile to the south, and on the northeast side is a large sea-level lake that is separated from the ocean by a sand barrier. **Lion Point** is the outer end of a long sandbar that begins 0.3 mile from the north end of Tigvariak Island and continues 0.8 mile to the northwest.

(249) **Mikkelsen Bay**, between Tigvariak Island and **Bullen (Savakvik) Point**, 7 miles to the east-southeast, has depths of as much as 18 feet that decrease gradually as the beach is approached.

(250) Returning to the island chain off the mainland, **Narwhal Island**, northwesternmost of the **McClure Islands**, is 10 miles southeast of Cross Island and 8 miles northeast of mainland Foggy Island. Narwhal Island has some vegetation and there is some driftwood on it; near the center of the island are several small ponds. Protected anchorage is available in depths of 15 feet behind the northwest end of Narwhal Island; depths of 7 feet extend 0.5 mile southwest from the middle. Little ice is encountered during the open season, and the anchorage can be approached from the southwest. The southeast end of Narwhal Island, a low, narrow, sand strip, has been cut through in numerous places by storms and ice. The passage between Narwhal Island and Jeanette Island, 1 mile to the southeast, has irregular depths but can be navigated without difficulty by vessels drawing less than 7 feet.

(251) **Jeanette Island** and **Karluk Island**, 2.5 miles apart, are at opposite ends of the crescent-shaped series of small sand islets, some as much as 5 feet high, that form the

southeast part of the McClure group. These islets are exposed to vigorous ice and wind action, and there is continuous change in the shorelines and in the shallower depths. Protected anchorage is available in depths of 9 to 15 feet south of the islets.

(252) **Newport Entrance** is between Karluk Island of the McClure group and Pole Island, west of the two major **Stockton Islands**, 5 miles east-southeast of the McClures. A sandbar is 1 mile south-southeast of Karluk Island, and a second sandbar is 2.3 miles southeast of the island; the two bars are only a few yards in width and are awash during storm high waters. Shoals extend 1.5 miles west from Pole Island. Vessels drawing less than 7 feet can pass between Karluk Island and the two sandbars, but caution is advised because of the current action and berg gouging. The principal passage through Newport Entrance is between the sandbars and the Pole Island shoal; least depth is 16 feet over a width of 1 mile.

(253) **Pole Island**, 5 miles northeast of mainland Tigvariak Island, is a narrow sand barrier 2 miles long and has elevations up to 5 feet; the island has some vegetation, a few small ponds and a considerable amount of driftwood. **Belvedere Island**, east of the Stockton Islands, also is a narrow sand barrier about 2 miles long. The passage between the two islands is 0.2 mile wide and has a controlling depth of 5 feet.

(254)

Challenge Entrance to Konganevik Point

(255) **Challenge Entrance** is between Belvedere Island and Challenge Island, 6 miles to the southeast. The west side of the opening and the area immediately south of Belvedere Island are shallow and dotted with tiny islets and bare shoals. The best water is 0.8 mile west of Challenge Island where vessels drawing 10 feet or less can enter with safety.

(256) **Challenge Island**, the westernmost of the **Maguire Islands**, is a strip of sand about 0.5 mile long and 3 feet high. **Alaska Island**, which begins 0.2 mile east of Challenge Island and continues 3 miles farther east, is a very narrow sand and gravel formation; the easternmost third has been cut through in several places and is a series of sandbars, shoals and islets. There is no channel between Challenge and Alaska Islands.

(257) **Duchess Island**, 1 mile east of Alaska Island, is 1 mile long and 5 feet high. There is a narrow channel between Duchess and Alaska Islands but it is not recommended.

(258) **North Star Island**, 0.2 mile southeast of Duchess Island and easternmost of the four principal Maguires, is another narrow sand barrier about 1 mile long and has extensive shoals on the south and southeast sides. There are narrow channels at both ends of the island but they are shallow and subject to constant change.

(259) **Mary Sachs Entrance**, between North Star Island and Flaxman Island, has extensive shoals on both east and west sides. There is a 0.7-mile-wide passage with depths of 10 feet about midway between the two islands.

(260) **Flaxman Island**, which begins 2 miles east-southeast of North Star Island and continues 6 miles to within 2 miles of mainland Brownlow Point, is the largest barrier island between the Return Islands and the point. The west part of the island is mostly sand and gravel; the east part has tundra bluffs up to 20 feet in height and numerous small ponds, but freshwater is not available in any substantial quantity.

(261) Passage has been made between Flaxman Island and Brownlow Point by staying close to the east end of the island until well into the lagoon; the channel has depths of 8 feet that shoal to 4 feet in the lagoon. The shoals that stretch from Brownlow Point to the east side of the narrow channel usually are marked by breakers or ice.

(262) The mainland between Bullen Point and Brownlow Point has numerous other points, sandspits and bluffs. The west branch of Canning River empties into the lagoon southwest of Brownlow Point; the river delta forms extensive shoals in the east part of the lagoon.

(263) **Brownlow Point** (70°09.8'N., 145°51.0'W.), 20 miles east of Bullen Point, is the most north feature of **Canning River** delta; the tundra point has elevations up to 25 feet. A sand and gravel bar, partly bare at high water, extends from Brownlow Point southeast past Canning River east branch to within 2 miles of Konganevik Point.

(264) From Brownlow Point to Canning River east branch, the lagoon between the delta and the barrier bar is about 0.5 mile wide and has depths of 2 to 3 feet. The discharge from the river discolors the sea water for many miles. Southeast of the river's east branch is a lagoon that provides excellent small-craft anchorage in depths of 8 to 10 feet; the best approach from seaward is around the southeast end of the barrier bar at a distance of 0.3 mile. A covered ridge that extends halfway from Konganevik Point to the bar protects the lagoon from northeast wind-driven ice. The lagoon was ice free in mid-August 1976.

(265)

Konganevik Point to Anderson Point

(266) **Konganevik (Kangigivik) Point** (70°01.5'N., 145°10.5'W.), 16 miles southeast of Brownlow Point, projects 2 miles northeast from the mainland and is the west limit of **Camden Bay**. About 1 mile north of the point are extensive shoals that are partly awash; between the shoals and the point is a channel with depths of 7 to 17 feet. The lee provided by the shoals might be helpful in some conditions.

(267) Launch anchorage has been reported east of Konganevik Point, but there are large boulders in the area, and boulders are seen along the entire shore of the point; natives use this anchorage in preference to Simpson Cove, to the east-southeast, to avoid the ice that moves back and forth across Camden Bay with the winds. A better small-craft anchorage is in the lagoon 2 miles south of the point; the lagoon affords ample protection from all winds in depths of 4 feet. Entrance to the lagoon can be

made through the break in the barrier bar across the mouth by staying close to the south shore.

(268) **Katakuruk (Katakturak) River** empties into the south side of Camden Bay on the west side of **Simpson Cove** and is 6 miles east-southeast of Konganevik Point. The cove has excellent holding ground and affords protection from ice and wind for vessels drawing up to 6 feet; approach should be made from northeast of **Collinson Point**, the west end of the long narrow sandspit that extends from the mainland on the east side of the entrance. The best water is about 0.3 mile from the point; once past the point, there are depths of 9 to 11 feet in the greater part of the cove. Vessels should anchor as close to the weather shore as their drafts will permit.

(269) **Anderson Point** (70°01.5'N., 144°27.8'W.), 15 miles east of Konganevik Point, is the east limit of Camden Bay. The point is low and flat but behind it is a bluff that ranges in height from 4 to 30 feet and is prominent from west; from east the bluff blends with the hills and is hard to see. West of Anderson Point the bottom slopes to depths of 10 to 12 feet very close to shore; north of the point the slope is gradual to depths of 2 or 3 feet, then sharp to depths of 12 to 30 feet.

(270)

Arey Island to Griffin Point

(271) Low, narrow, gravelly **Arey Island** (70°07.3'N., 143°54.0'W.) begins about 10 miles northeast of Anderson Point and extends 3 miles northeast, then 2.5 miles east-southeast. The water is deep close to the outer shore of the island except at the southwest end. Incoming ice hits the northernmost part of Arey Island before any other place in the vicinity. A vessel can navigate very close to this part of the island if a lead can be found through the ice.

(272) **Barter Island**, close east of Arey Island and about 45 miles east of Brownlow Point, is roughly triangular in shape, each side being 3 to 4 miles in length. The island rises to an elevation of 58 feet, is the highest ground in this general area and has bluffs along its seaward side. **Kaktovik** is on the north shore of Barter Island between the Okpilak and Jago Rivers. Kaktovik can be easily identified from sea by a large white radar dome and tower. The approach to Kaktovik is characterized by shifting shoals, and approaches to the beach are not recommended without local knowledge. In 2008, an uncharted shoal was reported about 400 yards north of the beach running east to west for approximately 0.5 mile with depths of about 3 to 4 feet. The village consists of several homes, a telecommunications center operating on VHF-FM channel 68, a post office, a fire and rescue service, a health clinic and a store with limited supplies of food, clothing, first-aid and hardware. The sale and possession of alcoholic beverages is prohibited within Kaktovik. Kaktovik has an airstrip with service to Barrow and Fairbanks. An aero radiobeacon (70°07.9'N., 143°38.5'W.) and an aerolight (70°08.2'N., 143°35.2'W.) are on the island. Subsistence hunting of marine mammals occurs at Kaktovik year round as far as thirty miles offshore. There are no piers or small boat facilities; however, limited amounts of gasoline and diesel fuel are available. Kaktovik lies within Arctic National Wildlife Refuge.

(273) Kaktovik is not a port of entry.

(274) Off the northeast end of Barter Island is **Bernard Spit**, a sand barrier that extends nearly 4 miles in an east-southeast direction. Between the overlapping ends of Barter Island and Bernard Spit is **Bernard Harbor**, which has depths of 5 to 7 feet over good holding bottom but can only be entered by drafts of 4 feet or less. The north part of the harbor is out of the way of drifting bergs; ice does not get to this part of the harbor during west winds. Vessels entering Bernard Harbor from west should favor the Barter Island shore; this passage may become blocked soon after the ice starts in.

(275) Protection from ice and wind is available just east of the sandspit at the northwest end of Barter Island. The anchorage is not recommended for vessels drawing more than 5 feet.

(276)

Weather, Barter Island Vicinity

(277) The climate is determined by the surrounding open Arctic water surface. The island terrain and the terrain of the mainland south of Barter Island is low, flat, and generally marshy tundra with numerous lakes and with no elevations of consequence until the Brooks Range 65 miles to the south. Consequently, there are no topographic features to affect temperature and precipitation.

(278) During the long Arctic night, temperatures along this Arctic coastal region do not drop to the extreme low readings reached in Alaska's interior. The modifying effect of the surrounding ocean area, although frozen during the winter months, is one of the factors preventing extremely low temperatures. During the warmest months of the summer the more open water surface is still more effective in modifying the warming effects of a continuous period of possible sunshine that continues almost from the middle of May to the end of July. Extreme maximums have exceeded 70°F (21.1°C) only in July and August, with the all-time maximum of 78°F (25.6°C) recorded in July 1974. The annual mean daily maximum temperature is just under 16°F (-8.9°C), and the mean daily minimum is slightly above 4°F (-15.6°C). Freezing temperatures are reached, as a general rule, during all months of the year. Diurnal temperature ranges are confined within relatively narrow limits, reaching monthly maximums of around 17°F (8.3°C) in April and diminishing to their minimums of slightly less than 8°F (13.3°C) in June during the period of continuous daylight. February is the coldest month, with a mean temperature of -19°F (-28.3°C). The all-time minimum for the station is -59°F (-50.5°C) in February 1950. Only the months of June through September have not seen below 0°F (-17.8°C) temperatures.

(279) Snow covers the ground about eight months of the year, and snow usually falls every month of the year. Barter Island has seen a 3-inch (76 mm) snowfall in July. Overall precipitation is very light, averaging only six inches (152 mm) in a year. The wettest month is August, when about an inch of precipitation can be expected. Snowfall averages about 42 inches (1,067 mm) each year and the snowiest month is October. The relatively strong winds experienced from October through February make accurate measurement of snowfall and precipitation difficult because of drifting and blowing snow. The winds, combined with relatively high humidities, are prime factors in producing uncomfortable weather conditions during the winter months. The sun remains below the horizon from late November until mid-January.

(280) Ice formation and movement is an important factor in the Barter Island area. The dates of the appearance of ice in the fall varies greatly from year to year, but the breakup dates in the late spring, or early summer, appear to be better confined. Ice on the Beaufort Sea and in the lagoons adjacent to Barter Island have become safe for navigation as early as September 24 but have remained unsafe as late as mid-November. The ice appears to remain safe for vehicles until the first of June and, sometimes, almost to the end of June. It has become unsafe for navigation as early as June 10 but remained safe as late as mid-July. Tidal action often makes travel over ice or through the broken ice quite hazardous for considerable periods during the freeze in the early winter and, particularly, during the breakup of late spring or early summer.

(281) Ice records of the National Weather Service for Barter Island are meager but indicate a similarity to conditions at Barrow. Observations of National Ocean Survey field parties from 1948 through 1953 show that the ice usually breaks off from shore in late July or early August. After the breakup, ice is present in varying amounts and moves on and off the shore with the winds until mid-September or early October when it freezes up for the winter.

(282) **Manning Point** is a barrier spit that projects north from the mainland to within 0.2 mile of the northeast end of Barter Island. **Kaktovik (Kaktoavik) Lagoon**, between the spit and the island, and **Jago Lagoon**, on the east side of the spit, have depths of 9 to 12 feet but, like Bernard Harbor, cannot be entered by drafts greater than 4 feet.

(283) **Martin Point** (70°07'N., 143°16'W.), low and irregular, is on the east side of the entrance to **Jago River** and 53 miles east of Brownlow Point. The west end of a barrier island is 2 miles northwest of Martin Point.

(284) From Martin Point east-southeast to Griffin Point, a distance of about 9 miles, the low, narrow barrier islands are less than 5 feet high and are separated from the mainland by shallow lagoons. Considerable driftwood has been deposited on the higher parts of the islands. The mainland shores of the lagoons have tundra bluffs with elevations up to 20 feet. There is deep water along the seaward sides of the barrier islands, and small boats can navigate within a few yards of the beach except near the inlets.

(285)

Griffin Point to Siku Point

(286) **Griffin Point** (70°03.6'N., 142°52.4'W.) is a low sandspit that projects out from the mainland. A mile west-northwest of the point is **Oruktalik Entrance**, a narrow barrier passage through which a depth of about 5 feet can be taken into **Oruktalik Lagoon**.

(287) The barrier islands off Griffin Point continue southeast for 3 miles; thence to Pokok Bay are 25- to 30-foot bluffs fronted by narrow, steep sand beach except for the last 1.5 miles. Small boats can navigate very close to the beach between Griffin Point and Pokok Bay.

(288) **Pokok Bay**, 17 miles southeast of Martin Point, is about 1 mile across. Bars extend out from both sides of the entrance. Depths are about 7 feet in the entrance and 10 to 12 feet in the bay proper. The entrance should be approached from the west, but care must be taken to stay off the sandbar that makes out from the northwest side. The bay has good holding bottom and good protection from ice and winds.

(289) Tundra-covered **Humphrey Point** (69°58.3'N., 142°30.9'W.), on the southeast side of Pokok Bay, has a low bluff and a narrow sand beach. Southeast of Siku Point are low barrier islands that cover in many places at high water. The seaward sides of the islands are irregular, and small boats must stay well offshore.

(290) **Angun Lagoon**, behind the barrier reef between Humphrey Point and **Angun Point**, 4 miles to the southeast, has depths of 10 to 11 feet. There is a 10-foot bluff at Angun Point. The lagoon entrance, 1 mile northwest of Angun Point, is 75 to 100 yards wide and has a controlling depth of 8 feet. The barrier islands are subject to change; entrance must be made with caution.

(291) **Beaufort Lagoon**, with depths of 5 to 12 feet in the middle, extends about 14 miles southeast behind the barrier reef from Angun Point to Siku Point. The southeast part of the lagoon from the delta of Aichilik River to Siku Point has not been surveyed, but the entrances are known to be very shallow and subject to change. The principal entrance to the lagoon is a narrow channel with a depth of 2 to 5 feet about 1.8 miles southeast of Angun Point; caution is advised.

(292) **Nuvagapak Lagoon**, with depths of 8 to 10 feet in the middle, is south of Beaufort Lagoon and extends southeast to the delta of **Aichilik River** from **Nuvagapak Point**, a high tundra 1 mile back of the reef and 3.5 miles southeast of Angun Point. **Egaksrak Lagoon**, south of Beaufort Lagoon between the delta of Aichilik River and Siku Point, has not been surveyed.

(293)

Siku Point to Alaska-Canada Boundary

(294) **Siku Point** (69°49.0'N., 141°54.7'W.), 16 miles southeast of Humphrey Point, is the northwest end of

Icy Reef, a barrier that extends 13 miles southeast to Demarcation Bay without a break. Icy Reef has elevations of 1 to 10 feet and is more prominent than the barrier islands to the northwest; the reef is a combination of several ridges built by wave action and has considerable driftwood along its entire length.

(295) Broken ice can be expected along the seaward side of Icy Reef during most of the open season. Small boats usually can push through the ice by staying close to the beach or by taking advantage of the loosely packed ice farther offshore. There are depths of 15 feet within 100 yards of the beach and 30 feet within 0.3 mile.

(296) The northwest part of the mainland behind Icy Reef is low and relatively flat. Halfway along the mainland shore is a large ice field, about 3 miles long, which the Eskimos say never melts; observations from Icy Reef indicated that the ice field was fairly uniform and that it stood a few feet above the surface of the lagoon.

(297) The southeast half of the mainland shore behind Icy Reef has bluffs with elevations of as much as 25 feet. Four miles northwest of Demarcation Bay is bluff **Pingokraluk Point** (69°43.7'N., 141°32.0'W.), and about 0.3 mile southeast of the point is a 49-foot-high tundra mound that is very prominent.

(298) **Demarcation Bay**, 30 miles southeast of Humphrey Point, is about 5 miles in width by 3 miles in inland extent. **Demarcation Point** (69°41.2'N., 141°17.5'W.), on the east side of the entrance, is low tundra that rises gradually to a 30-foot bluff.

(299) A depth of about 13 feet can be carried into Demarcation Bay 0.5 mile west of Demarcation Point; the bay has depths of 13 to 16 feet, sticky bottom, and good protection from all weather. Along the shores of the bay are bluffs with elevations up to 25 feet.

(300) From Demarcation Point, Alaska, to **Clarence Lagoon**, 10 miles to the east-southeast in Canada, the narrow, steep sand beach is backed by irregular bluffs. Small boats can navigate within a few yards of the beach, and there are depths of 30 feet 0.3 mile off.

(301) **Alaska-Canada Boundary Monument No. 1** (69°38.8'N., 140°59.8'W.) is 6.5 miles east-southeast of Demarcation Point; the 4-foot obelisk is 100 feet inland from the top of the bluff and is fairly conspicuous.

(302) There is an aero radiobeacon (69°35'N., 140°11'W.) about 17 miles east by south of the boundary monument.

(303) **Herschel Island**, Canada, about 40 miles east of the boundary, rises to an elevation of 550 feet. The island has an extent of about 10 miles from east to west and 7 miles from north to south. Thetis Bay, on the southeast side of the island, affords fairly good anchorage, sheltered from north and west winds, for vessels drawing up to 18 feet.

(304)

CAUTION REQUIRED WHEN NAVIGATING IN ARCTIC WATERS

A Joint Advisory from the Arctic Regional Hydrographic Commission and the Arctic Council's Working Group on the Protection of the Arctic Marine Environment

The Arctic Regional Hydrographic Commission (ARHC) and the Arctic Council's Working Group on the Protection of the Arctic Marine Environment (PAME) advise caution when navigating in Arctic waters.

Despite advancements in hydrographic surveying and charting in the region, ongoing limitations and risks associated with marine navigation, compounded by a rapidly changing Arctic including the opening of new potential maritime routes and increasing vessel traffic, are the impetus for issuing this updated notice.

The International Maritime Organization (IMO) allows S-100-capable Electronic Chart Display and Information Systems (ECDIS) on SOLAS ships beginning in 2026 (Resolution MSC.530(106)/Rev. 1(2024)). In the near future, vessels may become increasingly reliant on state-of-the-art products and services meeting the IHO S-100 Standards or other digital navigational tools. However, despite ongoing progress, substantial areas of the Arctic still lack modern hydrographic data regardless of whether the chosen official navigational method is paper or digital. Challenges with digital communication technology, modern surveys, and predictability of ice coverage limit availability and reliability of Electronic Navigation Charts (ENCs) and S-100 products and services in the Arctic.

Navigating outside areas supported by modern or adequate survey data, or without thorough voyage planning, ice experience, considering relevant local knowledge, or taking other precautions can result in the loss of human life and damage to property and the environment.

The International Code for Ships Operating in Polar Waters (Polar Code) and Regulation V/4 of the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers provide an international set of safety, crew training, and environmental standards. Following these standards helps to mitigate the risks associated with ships operating in hazard-prone areas of the Arctic and ensures that mariners are sufficiently experienced. Mariners must plan well in advance of any prospective voyages, review emergency procedures, understand their operating environment where conditions can change rapidly and vary seasonally, assess survival equipment and determine necessary risk control measures, and be familiar with the quality of navigational services and nautical charts along their planned routes.

While the safety of Arctic navigation continues to improve through the collective efforts of mariners, regulatory bodies, and national hydrographic offices, the Arctic remains a complex and potentially dangerous area for mariners to navigate. Mariners are encouraged to promptly report uncharted dangers, chart discrepancies, and other relevant navigational observations to the national hydrographic office responsible for charting in their navigational area of interest.

March 2026

Navigation Rules

(1) Following is an amalgamation of the International **(72 COLREGS) and Inland Navigation Rules**, their Annexes, and associated Federal rules and regulations.

(2) Text unique to Inland Rules is *italicized* and set apart in a text box or within *‹‹ double angle brackets ››*. International Rules are set apart in a text box or denoted with ‹ single angle brackets ›.

(3) Text within {curly brackets} denotes additions made by the U.S. Coast Guard Office of Navigation Systems.

(4) Disparate paragraph or section numbering are shown side by side separated by a dagger, i.e. (a)‡(b).

(5) Instances of "…§§83.xx / in / with / of … this section / subpart / part of this Rule, etc." are redacted, and herein are shown as the enumerated rule(s) they referred to, i.e. 72 COLREGS Rule 18(e) states: "...with the Rules of this Part" and the same Inland Rule states: "...with the Rules of this Subpart (Rules 4-19) (§§83.04 through 83.19)", but, herein it is stated as "...with Rules 4-19.

(6) Instances of paragraph / section (x) are redacted, and herein are shown as §(x).

(7) Rules denoted with an asterisk also have an associated implementing or interpretative rule (i.e. 33 CFR 81-90), which can be found in chapter 2.

(8)

Part A—General

(9)

Rule 1—Application (International)

(a) These Rules shall apply to all vessels upon the high seas and in all waters connected therewith navigable by seagoing vessels.

(b) Nothing in these Rules shall interfere with the operation of special rules made by an appropriate authority for roadsteads, harbors, rivers, lakes, or inland waterways connected with the high seas and navigable by seagoing vessels. Such special rules shall conform as closely as possible to these Rules.

(c) Nothing in these Rules shall interfere with the operation of any special rules made by the Government of any State with respect to additional station or signal lights, shapes or whistle signals for ships of war and vessels proceeding under convoy, or with respect to additional station or signal lights or shapes for fishing vessels engaged in fishing as a fleet. These additional stations or signal lights, shapes or whistle signals shall, so far as possible, be such that they cannot be mistaken for any light, shape, or signal authorized elsewhere under these Rules.

Rule 1—Application (International)

(d) Traffic separation schemes may be adopted by the Organization for the purpose of these Rules.

(e) Whenever the Government concerned shall have determined that a vessel of special construction or purpose cannot comply fully with the provisions of any of these Rules with respect to number, position, range or arc of visibility of lights or shapes, as well as to the disposition and characteristics of sound-signaling appliances, such vessel shall comply with such other provisions in regard to number, position, range or arc of visibility of lights or shapes, as well as to the disposition and characteristics of sound-signaling appliances, as the Government shall have determined to be the closest possible compliance with these Rules in respect to that vessel.

(10)

Rule 1—Application (Inland)

(a) These rules apply to all vessels upon the inland waters of the United States, and to vessels of the United States on the Canadian waters of the Great Lakes to the extent that there is no conflict with Canadian law. These Rules have preemptive effect over State or local regulation within the same field.

(b)(i)These rules constitute special rules made by an appropriate authority within the meaning of Rule 1(b) of the International Regulations for Preventing Collisions at Sea, 1972, including annexes currently in force for the United States ("International Regulations").
(ii) All vessels complying with the construction and equipment requirements of the International Regulations are considered to be in compliance with these Rules.

(c) Nothing in these Rules shall interfere with the operation of any special rules made by the Secretary of the Navy with respect to additional station or signal lights and shapes or whistle signals for ships of war and vessels proceeding under convoy, or by the Secretary with respect to additional station or signal lights and shapes for fishing vessels engaged in fishing as a fleet. These additional station or signal lights and shapes or whistle signals shall, so far as possible, be such that they cannot be mistaken for any light, shape or signal authorized elsewhere under these Rules. Notice of such special rules shall be published in the Federal Register and, after the effective date specified in such notice, they shall have effect as if they were a part of these Rules.

(d) Traffic separation schemes may be established for the purposes of these Rules. Vessel traffic service regulations may be in effect in certain areas.

Rule 1—Application (Inland)

(e) Whenever the Secretary determines that a vessel or class of vessels of special construction or purpose cannot comply fully with the provisions of any of these Rules with respect to the number, position, range, or arc of visibility of lights or shapes, as well as to the disposition and characteristics of sound-signaling appliances, the vessel shall comply with such other provisions in regard to the number, position, range, or arc of visibility of lights or shapes, as well as to the disposition and characteristics of sound-signaling appliances, as the Secretary shall have determined to be the closest possible compliance with these Rules. The Secretary may issue a certificate of alternative compliance for a vessel or class of vessels specifying the closest possible compliance with these Rules. The Secretary of the Navy shall make these determinations and issue certificates of alternative compliance for vessels of the Navy.

(f) The Secretary may accept a certificate of alternative compliance issued by a contracting party to the International Regulations if it determines that the alternative compliance standards of the contracting party are substantially the same as those of the United States.

(g) The operator of each self-propelled vessel 12 meters or more in length shall carry, on board and maintain for ready reference, a copy of these Rules.

(11)

Rule 2—Responsibility

(12) (a) Nothing in these Rules shall exonerate any vessel, or the owner, master, or crew thereof, from the consequences of any neglect to comply with these Rules or of the neglect of any precaution which may be required by the ordinary practice of seamen, or by the special circumstances of the case.

(13) (b) In construing and complying with these Rules due regard shall be had to all dangers of navigation and collision and to any special circumstances, including the limitations of the vessels involved, which may make a departure from these Rules necessary to avoid immediate danger.

(14)

Rule 3—General Definitions

(15) For the purpose of these Rules, except where the context otherwise requires:

(16) (a) The word "vessel" includes every description of watercraft, including non-displacement craft, WIG craft, and seaplanes, used or capable of being used as a means of transportation on water.

(17) (b) The term "power-driven vessel" means any vessel propelled by machinery.

(18) (c) The term "sailing vessel" means any vessel under sail provided that propelling machinery, if fitted, is not being used.

(19) (d) The term "vessel engaged in fishing" means any vessel fishing with nets, lines, trawls, or other fishing apparatus which restrict maneuverability, but does not include a vessel fishing with trolling lines or other fishing apparatus which do not restrict maneuverability.

(20) (e) The term "seaplane" includes any aircraft designed to maneuver on the water.

(21) (f) The term "vessel not under command" means a vessel which through some exceptional circumstance is unable to maneuver as required by these Rules and is therefore unable to keep out of the way of another vessel.

(22) (g) The term "vessel restricted in her ability to maneuver" means a vessel which from the nature of her work is restricted in her ability to maneuver as required by these Rules and is therefore unable to keep out of the way of another vessel. The term "vessels restricted in their ability to maneuver" shall include but not be limited to: (i) A vessel engaged in laying, servicing, or picking up a navigational mark, submarine cable or pipeline; (ii) A vessel engaged in dredging, surveying or underwater operations; (iii) A vessel engaged in replenishment or transferring persons, provisions or cargo while underway; (iv) A vessel engaged in the launching or recovery of aircraft; (v) A vessel engaged in mine clearance operations; (vi) A vessel engaged in a towing operation such as severely restricts the towing vessel and her tow in their ability to deviate from their course.

(23)

Rule 3h (International)

(h) The term "vessel constrained by her draft" means a power-driven vessel which because of her draft in relation to the available depth and width of navigable water is severely restricted in her ability to deviate from the course she is following.

(24) (i) The word "underway" means that a vessel is not at anchor, or made fast to the shore, or aground.

(25) (j) The words "length" and "breadth" of a vessel mean her length overall and greatest breadth.

(26) (k) Vessels shall be deemed to be in sight of one another only when one can be observed visually from the other.

(27) (l) The term "restricted visibility" means any condition in which visibility is restricted by fog, mist, falling snow, heavy rainstorms, sandstorms, or any other similar causes.

(28) (m) The term "Wing-In-Ground (WIG)" craft means a multimodal craft which, in its main operational mode, flies in close proximity to the surface by utilizing surfaceeffect action.

(29)

Rules 3n–3s (Inland)

(n) "Western Rivers" means the Mississippi River, its tributaries, South Pass, and Southwest Pass, to the navigational demarcation lines {30 CFR 80} dividing the high seas from harbors, rivers and other inland waters of the United States, and the Port Allen-Morgan City Alternate Route, and that part of the Atchafalaya River above its junction with the Port Allen-Morgan City Alternate Route including the Old River and the Red River.

Rules 3n–3s (Inland)
(o) "Great Lakes" means the Great Lakes and their connecting tributary waters including the Calumet River as far as the Thomas J. O'Brien Lock and Controlling Waters (between mile 326 and 327), the Chicago River as far as the east side of the Ashland Avenue Bridge (between mile 321 and 322), and the Saint Lawrence River as far east as the lower exit of Saint Lambert Lock.
(p) "Secretary" means the Secretary of the Department in which the Coast Guard is operating.
(q) "Inland Waters" means the navigable waters of the United States shoreward of the navigational demarcation lines {30 CFR 80} dividing the high seas from harbors, rivers and other inland waters of the United States and the waters of the Great Lakes on the United States side of the International Boundary.
(r) "Inland Rules" or "Rules" means these Inland Navigational Rules and the annexes thereto, which govern the conduct of vessels and specify the lights, shapes, and sound signals that apply on inland waters.
(s) "International Regulations" means the International Regulations for Preventing Collisions at Sea, 1972, including annexes currently in force for the United States.

(30) **Implementing Rule**—See **33 CFR 89.25**, chapter 2, for regulations.

(31)

Part B—Steering and Sailing Rules

(32)

I—Conduct of Vessels in Any Condition of Visibility

(33)

Rule 4—Application

(34) Rules 4 through 10 apply in any condition of visibility.

(35)

Rule 5—Lookout

(36) Every vessel shall at all times maintain a proper look-out by sight and hearing as well as by all available means appropriate in the prevailing circumstances and conditions so as to make a full appraisal of the situation and of the risk of collision.

(37)

Rule 6—Safe Speed

(38) Every vessel shall at all times proceed at a safe speed so that she can take proper and effective action to avoid collision and be stopped within a distance appropriate to the prevailing circumstances and conditions. In determining a safe speed the following factors shall be among those taken into account:

(39) (a) By all vessels:

(40) (i) The state of visibility; (ii) The traffic density including concentrations of fishing vessels or any other vessels; (iii) The maneuverability of the vessel with special reference to stopping distance and turning ability in the prevailing conditions; (iv) At night, the presence of background light such as from shore lights or from back scatter from her own lights; (v) The state of wind, sea and current, and the proximity of navigational hazards; (vi) The draft in relation to the available depth of water.

(41) (b) Additionally, by vessels with operational radar:

(42) (i) The characteristics, efficiency and limitations of the radar equipment; (ii) Any constraints imposed by the radar range scale in use; (iii) The effect on radar detection of the sea state, weather and other sources of interference; (iv) The possibility that small vessels, ice and other floating objects may not be detected by radar at an adequate range; (v) The number, location and movement of vessels detected by radar; (vi) The more exact assessment of the visibility that may be possible when radar is used to determine the range of vessels or other objects in the vicinity.

(43)

Rule 7—Risk of Collision

(44) (a) Every vessel shall use all available means appropriate to the prevailing circumstances and conditions to determine if risk of collision exists. If there is any doubt such risk shall be deemed to exist.

(45) (b) Proper use shall be made of radar equipment if fitted and operational, including long-range scanning to obtain early warning of risk of collision and radar plotting or equivalent systematic observation of detected objects.

(46) (c) Assumptions shall not be made on the basis of scanty information, especially scanty radar information.

(47) (d) In determining if risk of collision exists the following considerations shall be among those taken into account:

(48) (i) Such risk shall be deemed to exist if the compass bearing of an approaching vessel does not appreciably change.

(49) (ii) Such risk may sometimes exist even when an appreciable bearing change is evident, particularly when approaching a very large vessel or a tow or when approaching a vessel at close range.

(50)

Rule 8—Action to Avoid Collision

(51) (a) Any action taken to avoid collision shall be taken in accordance with Rules 4 through 19 and shall if the circumstances of the case admit, be positive, made in ample time and with due regard to the observance of good seamanship.

(52) (b) Any alteration of course and/or speed to avoid collision shall, if the circumstances of the case admit, be large enough to be readily apparent to another vessel observing visually or by radar; a succession of small alterations of course and/or speed should be avoided.

(53) (c) If there is sufficient sea room, alteration of course alone may be the most effective action to avoid a closequarters situation provided that it is made in good time, is substantial and does not result in another closequarters situation.

(54) (d) Action taken to avoid collision with another vessel shall be such as to result in passing at a safe distance. The

effectiveness of the action shall be carefully checked until the other vessel is finally past and clear.

(55) (e) If necessary to avoid collision or allow more time to assess the situation, a vessel shall slacken her speed or take all way off by stopping or reversing her means of propulsion.

(56) (f)(i) A vessel which, by any of these Rules, is required not to impede the passage or safe passage of another vessel shall, when required by the circumstances of the case, take early action to allow sufficient sea room for the safe passage of the other vessel.

(57) (ii) A vessel required not to impede the passage or safe passage of another vessel is not relieved of this obligation if approaching the other vessel so as to involve risk of collision and shall, when taking action, have full regard to the action which may be required by Rules 4 through 19.

(58) (iii) A vessel, the passage of which is not to be impeded remains fully obliged to comply with Rules 4 through 19 when the two vessels are approaching one another so as to involve risk of collision.

(59)

Rule 9—Narrow Channels

(60) (a) ‹‹(i)›› A vessel proceeding along the course of a narrow channel or fairway shall keep as near to the outer limit of the channel or fairway which lies on her starboard side as is safe and practicable.

(61)

Rule 9a (Inland)

(ii) Notwithstanding Rule 9(a)(i) and Rule 14(a), a power-driven vessel operating in narrow channel or fairway on the Great Lakes, Western Rivers, or waters specified by the Secretary, and proceeding downbound with a following current shall have the right-of-way over an upbound vessel, shall propose the manner and place of passage, and shall initiate the maneuvering signals prescribed by Rule 34(a)(i), as appropriate. The vessel proceeding upbound against the current shall hold as necessary to permit safe passing.

(62) (b) A vessel of less than 20 meters in length or a sailing vessel shall not impede the passage of a vessel ‹which ›‹‹that›› can safely navigate only within a narrow channel or fairway.

(63) (c) A vessel engaged in fishing shall not impede the passage of any other vessel navigating within a narrow channel or fairway.

(64) (d) A vessel ‹ shall ›‹‹must›› not cross a narrow channel or fairway if such crossing impedes the passage of a vessel which can safely navigate only within that channel or fairway. The latter vessel ‹ may ›‹‹must›› use the signal prescribed in Rule 34(d) if in doubt as to the intention of the crossing vessel.

(65)

Rule 9e (International)

(e)(i) In a narrow channel or fairway when overtaking can take place only if the vessel to be overtaken has to take action to permit safe passing, the vessel intending to overtake shall indicate her intention by sounding the appropriate signal prescribed in Rule 34(c)(ii). The vessel to be overtaken shall, if in agreement, sound the appropriate signal prescribed in Rule 34(c)(i) and take steps to permit safe passing. If in doubt she may sound the signals prescribed in Rule 34(d).

Rule 9e (Inland)

(e)(i) In a narrow channel or fairway when overtaking, the power-driven vessel intending to overtake another power-driven vessel shall indicate her intention by sounding the appropriate signal prescribed in Rule 34(c) and take steps to permit safe passing. The power-driven vessel being overtaken, if in agreement, shall sound the same signal and may, if specifically agreed to, take steps to permit safe passing. If in doubt she shall sound the signal prescribed in Rule 34(d).

(66) (e)(ii) This rule does not relieve the overtaking vessel of her obligation under Rule 13.

(67) (f) A vessel nearing a bend or an area of a narrow channel or fairway where other vessels may be obscured by an intervening obstruction shall navigate with particular alertness and caution and shall sound the appropriate signal prescribed in Rule 34(e).

(68) (g) Any vessel shall, if the circumstances of the case admit, avoid anchoring in a narrow channel.

(69)

Rule 10—Traffic Separation Schemes

(70) (a) This Rule applies to traffic separation schemes ‹ adopted by the Organization › and does not relieve any vessel of her obligation under any other rule.

(71) (b) A vessel using a traffic separation scheme shall:

(72) (i) Proceed in the appropriate traffic lane in the general direction of traffic flow for that lane.

(73) (ii) So far as is practicable keep clear of a traffic separation line or separation zone.

(74) (iii) Normally join or leave a traffic lane at the termination of the lane, but when joining or leaving from either side shall do so at as small an angle to the general direction of traffic flow as practicable.

(75) (c) A vessel, shall so far as practicable, avoid crossing traffic lanes but if obliged to do so shall cross on a heading as nearly as practicable at right angles to the general direction of traffic flow.

(76) (d)(i) A vessel shall not use an inshore traffic zone when she can safely use the appropriate traffic lane within the adjacent traffic separation scheme. However, vessels of less than 20 meters in length, sailing vessels and vessels engaged in fishing may use the inshore traffic zone.

(77) (ii) Notwithstanding Rule 10(d)(i), a vessel may use an inshore traffic zone when en route to or from a port, offshore installation or structure, pilot station or any other place situated within the inshore traffic zone, or to avoid immediate danger.

(78) (e) A vessel, other than a crossing vessel or a vessel joining or leaving a lane shall not normally enter a separation zone or cross a separation line except:

(79) (i) in cases of emergency to avoid immediate danger;

(80) (ii) to engage in fishing within a separation zone.

(81) (f) A vessel navigating in areas near the terminations of traffic separation schemes shall do so with particular caution.

(82) (g) A vessel shall so far as practicable avoid anchoring in a traffic separation scheme or in areas near its terminations.

(83) (h) A vessel not using a traffic separating scheme shall avoid it by as wide a margin as is practicable.

(84) (i) A vessel engaged in fishing shall not impede the passage of any vessel following a traffic lane.

(85) (j) A vessel of less than 20 meters in length or a sailing vessel shall not impede the safe passage of a power-driven vessel following a traffic lane.

(86) (k) A vessel restricted in her ability to maneuver when engaged in an operation for the maintenance of safety of navigation in a traffic separation scheme is exempted from complying with this Rule to the extent necessary to carry out the operation.

(87) (l) A vessel restricted in her ability to maneuver when engaged in an operation for the laying, servicing or picking up of a submarine cable, within a traffic separation scheme, is exempted from complying with this Rule to the extent necessary to carry out the operation.

(88)

II—Conduct of Vessels in Sight of One Another

(89)

Rule 11—Application

(90) Rules 11 through 18 apply to vessels in sight of one another.

(91)

Rule 12—Sailing Vessels

(92) (a) When two sailing vessels are approaching one another, so as to involve risk of collision, one of them shall keep out of the way of the other as follows:

(93) (i) when each has the wind on a different side, the vessel which has the wind on the port side shall keep out of the way of the other;

(94) (ii) when both have the wind on the same side, the vessel which is to windward shall keep out of the way of the vessel which is to leeward;

(95) (iii) if a vessel with the wind on the port side sees a vessel to windward and cannot determine with certainty whether the other vessel has the wind on the port or on the starboard side, she shall keep out of the way of the other.

(96) (b) For the purposes of this Rule, the windward side shall be deemed to be the side opposite that on which the mainsail is carried or, in the case of a square-rigged vessel, the side opposite to that on which the largest foreand-aft sail is carried.

(97)

Rule 13—Overtaking

(98) (a) Notwithstanding anything contained in the Rules 4 through 18, any vessel overtaking any other shall keep out of the way of the vessel being overtaken.

(99) (b) A vessel shall be deemed to be overtaking when coming up with a another vessel from a direction more than 22.5 degrees abaft her beam, that is, in such a position with reference to the vessel she is overtaking, that at night she would be able to see only the sternlight of that vessel but neither of her sidelights.

(100) (c) When a vessel is in any doubt as to whether she is overtaking another, she shall assume that this is the case and act accordingly.

(101) (d) Any subsequent alteration of the bearing between the two vessels shall not make the overtaking vessel a crossing vessel within the meaning of these Rules or relieve her of the duty of keeping clear of the overtaken vessel until she is finally past and clear.

(102)

Rule 14—Head-on Situation

(103) (a) *‹‹Unless otherwise agreed››* when two powerdriven vessels are meeting on reciprocal or nearly reciprocal courses so as to involve risk of collision each shall alter her course to starboard so that each shall pass on the port side of the other.

(104) (b) Such a situation shall be deemed to exist when a vessel sees the other ahead or nearly ahead and by night she could see the masthead lights of the other in a line or nearly in a line and/or both sidelights and by day she observes the corresponding aspect of the other vessel.

(105) (c) When a vessel is in any doubt as to whether such a situation exists she shall assume that it does exist and act accordingly.

(106)

Rule 14d (Inland)

(d) Notwithstanding Rule 14(a), a power-driven vessel operating on the Great Lakes, Western Rivers, or waters specified by the Secretary, and proceeding downbound with a following current shall have the right-of-way over an upbound vessel, shall propose the manner of passage, and shall initiate the maneuvering signals prescribed by Rule 34(a)(i), as appropriate.

(107)

Rule 15—Crossing Situation

(108) (a) When two power-driven vessels are crossing so as to involve risk of collision, the vessel which has the other on her own starboard side shall keep out of the way and shall, if the circumstances of the case admit, avoid crossing ahead of the other vessel.

(109)

Rule 15b (Inland)

(b) Notwithstanding Rule 15(a), on the Great Lakes, Western Rivers, or water specified by the Secretary, a power-driven vessel crossing a river shall keep out of the way of a power-driven vessel ascending or descending the river.

(110)

Rule 16—Action by Give-way Vessel

(111) Every vessel which is directed to keep out of the way of another vessel shall, so far as possible, take early and substantial action to keep well clear.

(112)

Rule 17—Action by Stand-on Vessel

(113) (a)(i) Where one of two vessels is to keep out of the way, the other shall keep her course and speed.

(114) (ii) The latter vessel may, however, take action to avoid collision by her maneuver alone, as soon as it becomes apparent to her that the vessel required to keep out of the way is not taking appropriate action in compliance with these Rules.

(115) (b) When, from any cause, the vessel required to keep her course and speed finds herself so close that collision cannot be avoided by the action of the giveway vessel alone, she shall take such action as will best aid to avoid collision.

(116) (c) A power-driven vessel which takes action in a crossing situation in accordance with Rule 17(a)(ii) to avoid collision with another power-driven vessel shall, if the circumstances of the case admit, not alter course to port for a vessel on her own port side.

(117) (d) This Rule does not relieve the give-way vessel of her obligation to keep out of the way.

(118)

Rule 18—Responsibilities Between Vessels

(119) Except where Rules 9, 10, and 13 otherwise require:

(120) (a) A power-driven vessel underway shall keep out of the way of: (i) a vessel not under command; (ii) a vessel restricted in her ability to maneuver; (iii) a vessel engaged in fishing; (iv) a sailing vessel.

(121) (b) A sailing vessel underway shall keep out of the way of: (i) a vessel not under command; (ii) a vessel restricted in her ability to maneuver; (iii) a vessel engaged in fishing.

(122) (c) A vessel engaged in fishing when underway shall, so far as possible, keep out of the way of: (i) a vessel not under command; (ii) a vessel restricted in her ability to maneuver.

(123)

Rule 18d (International)

(d)(i) Any vessel other than a vessel not under command or a vessel restricted in her ability to maneuver shall, if the circumstances of the case admit, avoid impeding the safe passage of a vessel constrained by her draft, exhibiting the signals in Rule 28.

(ii) A vessel constrained by her draft shall navigate with particular caution having full regard to her special condition.

(124) (e) A seaplane on the water shall, in general, keep well clear of all vessels and avoid impeding their navigation. In circumstances, however, where risk of collision exists, she shall comply with Rules 4 through 19.

(125) (f)(i) A WIG craft shall, when taking off, landing and in flight near the surface, keep well clear of all other vessels and avoid impeding their navigation;

(126) (ii) a WIG craft operating on the water surface shall comply with Rules 4 through 19 as a power-driven vessel.

(127)

III—Conduct of Vessels in Restricted Visibility

(128)

Rule 19—Conduct of Vessels in Restricted Visibility

(129) (a) This Rule applies to vessels not in sight of one another when navigating in or near an area of restricted visibility.

(130) (b) Every vessel shall proceed at a safe speed adapted to the prevailing circumstances and conditions of restricted visibility. A power-driven vessel shall have her engines ready for immediate maneuver.

(131) (c) Every vessel shall have due regard to the prevailing circumstances and conditions of restricted visibility when complying with Rules 4 through 10.

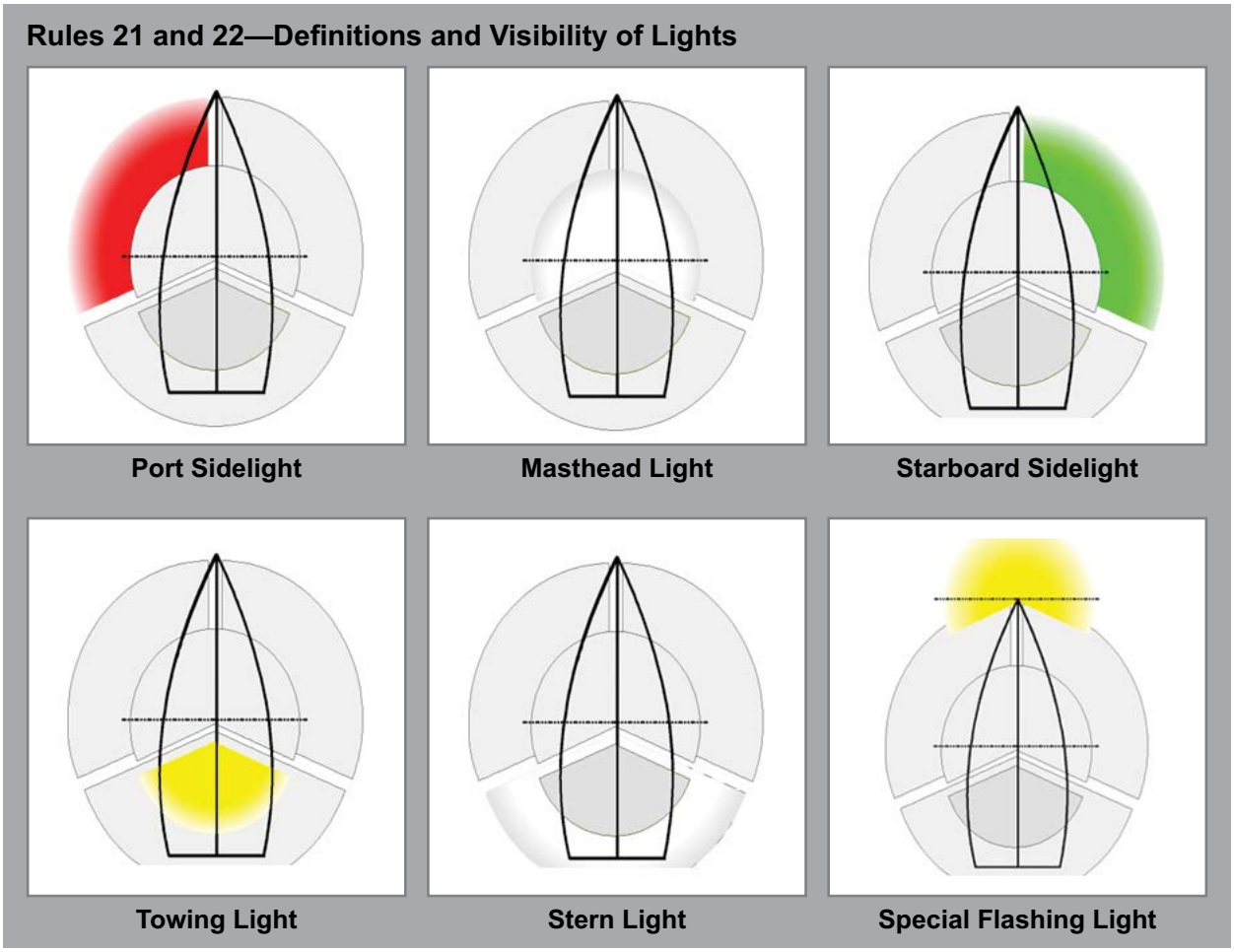
(132) (d) A vessel which detects by radar alone the presence of another vessel shall determine if a closequarters situation is developing and/or risk of collision exists. If so, she shall take avoiding action in ample time, provided that when such action consists of an alteration in course, so far as possible the following shall be avoided:

(133) (i) An alteration of course to port for a vessel forward of the beam, other than for a vessel being overtaken;

(134) (ii) An alteration of course toward a vessel abeam or abaft the beam.

(135) (e) Except where it has been determined that a risk of collision does not exist, every vessel which hears apparently forward of her beam the fog signal of another vessel, or which cannot avoid a close-quarters situation with another vessel forward of her beam, shall reduce her speed to be the minimum at which she can be kept on her course. She shall if necessary take all her way off and in any event navigate with extreme caution until danger of collision is over.

(158)



(136)

Part C—Lights and Shapes

(137)

Rule 20—Application

(138) (a) Rules 20 through 31 shall be complied with in all weathers.

(139) (b) The Rules concerning lights shall be complied with from sunset to sunrise, and during such times no other lights shall be exhibited, except such lights which cannot be mistaken for the lights specified in these Rules or do not impair their visibility or distinctive character, or interfere with the keeping of a proper look-out.

(140) (c) The lights prescribed by these Rules shall, if carried, also be exhibited from sunrise to sunset in restricted visibility and may be exhibited in all other circumstances when it is deemed necessary.

(141) (d) The Rules concerning shapes shall be complied with by day.

(142) (e) The lights and shapes specified in these Rules shall comply with the provisions of Annex I of these Rules.

(143)

Rule 20f (Inland)

(f) A vessel's navigation lights and shapes may be lowered if necessary to pass under a bridge.

(144)

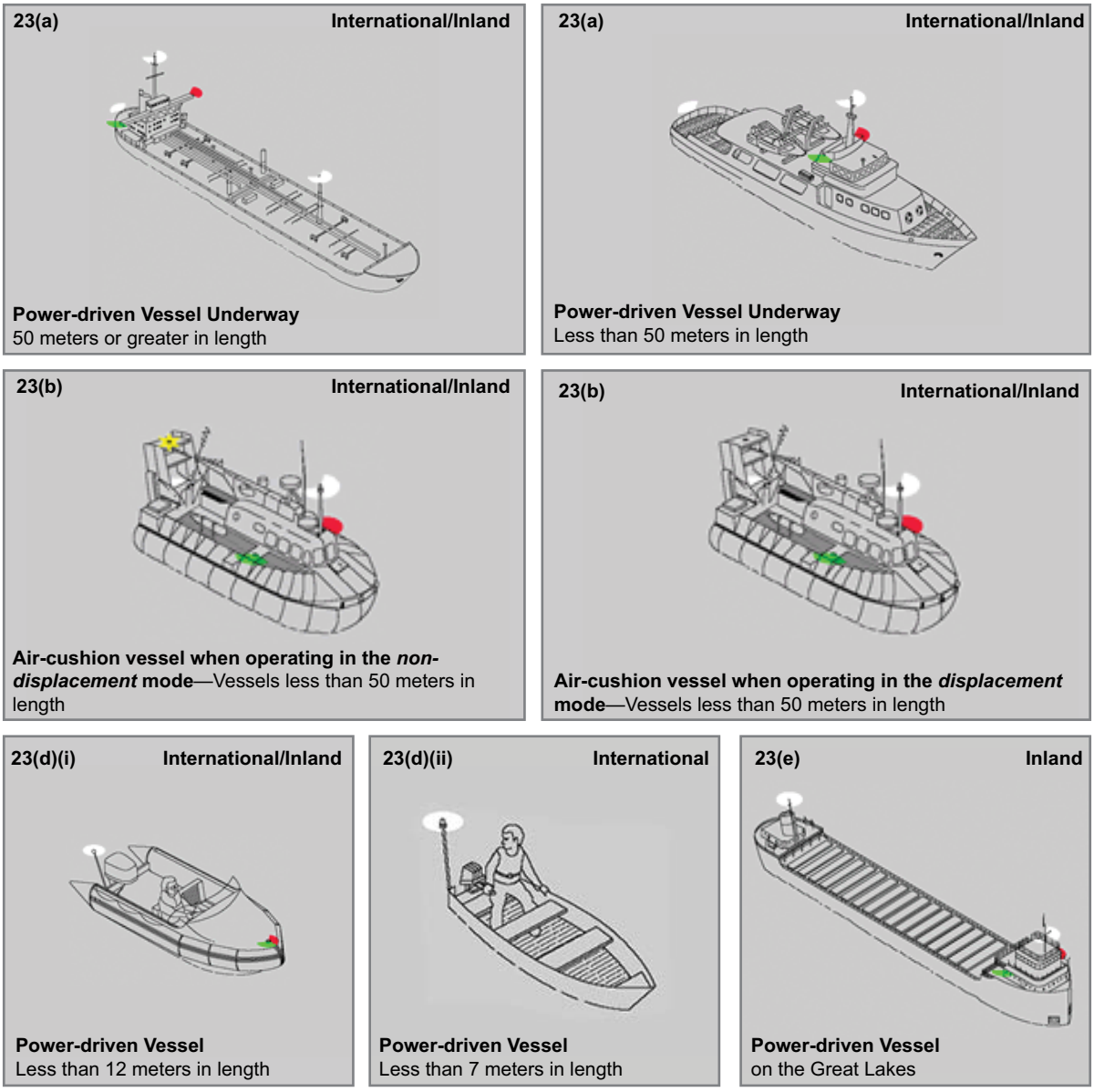
Rule 21—Definitions

(145) (a) "Masthead light" means a white light placed over the fore and aft centerline of the vessel showing an unbroken light over an arc of the horizon of 225° and so fixed as to show the light from right ahead to 22.5° abaft the beam on either side of the vessel *‹‹except that on a vessel of less than 12 meters in length the masthead light shall be placed as nearly as practicable to the fore and aft centerline of the vessel››*.

(146) (b) "Sidelights" means a green light on the starboard side and a red light on the port side each showing an unbroken light over an arc of the horizon of 112.5° and so fixed as to show the light from right ahead to 22.5° abaft the beam on its respective side. In a vessel of less than 20 meters in length the sidelights may be combined in one lantern carried on the fore and aft centerline of the vessel *‹‹, except that on a vessel of less than 12 meters in length the sidelights when combined in one lantern*

(166)

Rule 23—Power-driven Vessels Underway



shall be placed as nearly as practicable to the fore and aft centerline of the vessel››.

(147) (c) "Sternlight" means a white light placed as nearly as practicable at the stern showing an unbroken light over an arc of the horizon of 135° and so fixed as to show the light 67.5° from right aft on each side of the vessel.

(148) (d) "Towing light" means a yellow light having the same characteristics as the "sternlight" defined in Rule 21(c).

(149) (e) "All-round light" means a light showing an unbroken light over an arc of the horizon of 360°.

(150) (f) "Flashing light" means a light flashing at regular intervals at a frequency of 120 flashes or more per minute.

(151)

Rule 21g (Inland)

(g) "Special flashing light" means a yellow light flashing at regular intervals at a frequency of 50 to 70 flashes per minute, placed as far forward and as nearly as practicable on the fore and aft centerline of the tow and showing an unbroken light over an arc of the horizon of not less than 180 degrees nor more than 225 degrees and so fixed as to show the light from right ahead to abeam and no more than 22.5 degrees abaft the beam on either side of the vessel.

(152)

Rule 22—Visibility of Lights

(153) The lights prescribed in these Rules (Subpart C) shall have an intensity as specified in Annex I to these

Rules (33 CFR part 84), so as to be visible at the following minimum ranges:

(154) (a) In a vessel of 50 meters or more in length: (i) a masthead light, 6 miles; (ii) a sidelight, 3 miles; (iii) a sternlight, 3 miles; (iv) a towing light, 3 miles; (v) a white, red, green or yellow all-round light, 3 miles; *«and (vi) a special flashing light, 2 miles. »*

(155) (b) In a vessel of 12 meters or more in length but less than 50 meters in length: (i) a masthead light, 5 miles; except that where the length of the vessel is less than 20 meters, 3 miles; (ii) a sidelight, 2 miles; (iii) a sternlight, 2 miles; (iv) a towing light, 2 miles; (v) a white, red, green or yellow all-round light, 2 miles; *«and (vi) a special flashing light, 2 miles. »*

(156) (c) In a vessel of less than 12 meters in length: (i) a masthead light, 2 miles; (ii) a sidelight, 1 mile; (iii) a sternlight, 2 miles; (iv) A towing light, 2 miles; (v) a white, red, green or yellow all-round light, 2 miles; *«and (vi) a special flashing light, 2 miles. »*

(157) (d) In an inconspicuous, partly submerged vessel or objects being towed: (i) A white all-round light, 3 miles. (ii) [Reserved]

(159)

Rule 23—Power-driven Vessels Underway

(160) (a) A power-driven vessel underway shall exhibit: (i) a masthead light forward; (ii) a second masthead light abaft of and higher than the forward one; except that a vessel of less than 50 meters in length shall not be obliged to exhibit such a light but may do so; (iii) sidelights; and (iv) a sternlight.

(161) (b) An air-cushion vessel when operating in nondisplacement mode shall, in addition to the lights prescribed in Rule 23(a) Air Cushion Vessel in Displacement Mode, exhibit an all-round flashing yellow light *‹‹, where it can best be seen››*.

(162) (c) A WIG craft only when taking off, landing andin flight near the surface shall, in addition to the lights prescribed in Rule 23(a), exhibit a high intensity allround flashing red light.

(163) (d)(i) A power-driven vessel of less than 12 meters in length may in lieu of the lights prescribed in Rule 23(a) exhibit an all-round white light and sidelights.

(164)

Rule 23d (International)

(ii) a power-driven vessel of less than 7 meters in length whose maximum speed does not exceed 7 knots may in lieu of the lights prescribed in Rule 23(a) exhibit an all-round white light and shall, if practicable, also exhibit sidelights.

(iii) the masthead light or all-round white light on a power-driven vessel of less than 12 metres in length may be displaced from the fore and aft centre line of the vessel if centreline fitting is not practicable, provided that the sidelights are combined in one lantern which shall be carried on the fore and aft centre line of the vessel or located as nearly as practicable in the same fore and aft line as the masthead light or the all-round white light.

Rule 23e (Inland)

(e) A power-driven vessel when operating on the Great Lakes may carry an all-round white light in lieu of the second masthead light and sternlight prescribed in Rule 23(a). The light shall be carried in the position of the second masthead light and be visible at the same minimum range.

(165) Regulations containing specifics on **Law Enforcement** and **Public Safety Vessel** lighting are in **Annex V–Pilot Rules, 33 CFR 88.05** and **33 CFR 88.07**, chapter 2.

(167)

Rule 24—Towing and Pushing

(168) (a) A power-driven vessel when towing astern shall exhibit: (i) instead of the light prescribed in Rule 23(a)(i) or 23(a)(ii), two masthead lights in a vertical line. When the length of the tow, measuring from the stern of the towing vessel to the after end of the tow, exceeds 200 meters, three such lights in a vertical line; (ii) sidelights; (iii) a sternlight; (iv) a towing light in a vertical line above the sternlight; and (v) when the length of the tow exceeds 200 meters, a diamond shape where it can best be seen.

(169) (b) When a pushing vessel and a vessel being pushed ahead are rigidly connected in a composite unit they shall be regarded as a power-driven vessel and exhibit the lights prescribed in Rule 23.

(170) **Interpretive Rule**—See **33 CFR 90.3** and **33 CFR 82.3**, chapter 2, for regulations.

(171) (c) A power-driven vessel when pushing ahead or towing alongside, except ‹ in the case of a composite unit *›‹‹as required by Rules 24(b) and (i)››*, shall exhibit: (i) instead of the light prescribed in Rule 23(a)(i) or 23(a)(ii), two masthead lights in a vertical line; (ii) sidelights; and (iii) ‹ a sternlight *›‹‹two towing lights in a vertical line››*.

(172) (d) A power-driven vessel to which paragraphs (a) or (c) of this Rule applies shall also comply with Rule 23 *‹‹(a)(i) and››* (a)(ii).

(173) (e) A vessel or object being towed, other than those ‹ mentioned *›‹‹referred››* in Rule 24(g), shall exhibit: (i) sidelights; (ii) a sternlight; (iii) when the length of the tow exceeds 200 meters, a diamond shape where it can best be seen.

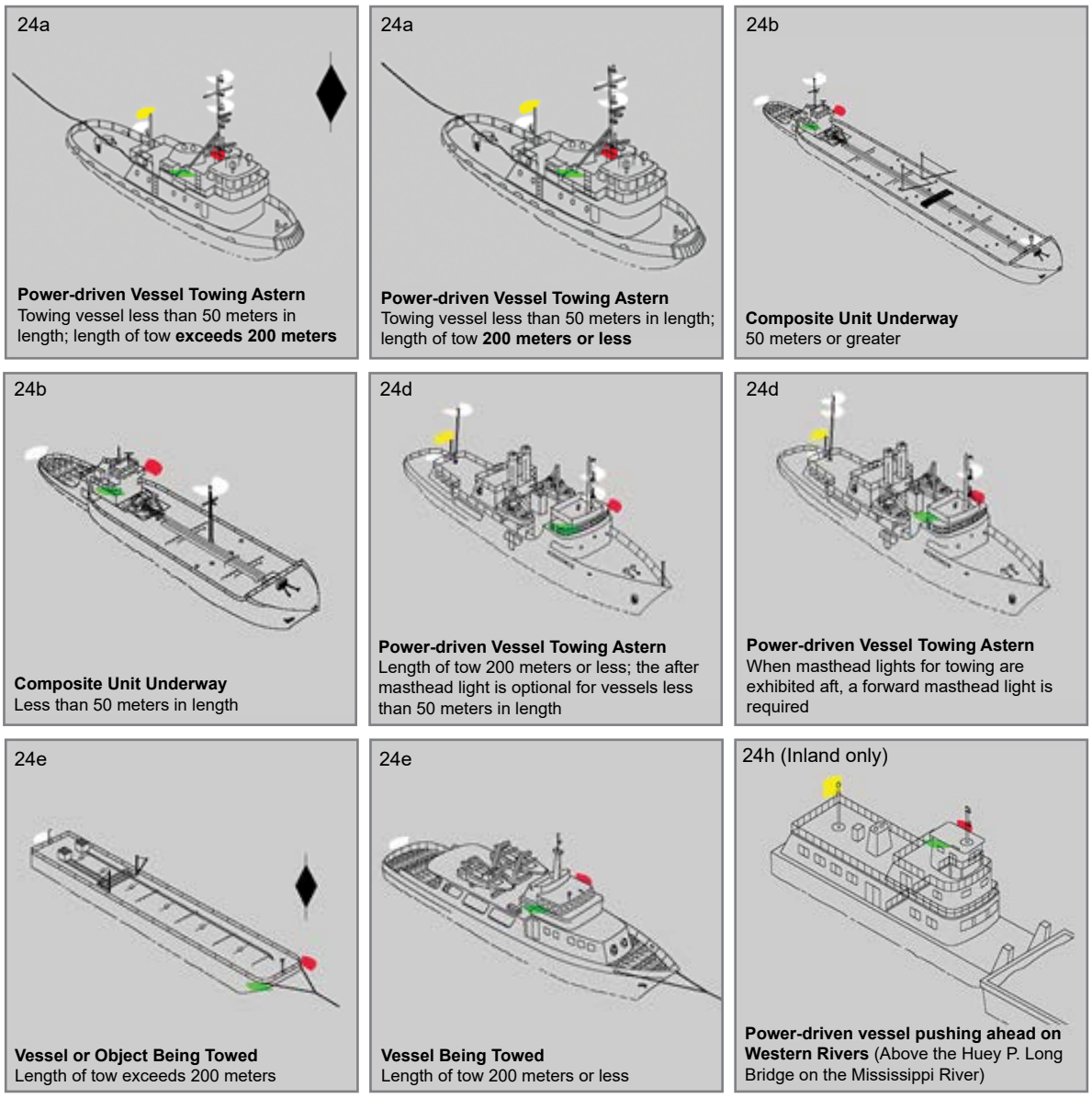
(174) (f) Provided that any number of vessels being towed alongside or pushed in a group shall be lighted as one vessel *‹‹except as provided in Rule 24(f)(iii)››*.

(175) (i) a vessel being pushed ahead, not being part of a composite unit, shall exhibit at the forward end, sidelights, and *‹‹a special flashing light››*;

(176) (ii) a vessel being towed alongside shall exhibit a sternlight and at the forward end, sidelights, and *‹‹a special flashing light››*;

(188)

Rule 24—Towing and Pushing (International/Inland)



(177)

Rule 24f (Inland)

(iii) when vessels are towed alongside on both sides of the towing vessel a sternlight shall be exhibited on the stern of the outboard vessel on each side of the towing vessel, and a single set of sidelights as far forward and as far outboard as is practicable, and a single special flashing light;

(178) (g) An inconspicuous, partly submerged vessel or object, or combination of such vessels or objects being towed, shall exhibit:

(179) (i) if it is less than 25 meters in breadth, one all-round white light at or near the forward end and one at or near the after end except that dracones need not exhibit a light at or near ‹ the forward ›‹‹each›› end.

(180)

Rule 24g (International)

(ii) if it is 25 meters or more in breadth, two additional all-round white lights at or near the extremities of its breadth;

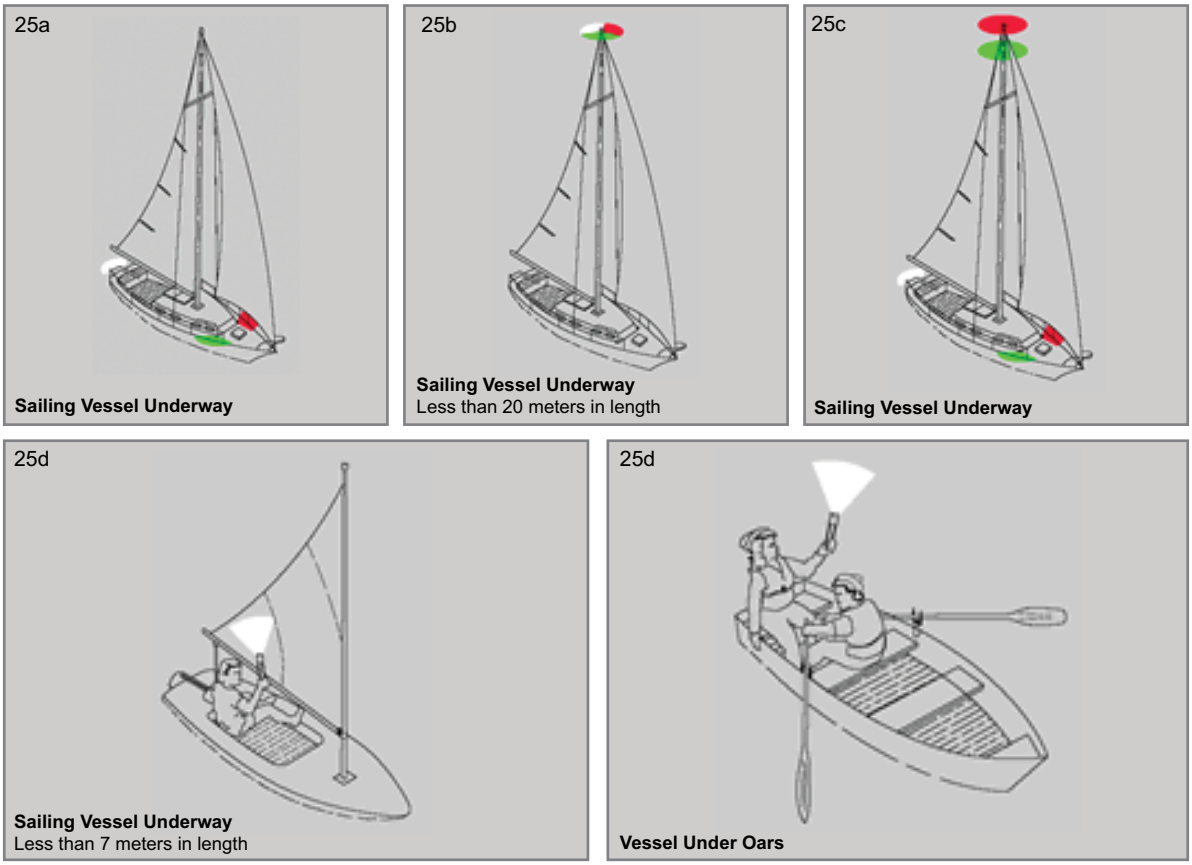
Rule 24g (Inland)

(ii) if it is 25 meters or more in breadth, four all-round white lights to mark its length and breadth;

(181) (iii) if it exceeds 100 meters in length, additional allround white lights between the lights prescribed in Rule 24(g)(i) ‹‹*and (ii)*›› and so that the distance between the lights shall not exceed 100 meters. ‹‹*Provided that any*

(196)

Rule 25—Sailing Vessels Underway and Vessels Under Oars (International/Inland)



vessels or objects being towed alongside each other shall be lighted as one vessel or object››.

(182) (iv) a diamond shape at or near the aftermost extremity of the last vessel or object being towed; and ‹ if the length of the tow exceeds 200 meters an additional diamond shape where it can best be seen and located as far forward as is practicable. ›

(183)

Rule 24g (Inland)

(v) the towing vessel may direct a searchlight in the direction of the tow to indicate its presence to an approaching vessel.

(184) (h) Where from any sufficient cause it is impracticable for a vessel or object being towed to exhibit the lights or shapes prescribed in Rule 24(e) or (g), all possible measures shall be taken to light the vessel or object towed or at least to indicate the presence of ‹ such ›*‹‹the unlighted››* vessel or object.

(185) **Interpretive Rule**—See **33 CFR 90.7** and **33 CFR 82.7**, chapter 2, for regulations.

(186) (i) Where from any sufficient cause it is impracticable for a vessel not normally engaged in towing operations to display the lights prescribed by paragraph (a), (c), *«or (j)»* of this Rule, such vessel shall not be required to exhibit those lights when engaged in towing another vessel in distress or otherwise in need of assistance. All possible measures shall be taken to indicate the nature of the relationship between the towing vessel and the vessel being towed ‹ as authorized by Rule 36, in particular by illuminating the towline ›*«and the vessel being assisted. The searchlight authorized by Rule 36 may be used to illuminate the tow»*.

(187)

Rule 24j (Inland)

(i) Notwithstanding paragraph (c) of this Rule, on the Western Rivers (except below the Huey P. Long Bridge at mile 106.1 Above Head of Passes on the Mississippi River) and on waters specified by the Secretary, a power-driven vessel when pushing ahead or towing alongside, except as paragraph (b) of this Rule applies, shall exhibit: (i) sidelights; and (ii) two towing lights in a vertical line.

(189)

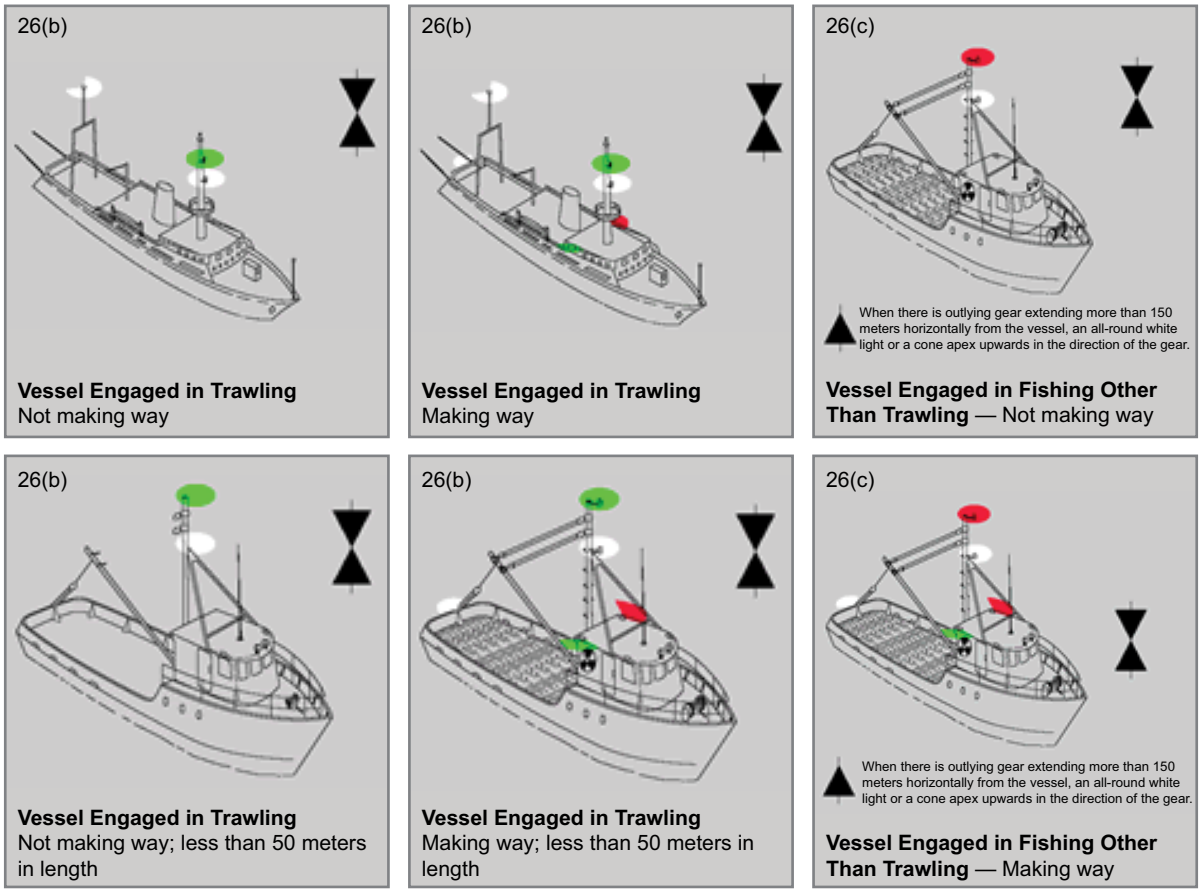
Rule 25—Sailing Vessels Underway and Vessels Under Oars

(190) (a) A sailing vessel underway shall exhibit: (i) sidelights; (ii) a sternlight.

(191) (b) In a sailing vessel of less than 20 meters in length the lights prescribed in Rule 25(a) may be combined in one lantern carried at or near the top of the mast where it can best be seen.

(210)

Rule 26—Fishing Vessels (International/Inland)



(192) (c) A sailing vessel underway may, in addition to the lights prescribed in Rule 25(a), exhibit at or near the top of the mast, where they can best be seen, two allround lights in a vertical line, the upper being red and the lower green, but these lights shall not be exhibited in conjunction with the combined lantern permitted by Rule 25(b).

(193) (d)(i) A sailing vessel of less than 7 meter in length shall, if practicable, exhibit the lights prescribed in Rule 25(a) or (b), but if she does not, she shall *«exhibit an all around white light or»* have ready at hand an electric torch or lighted lantern showing a white light which shall be exhibited in sufficient time to prevent collision.

(194) (ii) A vessel under oars may exhibit the lights prescribed in this rule for sailing vessels, but if she does not, she shall *«exhibit an all around white light or»* have ready at hand an electric torch or lighted lantern showing a white light which shall be exhibited in sufficient time to prevent collision.

(195) (e) A vessel proceeding under sail when also being propelled by machinery shall exhibit forward where it can best be seen a conical shape, apex downwards. *«A vessel of less than 12 meters in length is not required to exhibit this shape, but may do so.»*

(197)

Rule 26—Fishing Vessels

(198) (a) A vessel engaged in fishing, whether underway or at anchor, shall exhibit only the lights and shapes prescribed in this Rule.

(199) (b) A vessel when engaged in trawling, by which is meant the dragging through the water of a dredge net or other apparatus used as a fishing appliance, shall exhibit: (i) two all-round lights in a vertical line, the upper being green and the lower white, or a shape consisting of two cones with their apexes together in a vertical line one above the other; (ii) a masthead light abaft of and higher than the all-round green light; a vessel of less than 50 meters in length shall not be obliged to exhibit such a light but may do so; (iii) when making way through the water, in addition to the lights prescribed in this paragraph, sidelights and a sternlight.

(200) (c) A vessel engaged in fishing, other than trawling, shall exhibit: (i) two all-round lights in a vertical line, the upper being red and the lower white, or a shape consisting of two cones with their apexes together in a vertical line one above the other; (ii) when there is outlying gear extending more than 150 meters horizontally from the vessel, an all-round white light or a cone apex upwards in

the direction of the gear; (iii) when making way through the water, in addition to the lights prescribed in this paragraph, sidelights and a sternlight.

(201)

Rule 26d (International)

(d) The additional signals described in Annex II to these Regulations apply to a vessel engaged in fishing in close proximity to other vessels engaged in fishing.

(202) (e) A vessel ‹ when › not engaged in fishing shall not exhibit the lights or shapes prescribed in this Rule, but only those prescribed for a vessel of her length.

(203) *« (f) Additional signals for fishing vessels in close proximity. »* {Same as International Rules Annex II}

(204) 1ǂ(i) The lights mentioned herein shall ‹,if exhibited in pursuance of Rule 26(d),› be placed where they can best be seen. They shall be at least 0.9 meters apart but at a lower level than lights prescribed in Rule 26. ‹(b)(i) and (c)(i)› The lights shall be visible all round the horizon at a distance of at least 1 mile but at a lesser distance from the lights prescribed by ‹these Rules›*«Rule 26(a)-(c)»* for fishing vessels.

(205) 2ǂ(ii) Signals for trawlers.

(206) (a)ǂ(1) Vessels ‹of 20 meters or more in length› when engaged in trawling, whether using demersal or pelagic gear, ‹shall›*«may»* exhibit: (i)ǂ(A) when shooting their nets—two white lights in a vertical line; (ii)ǂ(B) when hauling their nets—one white light over one red light in a vertical line; (iii)ǂ(C) when the net has come fast upon an obstruction—two red lights in a vertical line.

(207) (b)ǂ(2) ‹A›*«Each»* vessel ‹of 20 meters or more in length› engaged in pair trawling ‹shall›*«may»* exhibit: (i)ǂ(A) by night, a searchlight directed forward and in the direction of the other vessel of the pair; (ii)ǂ(B) when shooting or hauling their nets or when their nets have come fast upon an obstruction, the lights prescribed in Rule 26(f)(2)(a)ǂ(f)(ii)(1).

(208) 3ǂ(iii) Signals for purse seiners.

(209) (a)ǂ(1) Vessels engaged in fishing with purse seine gear may exhibit two yellow lights in a vertical line. These lights shall flash alternately every second and with equal light and occultation duration. These lights may be exhibited only when the vessel is hampered by its fishing gear.

(211)

Rule 27—Vessels Not Under Command or Restricted in Their Ability to Maneuver

(212) (a) A vessel not under command shall exhibit: (i) two all-round red lights in a vertical line where they can best be seen; (ii) two balls or similar shapes in a vertical line where they can best be seen; (iii) when making way through the water, in addition to the lights prescribed in this paragraph, sidelights and a sternlight.

(213) (b) A vessel restricted in her ability to maneuver, except a vessel engaged in mineclearance operations, shall exhibit: (i) three all-round lights in a vertical line where they can best be seen. The highest and lowest of these lights shall be red and the middle light shall be white; (ii) three shapes in a vertical line where they can best be seen. The highest and lowest of these shapes shall be balls and the middle one a diamond; (iii) when makingway through the water, a masthead light(s), sidelights and a sternlight in addition to the lights prescribed in Rule 27(b)(i); (iv) when at anchor, in addition to the lights or shapes prescribed in Rule 27(b)(i) and (ii), the light, lights, or shapes prescribed in Rule 30.

(214) (c) A power-driven vessel engaged in a towing operation such as severely restricts the towing vessel and her tow in their ability to deviate from their course shall, in addition to the lights or shape prescribed in Rule 27(b)(i) and (ii), exhibit the lights or shape prescribed in Rule 24.

(215) (d) A vessel engaged in dredging or underwater operations, when restricted in her ability to maneuver, shall exhibit the lights and shapes prescribed in Rules 27(b)(i), (ii) and (iii) and shall in addition when an obstruction exists, exhibit: (i) two all-round red lights or two balls in a vertical line to indicate the side on which the obstruction exists; (ii) two all-round green lights or two diamonds in a vertical line to indicate the side on which another vessel may pass; and (iii) when at anchor, the lights or shapes prescribed in this paragraph instead of the lights or shapes prescribed in Rule 30.

(216)

Rule 27d (Inland)

(iv) Dredge pipelines that are floating or supported on trestles shall display the following lights at night and in periods of restricted visibility.

(1) One row of yellow lights. The lights must be: (A) flashing 50 to 70 times per minute, (B) visible all round the horizon, (C) visible for at least 2 miles, (D) not less than 1 and not more than 3.5 meters above the water, (E) approximately equally spaced, and (F) not more than 10 meters apart where the pipeline crosses a navigable channel. Where the pipeline does not cross a navigable channel the lights must be sufficient in number to clearly show the pipeline's length and course.

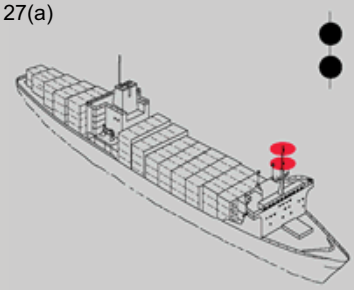
(2) Two red lights at each end of the pipeline, including the ends in a channel where the pipeline is separated to allow vessels to pass (whether open or closed). The lights must be: (A) visible all round the horizon, and (B) visible for at least 2 miles, and (C) one meter apart in a vertical line with the lower light at the same height above the water as the flashing yellow light.

(217) (e) Whenever the size of a vessel engaged in diving operations makes it impracticable to exhibit all lights and shapes prescribed in Rule 27(d), the following shall be exhibited: (i) Three all-round lights in a vertical line where they can best be seen. The highest and lowest of these lights shall be red and the middle light shall be white; (ii) a rigid replica of the International Code flag "A" not less than 1 meter in height. Measures shall be taken to ensure its all-round visibility.

(221)

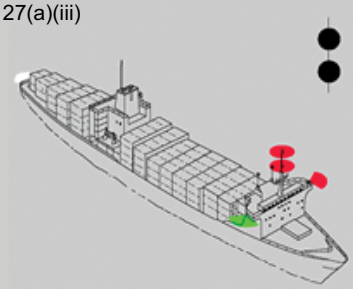
Rule 27—Vessels Not Under Command or Restricted in Their Ability to Maneuver (International/Inland)

27(a)



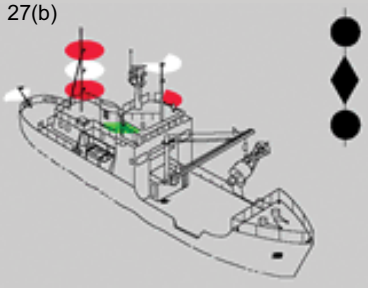
Vessel Not Under Command
Not making way

27(a)(iii)



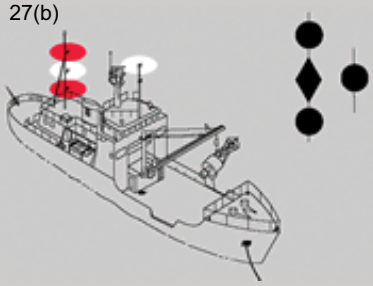
Vessel Not Under Command
Making way

27(b)



Vessel Restricted in Her Ability to Maneuver—Making way; less than 50 meters in length

27(b)



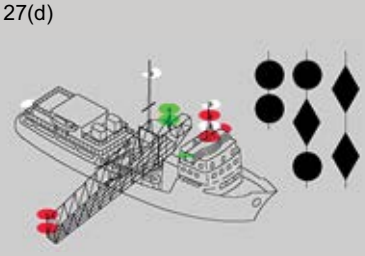
Vessel Restricted in Her Ability to Maneuver—At anchor; less than 50 meters in length

27(c)



Vessel engaged in towing operation which severely restricts towing vessel and her tow in their ability to deviate from their course—Length of tow does not exceed 200 meters; towing vessel less than 50 meters in length.

27(d)



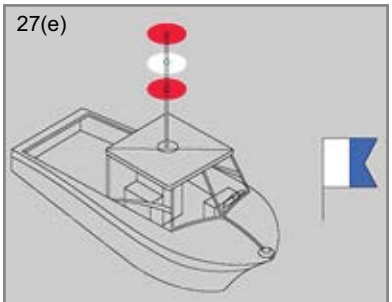
Vessel engaged in dredging or underwater operations when restricted in ability to maneuver—Making way with an obstruction on the starboard side.

27(d)



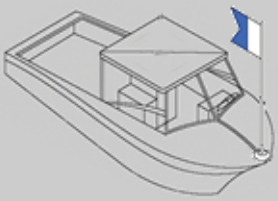
Vessel engaged in dredging or underwater operations when restricted in ability to maneuver—Not making way with an obstruction on the starboard side.

27(e)



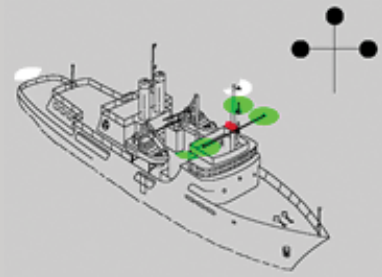
Small vessel engaged in diving operations

27(e)



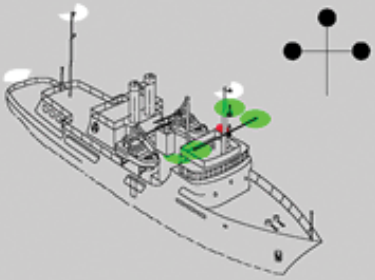
Small vessel engaged in diving operations

27(f)



Vessel engaged in mineclearance operations
Vessel less than 50 meters in length.

27(f)



Vessel engaged in mineclearance operations
Vessel 50 meters or greater in length.

(218) (f) A vessel engaged in mine clearance operations shall, in addition to the lights prescribed for a power-driven vessel in Rule 23 or to the lights or shape prescribed for a vessel at anchor in Rule 30 as appropriate, exhibit three all-round green lights or three balls. One of these lights or shapes shall be exhibited near the foremast head and one at each end of the fore yard. These lights or shapes indicate that it is dangerous for another vessel to approach within 1000 meters of the mineclearance vessel.

(219) (g) Vessels of less than 12 meters in length, except ‹ those ›«when» engaged in diving operations, ‹ shall not be ›«is not» required to exhibit the lights ‹ and ›*«or»* shapes prescribed in this Rule.

(220) (h) The signals prescribed in this Rule are not signals of vessels in distress and requiring assistance. Such signals are contained in Annex IV to these Rules.

(222)

Rule 28—Vessels Constrained by Their Draft

(223) See graphic, **Rule 28—Vessels Constrained by Their Draft**.

(225)

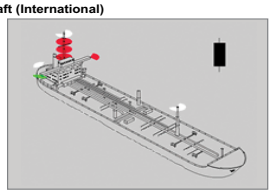
Rule 29—Pilot Vessels

(226) (a) A vessel engaged on pilotage duty shall exhibit: (i) at or near the masthead, two all-round lights in a vertical line, the upper being white and the lower red; (ii) when underway, in addition, sidelights and a sternlight; (iii) when at anchor, in addition to the lights prescribed in Rule 29(a)(i), the light, lights, or shape prescribed in Rule 30 for vessels at anchor.

(224)

Rule 28—Vessel Constrained by Their Draft (International)

A vessel constrained by her draft may, in addition to the lights prescribed for power-driven vessels in Rule 23, exhibit where they can best be seen three all-round red lights in a vertical line, or a cylinder.



(227) (b) A pilot vessel when not engaged on pilotage duty shall exhibit the lights or shapes prescribed for a similar vessel of her length.

(228)

Rule 30—Anchored Vessels and Vessels Aground

(229) (a) A vessel at anchor shall exhibit where it can best be seen: (i) in the fore part, an all-round white light or one ball; (ii) at or near the stern and at a lower level than the light prescribed in Rule 30(a)(i), an all-round white light.

(230) **Interpretive Rule**—See **33 CFR 90.5** and **33 CFR 82.5**, chapter 2, for regulations on vessels at anchor.

(231) (b) A vessel of less than 50 meters in length may exhibit an all-round white light where it can best be seen instead of the lights prescribed in Rule 30(a).

(232) (c) A vessel at anchor may, and a vessel of 100 meters and more in length shall, also use the available working or equivalent lights to illuminate her decks.

(233) (d) A vessel aground shall exhibit the lights prescribed in Rule 30(a) or (b) and in addition, if practicable, where they can best be seen: (i) two all-round red lights in a vertical line; (ii) three balls in a vertical line.

(234) (e) A vessel of less than 7 meters in length, when at anchor not in or near a narrow channel, fairway or where other vessels normally navigate, shall not be required to exhibit the lights or shape prescribed in Rule 30(a) and (b).

(235) (f) A vessel of less than 12 meters in length, when aground, shall not be required to exhibit the lights or shapes prescribed in Rule 30(d)(i) and (ii).

(236)

Rule 30 (Inland)

(g) A vessel of less than 20 meters in length, when at anchor in a special anchorage area designated by the Coast Guard, shall not be required to exhibit the anchor lights and shapes required by this Rule.

(h) The following barges shall display at night and if practicable in periods of restricted visibility the lights described in Rule 30(i):
(i) Every barge projecting into a buoyed or restricted channel.
(ii) Every barge so moored that it reduces the available navigable width of any channel to less than 80 meters.
(iii) Barges moored in groups more than two barges wide or to a maximum width of over 25 meters.
(iv) Every barge not moored parallel to the bank or dock.

(i) Barges described in Rule 30(h) shall carry two unobstructed all-round white lights of an intensity to be visible for at least 1 nautical mile and meeting the technical requirements as prescribed in Annex I.

(j) A barge or a group of barges at anchor or made fast to one or more mooring buoys or other similar device, in lieu of the provisions of Rule 30, may carry unobstructed all-round white lights of an intensity to be visible for at least 1 nautical mile that meet the requirements of Annex I and shall be arranged as follows:
(i) Any barge that projects from a group formation, shall be lighted on its outboard corners.
(ii) On a single barge moored in water where other vessels normally navigate on both sides of the barge, lights shall be placed to mark the corner extremities of the barge.
(iii) On barges moored in group formation, moored in water where other vessels normally navigate on both sides of the group, lights shall be placed to mark the corner extremities of the group.

(k) The following are exempt from the requirements of Rule 30:
(i) A barge or group of barges moored in a slip or slough used primarily for mooring purposes.
(ii) A barge or group of barges moored behind a pierhead.
(iii) A barge less than 20 meters in length when moored in a special anchorage area designated in accordance with 33 CFR 109.10.

(l) Barges moored in well-illuminated areas are exempt from the lighting requirements of Rule 30. These areas are as follows:

CHICAGO SANITARY SHIP CANAL

(1) Mile 293.2 to 293.9	*(15) Mile 314.6*
(2) Mile 295.2 to 296.1	*(16) Mile 314.8 to 315.3*
(3) Mile 297.5 to 297.8	*(17) Mile 315.7 to 316*
(4) Mile 298 to 298.2	*(18) Mile 316.8*
(5) Mile 298.6 to 298.8	*(19) Mile 316.85 to 317.05*
(6) Mile 299.3 to 299.4	*(20) Mile 317.5*

Rule 30 (Inland)	
(7) Mile 299.8 to 300.5	*(21) Mile 318.4 to 318.9*
(8) Mile 303 to 303.2	*(22) Mile 318.7 to 318.8*
(9) Mile 303.7 to 303.9	*(23) Mile 320 to 320.3*
(10) Mile 305.7 to 305.8	*(24) Mile 320.6*
(11) Mile 310.7 to 310.9	*(25) Mile 322.3 to 322.4*
(12) Mile 311 to 311.2	*(26) Mile 322.8*
(13) Mile 312.5 to 312.6	*(27) Mile 322.9 to 327.2*
(14) Mile 313.8 to 314.2	
CALUMET SAG CHANNEL	
(28) Mile 316.5	
LITTLE CALUMET RIVER	
(29) Mile 321.2	*(30) Mile 322.3*
CALUMET RIVER	
(31) Mile 328.5 to 328.7	*(34) Mile 331.4 to 331.6*
(32) Mile 329.2 to 329.4	*(35) Mile 332.2 to 332.4*
(33) Mile 330 west bank to 330.2	*(36) Mile 332.6 to 332.8*
CUMBERLAND RIVER	
(37) Mile 126.8	*(38) Mile 191*

(237)

Rule 31—Seaplanes

(238) Where it is impracticable for a seaplane or a WIG craft to exhibit lights or shapes of the characteristics or in the positions prescribed in Rules 20 through 31 she shall exhibit lights and shapes as closely similar in characteristics and position as is possible.

(239)

Part D—Sound and Light Signals

(240)

Rule 32—Definitions

(241) (a) The word "whistle" means any sound signaling appliance capable of producing the prescribed blasts and which complies with the specifications in Annex III to these Rules.

(242) (b) The term "short blast" means a blast of about one seconds duration.

(243) (c) The term "prolonged blast" means a blast of from four to six seconds duration.

(244)

Rule 33—Equipment for Sound Signals

(245) (a) A vessel of 12 meters or more in length shall be provided with a whistle, a vessel of 20 meters or more in length shall be provided with a bell in addition to a whistle, and a vessel of 100 meters or more in length shall, in addition be provided with a gong, the tone and sound of which cannot be confused with that of the bell. The whistle, bell and gong shall comply with the specifications in Annex III to these Regulations. The bell or gong or both may be replaced by other equipment having the same respective sound characteristics, provided that manual sounding of the prescribed signals shall always be possible.

(246) (b) A vessel of less than 12 meters in length shall not be obliged to carry the sound signaling appliances prescribed in Rule 33(a) but if she does not, she shall be provided with some other means of making an efficient signal.

(247)

Rule 34—Maneuvering and Warning Signs (International)
(a) When vessels are in sight of one, a power-driven vessel underway, when maneuvering as authorized or required by these Rules, shall indicate that manoeuvre by the following signals on her whistle: –One short blasts to mean “I am altering my course to starboard” –Two short blasts to mean “I am altering my course to port” –Three short blasts to mean “I am operating astern propulsion”
(b) Any vessel may supplement the whistle signals prescribed in Rule 34(a) by light signals, repeated as appropriate, while the maneuver is being carried out: (i) these signals shall have the following significance: (ii) the duration of each flash shall be about one second, the interval between flashes shall be about one second, and the interval between successive signals shall not be less than ten seconds. (iii) the light used for this signal shall, if fitted, be an all-round white, visible at a minimum range of 5 miles, and shall comply with the provisions of Annex I to these Regulations. –One flash to mean “I am altering my course to starboard” –Two flashes to mean I am altering my course to port” –Three flashes to mean “I am operating astern propulsion”.
(c) When in sight of one another in a narrow channel or fairway: (i) a vessel intending to overtake another shall in compliance with Rule 9(e)(i) indicate her intention by the following signals on her whistle: –Two prolonged blasts followed by one short blast to mean “I intend to overtake you on your starboard side” –Two prolonged blasts followed by two short blasts to mean “I intend to overtake you on your port side”. (ii) the vessel about to be overtaken when acting in accordance with Rule 9(e)(i) shall indicate her agreement by the following signal on her whistle: –one prolonged, one short, one prolonged and one short blast, in that order.
(d) When vessels in sight of one another are approaching each other and from any cause either vessel fails to understand the intentions or actions of the other, or is in doubt whether sufficient action is being taken by the other to avoid collision, the vessel in doubt shall immediately indicate such doubt by giving at least five short and rapid blasts on the whistle. Such signal may be supplemented by at least five short and rapid flashes.
(e) A vessel nearing a bend or an area of a channel or fairway where other vessels may be obscured by an intervening obstruction shall sound one prolonged blast. This signal shall be answered with a prolonged blast by any approaching vessel that may be within hearing around the bend or behind the intervening obstruction.
(f) If whistles are fitted on a vessel at a distance apart of more than 100 meters, one whistle only shall be used for giving maneuvering and warning signals.

(248)

Rule 34—Maneuvering and Warning Signs (Inland)

(a) When power-driven vessels are in sight of one another and meeting or crossing at a distance within half a mile of each other, each vessel underway, when maneuvering as authorized or required by these Rules,
(i) shall indicate that maneuver by the following signals on her whistle:
–One short blasts to mean "I intend to leave you on my port side"
–Two short blasts to mean "I intend to leave you on my starboard side"
–Three short blasts to mean "I am operating astern propulsion"
(ii) upon hearing the one or two blast signal of the other shall, if in agreement, sound the same whistle signal and take the steps necessary to effect a safe passing. If, however, from any cause, the vessel doubts the safety of the proposed maneuver, she shall sound the signal specified in Rule 34(d) and each vessel shall take appropriate precautionary action until a safe passing agreement is made

(b) Any vessel may supplement the whistle signals prescribed in Rule 34(a) by light signals:
(i) these signals shall have the following significance:
(ii) the duration of each flash shall be about one second.
(iii) the light used for this signal shall, if fitted, be an all-round white or yellow, visible at a minimum range of 2 miles, synchronized with the whistle and shall comply with the provisions of Annex I to these Regulations.
–One flash to mean "I intend to leave you on my port side"
–Two flashes to mean "I intend to leave you on my starboard side"
–Three flashes to mean "I am operating astern propulsion"

(c) When in sight of one another:
(i) a power-driven vessel intending to overtake another power-driven vessel shall indicate her intention by the following signals on her whistle:
–One short blast to mean "I intend to overtake you on your starboard side"
–Two short blasts to mean "I intend to overtake you on your port side"
(ii) the power-driven vessel about to be overtaken shall, if in agreement, sound a similar sound signal. If in doubt she shall sound the signal prescribed in Rule 34(d).

(d) When vessels in sight of one another are approaching each other and from any cause either vessel fails to understand the intentions or actions of the other, or is in doubt whether sufficient action is being taken by the other to avoid collision, the vessel in doubt shall immediately indicate such doubt by giving at least five short and rapid blasts on the whistle. Such signal may be supplemented by at least five short and rapid flashes.

(e) A vessel nearing a bend or an area of a channel or fairway where other vessels may be obscured by an intervening obstruction shall sound one prolonged blast. This signal shall be answered with a prolonged blast by any approaching vessel that may be within hearing around the bend or behind the intervening obstruction.

(f) If whistles are fitted on a vessel at a distance apart of more than 100 meters, one whistle only shall be used for giving maneuvering and warning signals.

(g) When a power-driven vessel is leaving a dock or berth, she shall sound one prolonged blast.

Rule 34—Maneuvering and Warning Signs (Inland)

(h) A vessel that reaches agreement with another vessel in a head-on, crossing, or overtaking situation, as for example, by using the radiotelephone as prescribed by the Vessel Bridge-to-Bridge Radiotelephone Act (85 Stat. 164; 33 U.S.C. 1201 et seq.), is not obliged to sound the whistle signals prescribed by this Rule, but may do so. If agreement is not reached, then whistle signals shall be exchanged in a timely manner and shall prevail.

(249)

Rule 35—Sound Signals in Restricted Visibility

(250) In or near an area of restricted visibility, whether by day or night the signals prescribed in this Rule shall be used as follows:

(251) (a) A power-driven vessel making way through the water shall sound at intervals of not more than 2 minutes one prolonged blast.

(252) (b) A power-driven vessel underway but stopped and making no way through the water shall sound at intervals of no more than 2 minutes two prolonged blasts in succession with an interval of about 2 seconds between them.

(253) (c) A vessel not under command, a vessel restricted in her ability to maneuver «whether underway or at anchor», ‹ a vessel constrained by her draft › , a sailing vessel, a vessel engaged in fishing and a vessel engaged in towing or pushing another vessel shall, instead of the signals prescribed in Rule 35(a) or (b), sound at intervals of not more than 2 minutes three blasts in succession, namely one prolonged followed by two short blasts.

(254)

Rule 35d (International)

(d) A vessel engaged in fishing, when at anchor, and a vessel restricted in her ability to maneuver when carrying out her work at anchor, shall instead of the signals prescribed in Rule 35(g) sound the signal prescribed in Rule 35(c).

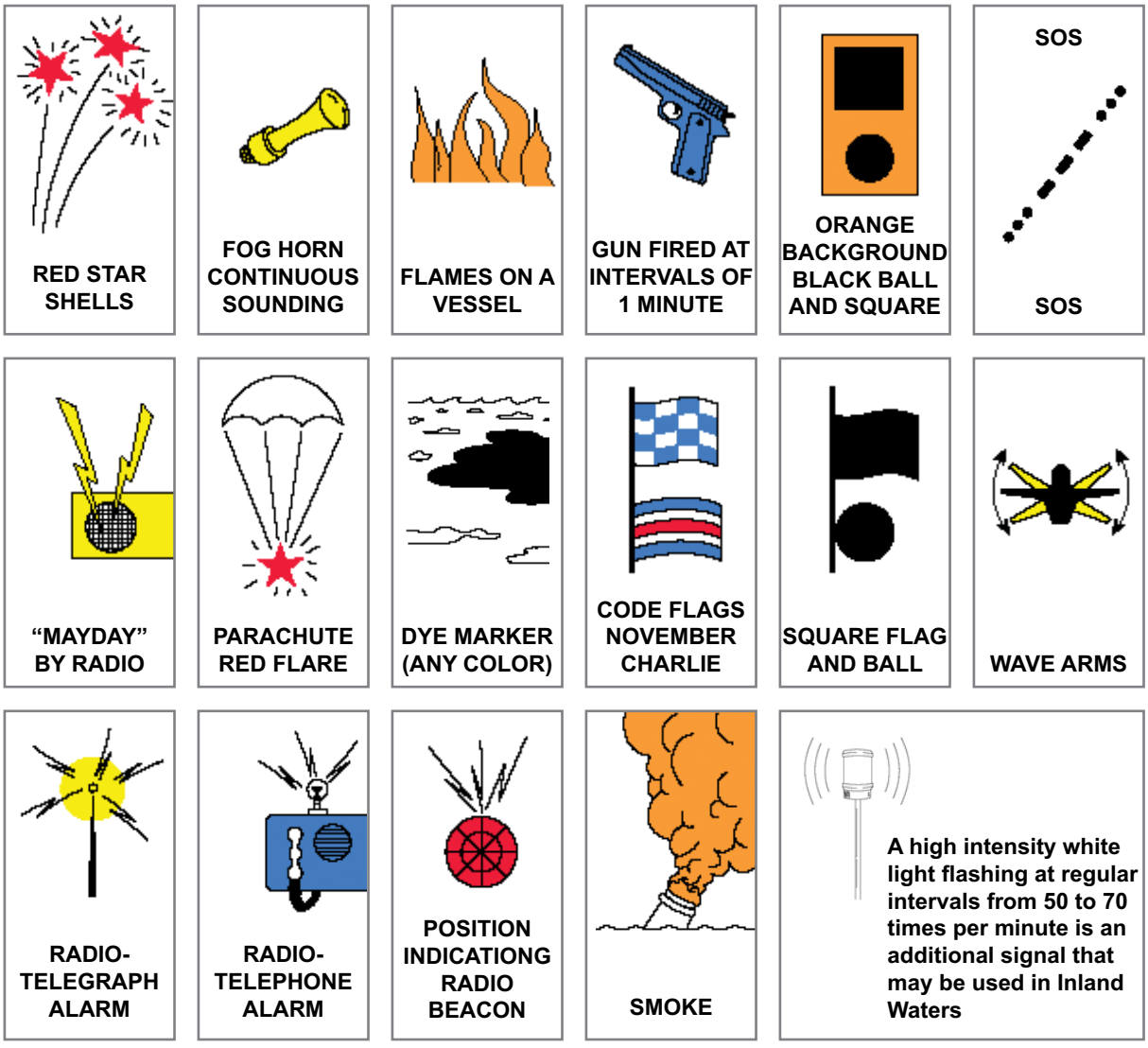
(255) (e) A vessel towed or if more than one vessel is towed the last vessel of the tow, if manned, shall at intervals of not more than 2 minutes sound four blasts in succession, namely one prolonged followed by three short blasts. When practicable, this signal shall be made immediately after the signal made by the towing vessel.

(256) (f) When a pushing vessel and a vessel being pushed ahead are rigidly connected in a composite unit they shall 418 ¢ U.S. Coast Pilot 1, Appendix C 16 SEP 2018 be regarded as a power-driven vessel and shall give the signals prescribed in Rule 35(a) or (b).

(257) (g) A vessel at anchor shall at intervals of not more than 1 minute ring the bell rapidly for about 5 seconds. In a vessel 100 meters or more in length the bell shall be sounded in the forepart of the vessel and immediately after the ringing of the bell the gong shall be sounded rapidly for about 5 seconds in the after part of the vessel. A vessel at anchor may in addition sound three blasts

(268)

Rule 37—Distress Signals (International/Inland)



in succession, namely one short, one prolonged and one short blast, to give warning of her position and of the possibility of collision to an approaching vessel.

(258) (h) A vessel aground shall give the bell signal and if required the gong signal prescribed in Rule 35(g) and shall, in addition, give three separate and distinct strokes on the bell immediately before and after the rapid ringing of the bell. A vessel aground may in addition sound an appropriate whistle signal.

(259) (i) A vessel of 12 meters or more but less than 20 meters in length shall not be obliged to give the bell signals prescribed in Rule 35(g) and (h). However, if she does not, she shall make some other efficient sound signal at intervals of not more than 2 minutes.

(260) (j) A vessel of less than 12 meters in length shall not be obliged to give the above mentioned signals but, if she does not, shall make some other efficient sound signal at intervals of not more than 2 minutes.

(261) (k) A pilot vessel when engaged on pilotage duty may, in addition to the signals prescribed in Rule 35(a), (b) or (g), sound an identity signal consisting of four short blasts.

(262)

Rule 35 (Inland)
(l) The following vessels shall not be required to sound signals as prescribed in Rule 35(g) when anchored in a special anchorage area designated by the Coast Guard:
(i) a vessel of less than 20 meters in length; and
(ii) a barge, canal boat, scow, or other nondescript craft.

(263)

Rule 36—Signals to Attract Attention

(264) If necessary to attract the attention of another vessel, any vessel may make light or sound signals that cannot be mistaken for any signal authorized elsewhere in these

Rules, or may direct the beam of her searchlight in the direction of the danger, in such a way as not to embarrass any vessel.

(265)

Rule 36 (International)

Any light to attract the attention of another vessel shall be such that it cannot be mistaken for any aid to navigation. For the purpose of this Rule the use of high intensity intermittent or revolving lights, such as strobe lights, shall be avoided.

(266)

Rule 37—Distress Signals

(267) When a vessel is in distress and requires assistance she shall use or exhibit the signals described in Annex IV to these Rules. (See graphic, **Rule 37—Distress Signals**).

(269)

Part E—Exemptions

(270)

Rule 38—Exemptions (International)

Any vessel (or class of vessel) provided that she complies with the requirements of — the International Regulations for the Preventing of Collisions at Sea, 1960, the keel of which is laid or is at a corresponding stage of construction before the entry into force of these Regulations may be exempted from compliance therewith as follows:

(a) The installation of lights with ranges prescribed in Rule 22, until 4 years after the date of entry into force of these Regulations.

(b) The installation of lights with color specifications as prescribed in §7 of Annex I to these Regulations, until 4 years after the entry into force of these Regulations.

(c) The repositioning of lights as a result of conversion from Imperial to metric units and rounding off measurement figures, permanent exemption.

(d)(i) The repositioning of masthead lights on vessels of less than 150 meters in length, resulting from the prescriptions of §3 (a) of Annex I to these Regulations, permanent exemption.
(ii) The repositioning of masthead lights on vessels of 150 meters or more in length, resulting from the prescriptions of §3 (a) of Annex I to these Regulations, until 9 years after the date of entry into force of these Regulations.

(e) The repositioning of masthead lights resulting from the prescriptions of §2(b) of Annex I to these Regulations, until 9 years after the date of entry into force of these Regulations.

(f) The repositioning of sidelights resulting from the prescriptions of §2(g) and 3(b) of Annex I to these Regulations, until 9 years after the date of entry into force of these Regulations.

(g) The requirements for sound signal appliances prescribed in Annex II to these Regulations, until 9 years after the date of entry into force of these Regulations.

(h) The repositioning of all-round lights resulting from the prescription of §9(b) of Annex I to these Regulations, permanent exemption.

(271)

Rule 38—Exemptions (Inland)

Any vessel or class of vessels, the keel of which was laid or which is at a corresponding stage of construction before December 24, 1980, provided that she complies with the requirements of —

(a) The Act of June 7, 1897 (30 Stat. 96), as amended (33 U.S.C. 154-232) for vessels navigating the waters subject to that statute;

(b) §4233 of the Revised Statutes (33 U.S.C. 301-356) for vessels navigating the waters subject to that statute;

(c) The Act of February 8, 1895 (28 Stat. 645), as amended (33 U.S.C. 241-295) for vessels navigating the waters subject to that statute; or

(d) §§3, 4, and 5 of the Act of April 25, 1940 (54 Stat. 163), as amended (46 U.S.C. 526 b, c, and d) for motorboats navigating the waters subject to that statute; shall be exempted from compliance with the technical Annexes to these Rules as follows:
(i) The installation of lights with ranges prescribed in Rule 22, vessels of less than 20 meters in length are permanently exempt;
(ii) The installation of lights with color specifications as prescribed in §7 of Annex I to these Rules, until 4 years after the effective date of the Inland Navigational Rules Act of 1980 (Pub. L. 96-591), except that vessels of less than 20 meters in length are permanently exempt;
(iii) The repositioning of lights as a result of a conversion to metric units and rounding off of measurement figures, are permanently exempt.
(iv) The horizontal repositioning of masthead lights prescribed by Annex I to these Rules, vessels of less than 150 meters in length are permanently exempted.
(v) Power-driven vessels of 12 meters or more but less than 20 meters in length are permanently exempt from the provisions of Rule 23(a)(i) and 23(a)(iv) provided that, in place of these lights, the vessel exhibits a white light aft visible all-around the horizon.

(272) **Implementing Rule**—See **33 CFR 81.20**, chapter 2, for regulations.

(273)

Part F—Verification of Compliance with the Provisions of the Convention

(274)

Rule 39—Definitions

(275)

Rule 39 (International)

(a) "Audit" means a systematic, independent and documented process for obtaining audit evidence and evaluating it objectively to determine the extent to which audit criteria are fulfilled.

(b) "Audit Scheme" means the IMO Member State Audit Scheme established by the Organization and taking into account the guidelines developed by the Organization*.

(c) "Code for Implementation" means the IMO Instruments Implementation Code (III Code) adopted by the Organization by resolution A.1070(28).

(d) "Audit Standard" means the Code for Implementation.

(276)

Rule 40—Application

(277)

Rule 40 (International)
Contracting Parties shall use the provisions of the Code for Implementation in the execution of their obligations and responsibilities contained in the present Convention.

(278)

Rule 41—Verification of Compliance

(279)

Rule 41 (International)
(a) Every Contracting Party shall be subject to periodic audits by the Organization in accordance with the audit standard to verify compliance with and implementation of the present Convention.
(b) The Secretary-General of the Organization shall have responsibility for administering the Audit Scheme, based on the guidelines developed by the Organization*.
(c) Every Contracting Party shall have responsibility for facilitating the conduct of the audit and implementation of a programme of actions to address the findings, based on the guidelines developed by the Organization*.
(d) Audit of all Contracting Parties shall be:
(i) based on an overall schedule developed by the Secretary-General of the Organization, taking into account the guidelines developed by the Organization*; and
(ii) conducted at periodic intervals, taking into account the guidelines developed by the Organization*.
* Refer to the Framework and Procedures for the IMO Member State Audit Scheme, adopted by the Organization by resolution A.1067(28).

(280)

Annex I—Positioning and Technical Details of Lights and Shapes

(281)

Definitions

(282) (a) The term "height above the hull" means height above the uppermost continuous deck. This height shall be measured from the position vertically beneath the location of the light.

(283)

Annex I (Inland)
(b) High-speed craft means a craft capable of maximum speed in meters per second (m/s) equal to or exceeding: $3.7\nabla^{0.1667}$; where ∇ = displacement corresponding to the design waterline (cubic meters).
Note: The same formula expressed in pounds and knots is maximum speed in knots (kts) equal to exceeding 1.98(lbs) $3.7\nabla^{0.1667}$; where ∇ =displacement corresponding to design waterline in pounds.

Annex I (Inland)
(c) The term "practical cut-off" means, for vessels 20 meters or more in length, 12.5 percent of the minimum luminous intensity (Table 14(b)) corresponding to the greatest range of visibility for which the requirements of Annex I are met.
(d) The term "Rule" or "Rules" has the same meaning as in Rule 3(r).

(284)

Vertical Positioning and Spacing of Lights

(285) (a) On a power-driven vessel of 20 meters or more in length the masthead light shall be placed as follows: (i) The forward masthead light, or if only one masthead light is carried, then that light, at a height above the hull of not less than ‹ 6 ›*«5»* meters, and, if the breadth of the vessel exceeds ‹ 6 ›*«5»* meters, then at a height above the hull not less than such breadth, so however that the light need not be placed at a greater height above the hull than ‹ 12 ›*«8»* meters; (ii) when two masthead lights are carried the after one shall be at least ‹ 4.5 ›*«2»* meters vertically higher than the forward one.

(286) (b) The vertical separation of the masthead lights of power-driven vessels shall be such that in all normal conditions of trim the after light will be seen over and separate from the forward light at a distance of 1000 meters from the stem when viewed from ‹ sea ›*«water»* level.

(287) (c) The masthead light of a power-driven vessel of 12 meters but less than 20 meters in length shall be placed at a height above the gunwale of not less than 2.5 meters.

(288)

Annex I (International)
(d) A power-driven vessel of less than 12 meters in length may carry the uppermost light at a height of less than 2.5 meters above the gunwale. When, however, a masthead light is carried in addition to sidelights and a sternlight or the all-round light prescribed in Rule 23(d)(i) is carried in addition to sidelights, then such masthead light or all-round light shall be carried at least 1 meter higher than the sidelights.
Annex I (Inland)
(d) The masthead light, or the all-round light described in Rule 23(d), of a power-driven vessel of less than 12 meters in length shall be carried at least 1 meter higher than the sidelights.

(289) (e) One of the two or three masthead lights prescribed for a power-driven vessel when engaged in towing or pushing another vessel shall be placed in the same position as either the forward masthead light or the after masthead light, provided that ‹ , if carried on the after mast, › the lowest after masthead light shall be at least ‹ 4.5 ›*«2»* meters vertically higher than the *«highest»* forward masthead light.

(290) (f)(i) The masthead lights or lights prescribed in Rule 23(a) shall be so placed as to be above and clear of

all other lights and obstructions except as described in §(f)(ii).

(291) (ii) When it is impracticable to carry the all-round lights prescribed by Rule 27(b)(i) ‹ or Rule 28 › below the masthead lights, they may be carried above the after masthead light(s) or vertically in between the forward masthead light(s) and after masthead light(s), provided that in the latter case the requirement of §3(c) shall be complied with.

(292) (g) The sidelights of a power-driven vessel shall be placed at ‹ a height above the hull not greater than three quarters of that ›*«least 1 meter lower»* of ‹ the ›*« than »* forward masthead light. They shall not be so low as to be interfered with by deck lights.

(293)

Annex I (International)

(h) The sidelights, if in a combined lantern and carried on a power-driven vessel of less than 20 meters in length, shall be placed not less than 1 meter below the masthead light.

(294) (i) When the Rules prescribe two or three lights to be carried in a vertical line, they shall be spaced as follows: (i) On a vessel of 20 meters in length or more such lights shall be spaced not less than ‹ 2 ›*«1»* meter apart, and the lowest of these lights shall, except where a towing light is required, be placed at a height of not less than 4 meters above the hull. (ii) On a vessel of less than 20 meters in length such lights shall be spaced not less than 1 meter apart and the lowest of these lights shall, except where a towing light is required, be placed at a height of not less than 2 meters above the gunwale. (iii) When three lights are carried they shall be equally spaced.

(295) (j) The lower of the two all-round lights prescribed for a vessel when engaged in fishing shall be at a height above the sidelights not less than twice the distance between the two vertical lights.

(296) (k) The forward anchor light prescribed in Rule 30(a)(i), when two are carried, shall not be less than 4.5 meters above the after one. On a vessel of 50 meters or more in length this forward anchor light shall be placed at a height or not less than 6 meters above the hull.

(297)

Horizontal Positioning and Spacing of Lights

(298) (a)*«Except as specified in §1(e), »* when two masthead lights are prescribed for a power-driven vessel, the horizontal distance between them must not be less than one- ‹ quarter ›*«half»* of the length of the vessel but need not be more than ‹ 100 ›*«50»* meters. The forward light must be placed not more than one- ‹ quarter ›*«half»* of the length of the vessel from the stem.

(299) (b) On a power-driven vessel of 20 meters or more in length the sidelights shall not be placed in front of the forward masthead lights. They shall be placed at or near the side of the vessel.

(300) (c) When the lights prescribed in Rule 27(b)(i) ‹or Rule 28 › are placed vertically between the forward masthead light(s) and the after masthead light(s), these all-round lights shall be placed at a horizontal distance of not less than 2 meters from the fore and aft centerline of the vessel in the athwartship direction.

(301) (d) When only one masthead light is prescribed for a power-driven vessel, this light must be exhibited forward of amidships. For a vessel of less than 20 meters in length, the vessel shall exhibit one masthead light as far forward as is practicable.

(302)

Annex I (Inland)

(e) On power-driven vessels 50 meters but less than 60 meters in length operated on the Western Rivers, and those { waters specified by the Secretary }, the horizontal distance between masthead lights shall not be less than 10 meters.

(303)

Details of Location of Direction-Indicating Lights for Fishing Vessels, Dredgers and Vessels Engaged in Underwater Operations

(304) (a) The light indicating the direction of the outlying gear from a vessel engaged in fishing as prescribed in Rule 26(c)(ii) shall be placed at a horizontal distance of not less than 2 meters and not more than 6 meters away from the two all-round red and white lights. This light shall be placed not higher than the all-round white light prescribed in Rule 26(c)(i) and not lower than the sidelights.

(305) (b) The lights and shapes on a vessel engaged in dredging or underwater operations to indicate the obstructed side and/or the side on which it is safe to pass, as prescribed in Rule 27(d)(i) and (ii), shall be placed at the maximum practical horizontal distance, but in no case less than 2 meters, from the lights or shapes prescribed in Rule 27(b)(i) and (ii). In no case shall the upper of theselights or shapes be at a greater height than the lower of the three lights or shapes prescribed in Rule 27(b)(i) and (ii).

(306)

Screens ‹ For Sidelights ›

(307) (a) The sidelights of vessels of 20 meters or more in length shall be fitted with ‹inboard screens painted› matt black,*«inboard screens»* and meet ‹ ing › the requirements of §‹9›*«15»*. On vessels of less than 20 meters in length, the sidelights, if necessary to meet the requirements of §‹9›*«15»*, shall be fitted with ‹inboard› matt black *«inboard»* screens. With a combined lantern, using a single vertical filament and a very narrow division between the green and red sections, external screens need not be fitted.

(308)

Annex I (Inland)

(b) On power-driven vessels less than 12 meters in length constructed after July 31, 1983, the masthead light, or the all-round light described in Rule 23(d) shall be screened to prevent direct illumination of the vessel forward of the operator's position.

(309)

Shapes

(310) (a) Shapes shall be black and of the following sizes: (i) A ball shall have a diameter of not less than 0.6 meter; (ii) a cone shall have a base diameter of not less than 0.6 meter‹s› and a height equal to its diameter; ‹ (iii) a cylinder shall have a diameter of at least 0.6 meter and a height of twice its diameter; › (iv)╪(iii) a diamond shape shall consist of two cones as defined in §(a)(ii) having a common base.

(311) (b) The vertical distance between shapes shall be at least 1.5 meter ‹ s ›.

(312) (c) In a vessel of less than 20 meters in length shapes of lesser dimensions but commensurate with the size of the vessel may be used and the distance apart may be correspondingly reduced.

(313)

Color Specification of Lights

(314) (a) The chromaticity of all navigation lights shall conform to the following standards, which lie within the boundaries of the area of the diagram specified for each color by the International Commission on Illumination (CIE). ‹ , in the "Colors of Light Signals", which is incorporated by reference. It is Publication CIE No. 2.2. (TC-1.6), 1975, and is available from the Illumination Engineering Society, 345 East 47th Street, New York, NY 10017 and is available for inspection at the Coast Guard, Shore Infrastructure Logistics Center, Aids to Navigation and Marine Environmental Response Product Line (CGSILC-ATON/MER), 2703 Martin Luther King, Jr. Ave SE, Mailstop 7714, Washington, DC 20593-7714. It is also available for inspection at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202–741–6030, or go to: *http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html*. This incorporation by reference was approved by the Director of the Federal Register. ›

(315) (b) The boundaries of the area for each color are given by indicating the corner coordinates, which are as follows:

(316)

(i) White						
x	0.525	0.525	0.452	0.310	0.310	0.443
y	0.382	0.440	0.440	0.348	0.283	0.382
(ii) Green						
x	0.028	0.009	0.300	0.203		
y	0.385	0.723	0.511	0.356		
(iii) Red						
x	0.680	0.660	0.735	0.721		
y	0.320	0.320	0.265	0.259		
(iv) Yellow						
x	0.612	0.618	0.575	0.575		
y	0.382	0.382	0.425	0.406		

(317)

Intensity of Lights

(318) (a) The minimum luminous intensity of lights shall be calculated by using the formula:

(319)

$I = 3.43 \times 10^6 \times T \times D^2 \times K^{-D}$
I is luminous intensity in candelas under service conditions.
T is threshold factor 2×10^{-7} lux.
D is range of visibility (luminous range) of the light in nautical miles.
K is atmospheric transmissivity. For prescribed lights the value of K shall be 0.8, corresponding to a meteorological visibility of approximately 13 miles.

(320) (b) A selection of figures derived from the formula is given in the following table:

(321)

Range of visibility (luminous range) of light in nautical miles D	Minimum luminous intensity of light in candelas for K = 0.8 I
1	0.9
2	4.3
3	12
4	27
5	52
6	94

(322) ‹ Note: The maximum luminous intensity of navigation lights should be limited to avoid undue glare. This shall not be achieved by a variable control of the luminous intensity. ›

(323)

Horizontal Sectors

(324) (a)(i) In the forward direction, sidelights as fitted on the vessel shall show the minimum required intensities. The intensities shall decrease to reach practical cut-off between 1 and one degrees outside the prescribed sectors.

(325) (ii) For sternlights and masthead lights and at 22.5 degrees abaft the beam for sidelights, the minimum required intensities shall be maintained over the arc of the horizon up to 5 degrees within the limits of the sectors prescribed in Rule 21. From 5 degrees within the prescribed sectors the intensity may decrease by 50 percent up to the prescribed limits; it shall decrease steadily to reach practical cut-off at not more than 5 degrees outside the prescribed sectors.

(326) (b)(i) All-round lights shall be so located as not to be obscured by masts, topmasts or structures within angular sectors of more than 6 degrees, except anchor

lights prescribed in Rule 30, which need not be placed at an impracticable height above the hull *« , and the allround white light described in Rule 23(e), which may not be obscured at all»*.

(327) (ii) If it is impracticable to comply with §(b)(i) by exhibiting only one all-round light, two all-round lights shall be used suitably positioned or screened so that they *«to»* appear, as far as practicable, as one light at a *«minimum»* distance of 1 *«nautical»* mile.

(328) *«Note: Two unscreened all-round lights that are 1.28 meters apart or less will appear as one light to the naked eye at a distance of 1 nautical mile.»*

(329)

Vertical Sectors

(330) (a) The vertical sectors of electric lights as fitted, with the exception of lights on sailing vessels underway *«and on unmanned barges»*, shall ensure that: (i) At least the required minimum intensity is maintained at all angles from 5 degrees above to 5 degrees below the horizontal; (ii) at least 60 percent of the required minimum intensity is maintained from 7.5 degrees above to 7.5 degrees below the horizontal.

(331) (b) In the case of sailing vessels underway the vertical sectors of electric lights as fitted shall ensure that: (i) At least the required minimum intensity is maintained at all angles from 5 degrees above to 5 degrees below the horizontal; (ii) at least 50 percent of the required minimum intensity is maintained from 25 degrees above to 25 degrees below the horizontal.

(332)

Annex I (Inland)
(c) In the case of unmanned barges the minimum required intensity of electric lights as fitted shall be maintained on the horizontal.

(333) (c)ǂ(d) In the case of lights other than electric lights these specifications shall be met as closely as possible.

(334)

Intensity of Non-electric Lights

(335) Non-electric lights shall so far as practicable comply with the minimum intensities, as specified in the *« Intensity of Lights »* Table.

(336)

Maneuvering Light

(337) *«Notwithstanding the provisions of §2(f)»*, the maneuvering light described in Rule 34(b) shall be placed *«approximately»* in the same fore and aft vertical plane as the masthead light or lights and, where practicable, at a minimum height of ‹ 2 ›*«1.5»* meter vertically above the forward masthead light, provided that it shall be carried not less than ‹ 2 ›*«1.5»* meter vertically above or below the after masthead light. On a vessel where only one masthead light is carried, the maneuvering light, if fitted, shall be carried where it can best be seen, not less than ‹2 ›*«1.5»* meters vertically apart from the masthead light.

(338)

High-speed Craft

(339) (a) The masthead light of high-speed craft may be placed at a height related to the breadth*«of the craft»* lower than that prescribed in §2(a)(i), provided that the base angle of the isosceles triangle formed by the sidelights and masthead light when seen in end elevation is not less than 27 degrees.

(340) (b) On high-speed craft of 50 meters or more in length, the vertical separation between foremast and mainmast light of 4.5 meters required by §‹ 2(a)(ii) ›*«2(k)»* may be modified provided that such distance shall not be less than the value determined by the following formula:

(341)

$$y = \frac{y = (a+17\Psi)\ C}{1000} + 2$$

y the height of the mainmast light above the foremast light in meters.

a is the height of the foremast light above the water surface in service condition in meters

Y is the trim in service condition in degrees.

C is the horizontal separation of masthead lights in meters.

Note: Refer to the International Code of Safety for High-Speed Craft, 1994 and the International Code of Safety for High-Speed Craft, 2000.

(342)

Approval

(343) The construction of lights and shapes and the installation of lights on board the vessel ‹ shall be to the satisfaction of the appropriate authority of the State whose flag the vessel is entitled to fly ›*«must satisfy the Commandant, U. S. Coast Guard»*.

(344)

Annex II—Additional Signals for Fishing Vessels Fishing in Close Proximity

(345) See Rule 26(f).

(346)

Annex III—Technical Details of Sound Signal Appliances

(347) (a) Frequencies and range of audibility. The fundamental frequency of the signal shall lie within the range 70-700 Hz. The range of audibility of the signal from a whistle shall be determined by those frequencies, which may include the fundamental and/or one or more higher frequencies, which lie within the range 180-700 Hz (+/- 1 percent) for a vessel of 20 meters or more in length, or 180-2100 Hz (+/- 1 percent) for a vessel of less than 20 meters in length and which provide the sound pressure levels specified in §1(c).

(348) (b) Limits of fundamental frequencies. To ensure a wide variety of whistle characteristics, the fundamental frequency of a whistle shall be between the following

limits: (i) 70-200 Hz, for a vessel 200 meters or more in length; (ii) 130-350 Hz, for a vessel 75 meters but less than 200 meters in length; (iii) 250-700 Hz, for a vessel less than 75 meters in length.

(349) (c) Sound signal intensity and range of audibility. A whistle fitted in a vessel shall provide, in the direction of maximum intensity of the whistle and at a distance of 1 meter from it, a sound pressure level in at least one onethird octave band within the range of frequencies 180-700 Hz (+/- 1 percent) for a vessel of 20 meters ‹ or more in length, or 180-2100 Hz (+/- 1 percent) for a vessel of less than 20 meters in length ›, of not less than the appropriate figure given in the table below.

(350)

Length of vessel in meters	One-third octave band level at 1 meter in dB referred to $2 \times 10^{-5} N/m^2$	Audible range in nautical miles
200 or more	143	2
75 but less than 200	138	1.5
20 but less than 75	130	1
Less than 20	120* 115** 111***	0.5

* When the measured frequencies lie within the range 180-450 Hz
** When the measured frequencies lie within the range 450-800 Hz
*** When the measured frequencies lie within the range 800-2100 Hz

(351) The range of audibility in the table is for information and is approximately the range at which a whistle may be heard on its forward axis with 90 percent probability in conditions of still air on board a vessel having average background noise level at the listening posts (taken to be 68 dB in the octave band centered on 250 Hz and 63 dB in the octave band centered on 500 Hz). *«It is shown for informational purposes only.»* In practice, the range at which a whistle may be heard is extremely variable and depends critically on weather conditions; the values given can be regarded as typical but under conditions of strong wind or high ambient noise level at the listening post the range may be reduced.

(352) (d) Directional properties. The sound pressure level of a directional whistle shall be not more than 4 dB below the ‹prescribed› sound pressure level ‹on the axis at›, *«specified in §(c)»* any direction in the horizontal plane within +/- 45 degrees of the axis. The sound pressure level at *«of the whistle in»* any other direction in the horizontal plane shall be not more than 10 dB ‹below the prescribed›*«less than the»* sound pressure level ‹on the›*«specified for the forward»* axis, so that the range *«audibility»* in any direction will be at least half the range «required» on the forward axis. The sound pressure level shall be measured in that one-third octave band which determines the audibility range.

(353) (e) Positioning of whistles.

(354) (i) When a directional whistle is to be used as the only whistle on ‹ a vessel, it shall be installed with its maximum intensity directed straight ahead ›*«the vessel and is permanently installed, it shall be installed with its forward axis directed forward»*.

(355) (ii) A whistle shall be placed as high as practicable on a vessel, in order to reduce interception of the emitted sound by obstructions and also to minimize hearing damage risk to personnel. The sound pressure level of the vessel's own signal at listening posts shall not exceed 110 dB(A) and so far as practicable should not exceed 100 dB(A).

(356) (f) Fitting of more than one whistle. If whistles are fitted at a distance apart of more than 100 meters, ‹it shall be so arranged that they are›«they shall» not *«be»* sounded simultaneously.

(357)

Annex IIIg (International)

(g) Combined whistle systems.

If due to the presence of obstructions the sound field of a single whistle or of one of the whistles referred to in §(f) is likely to have a zone of greatly reduced signal level, it is recommended that a combined whistle system be fitted so as to overcome this reduction. The whistles of a combined system shall be located at a distance apart of not more than 100 meters and arranged to be sounded simultaneously. The frequency of any one whistle shall differ from those of the others by at least 10 Hz.

Annex IIIg (Inland)

(g) Combined whistle systems.

(i) A combined whistle system is a number of whistles (sound emitting sources) operated together. For the purposes of the Rules a combined whistle system is to be regarded as a single whistle.

(ii) The whistles of a combined system shall:

(1) Be located at a distance apart of not more than 100 meters;

(2) Be sounded simultaneously;

(3) Each have a fundamental frequency different from those of the others by at least 10 Hz; and

(4) Have a tonal characteristic appropriate for the length of vessel which shall be evidenced by at least 2-thirds of the whistles in the combined system having fundamental frequencies falling within the limits prescribed in §(b) of this section, or if there are only two whistles in the combined system, by the higher fundamental frequency falling within the limits prescribed in paragraph (b) of this section.

Note: If, due to the presence of obstructions, the sound field of a single whistle or of one of the whistles referred to in §(f) of this section is likely to have a zone of greatly reduced signal level, a combined whistle system should be fitted so as to overcome this reduction.

(358) For the purposes of the Rules a combined whistle system is to be regarded as a single whistle. ‹ (ii) › The whistles of a combined system shall:

(359) (1) Be located at a distance apart of not more than 100 meters;

(360)

Annex III(h) (Inland)

(h) Towing vessel whistles

A power-driven vessel normally engaged in pushing ahead or towing alongside may, at all times, use a whistle whose characteristic falls within the limits prescribed by §1(b) for the longest customary composite length of the vessel and its tow.

(361)

Bell or Gong

(362) (a) Intensity of signal. A bell or gong, or other device having similar sound characteristics shall produce a sound pressure level of not less than 110 dB at ‹ a distance of › 1 meter ‹ from it ›.

(363) (b) Construction. Bells and gongs shall be made of corrosion-resistant material and designed to give clear tone. The diameter of the mouth of the bell shall be not less than 300 mm for vessels of 20 meters or more in length. Where practicable, a power-driven bell striker is recommended to ensure constant force but manual operation shall be possible. The mass of the striker shall be not less than 3 percent of the mass of the bell.

(364)

Approval

(365)

Annex III (International)

The construction of sound signal appliances, their performance and their installation on board the vessel shall be to the satisfaction of the appropriate authority of the State whose flag the vessel is entitled to fly.

(366)

Annex IV—Distress Signals

(367)

«*Need of Assistance*»

(368) The following signals, used or exhibited either together or separately, indicate distress and need of assistance:

(369) (a) a gun or other explosive signal fired at intervals of about a minute;

(370) (b) a continuous sounding with any fog-signaling apparatus;

(371) (c) rockets or shells, throwing red stars fired one at a time at short intervals;

(372) (d) a signal made by any signaling method consisting of the group . . . - - - . . . (SOS) in the Morse Code;

(373) (e) a signal sent by radiotelephony consisting of the spoken word “Mayday”;

(374) (f) the International Code Signal of distress indicated by N.C.;

(375) (g) a signal consisting of a square flag having above or below it a ball or anything resembling a ball;

(376) (h) flames on the vessel (as from a burning tar barrel, oil barrel, etc.);

(377) (i) a rocket parachute flare or a hand flare showing a red light;

(378) (j) a smoke signal giving off orange-colored smoke;

(379) (k) slowly and repeatedly raising and lowering arms outstretched to each side;

(380) (l) a distress alert by means of digital selective calling (DSC) transmitted on: (i) VHF channel 70, or (ii) MF/HF on the frequencies 2187.5 kHz, 8414.5 kHz, 4207.5 kHz, 6312 kHz, 12577 kHz or 16804.5 kHz;

(381) (m) a ship-to-shore distress alert transmitted by the ship’s Inmarsat or other mobile satellite service provider ship earth station;

(382) (n) signals transmitted by emergency position-indicating radio beacons;

(383) (o) approved signals transmitted by radiocommunication systems, including survival craft radar transponders *«meeting the requirements of 47 CFR 80.109»*.

(384) *«(p) A high intensity white light flashing at regular intervals from 50 to 70 times per minute.»*

(385)

«*Exclusive Use*»

(386) The use or exhibition of any of the foregoing signals except for the purpose of indicating distress and need of assistance and the use of other signals which may be confused with any of the above signals is prohibited.

(387)

«*Supplemental Signals*»

(388) Attention is drawn to the relevant sections of the International Code of Signals, the International Aeronautical and Maritime Search and Rescue Manual, Volume III, ‹ the International Telecommunication Union Radio Regulations, › and the following signals:

(389) (a) A piece of orange-colored canvas with either a black square and circle or other appropriate symbol (for identification from the air);

(390) (b) A dye marker.

(391)

Annex V—Pilot Rules

(392)

§88.01 Purpose and applicability.

(393) This part applies to all vessels operating on United States inland waters and to United States vessels operating on the Canadian waters of the Great Lakes to the extent there is no conflict with Canadian law.

(394)

§88.03 Definitions.

(395) The terms used in this part have the same meaning as the terms defined in part 83 of this subchapter.

(396)

§88.05 Law enforcement vessels.

(397) (a) Law enforcement vessels may display a flashing blue light when engaged in direct law enforcement or public safety activities. This light must be located so

that it does not interfere with the visibility of the vessel's navigation lights.

(398) (b) The blue light described in this section may be displayed by law enforcement vessels of the United States and the States and their political subdivisions.

(399)

§88.07 Public safety activities.

(400) (a) Vessels engaged in government sanctioned public safety activities, and commercial vessels performing similar functions, may display an alternately flashing red and yellow light signal. This identification light signal must be located so that it does not interfere with the visibility of the vessel's navigation lights. The identification light signal may be used only as an identification signal and conveys no special privilege. Vessels using the identification light signal during public safety activities must abide by the Inland Navigation Rules, and must not presume that the light or the exigency gives them precedence or right of way.

(401) (b) Public safety activities include but are not limited to patrolling marine parades, regattas, or special water celebrations; traffic control; salvage; firefighting; medical assistance; assisting disabled vessels; and search and rescue.

(402)

Implementing Rules

(403) **Alternative Compliance**—see **33 CFR 81** and **33 CFR 89**, chapter 2, for regulations.

(404) **Vessel Bridge-to-Bridge Radiotelephone Regulations**—see 33 CFR 26, chapter 2, for regulations.

Appendix A

(1)

Sales Information

(2) NOAA publications, nautical charts and unclassified National Geospatial-Intelligence Agency (NGA) nautical charts are sold by authorized sales agents in many U.S. ports and in some foreign ports. Information on obtaining charting products and a listing of authorized agents can be found at *www.nauticalcharts.noaa.gov*.

(3)

Products and Services–NOAA

(4)

Reporting corrections to nautical charts and Coast Pilots

(5) Users are requested to report all significant discrepancies or additions to NOAA charts and Coast Pilots, including depth information in privately maintained channels and basins; obstructions, wrecks, and other dangers; new, relocated, or demolished landmarks; uncharted fixed private aids to navigation; deletions or additions of small-craft facilities and any other information pertinent to safe navigation. This information may be submitted using the NOAA Office of Coast Survey website: https://www.nauticalcharts.noaa.gov/customer-service/assist/

(6)

Department of Commerce, NOAA
Nautical Data Branch
N/CS26, Station 7505
1315 East-West Highway
Silver Spring, Maryland 20910
ocs.ndb@noaa.gov

(7)

Nautical Charts

(8) NOAA maintains the nautical charts and publications for the coast of the United States and the Great Lakes. Over a thousand charts cover 95,000 miles of shoreline and 3.4 million square nautical miles of water. Access to charts, publications and chart catalogs is available through *www.nauticalcharts.noaa.gov*.

(9)

Dates of Latest Editions

(10) Information concerning the dates of latest editions for the full suite of NOAA's nautical charts and U.S. Coast Pilot volumes can be found at:

(11) *nauticalcharts.noaa.gov/mcd/dole.htm*

(12)

Coast Pilot

(13)

U.S. Coast Pilot 1—Atlantic Coast: Eastport to Cape Cod
U.S. Coast Pilot 2—Atlantic Coast: Cape Cod to Sandy Hook
U.S. Coast Pilot 3—Atlantic Coast: Sandy Hook to Cape Henry
U.S. Coast Pilot 4—Atlantic Coast: Cape Henry to Key West
U.S. Coast Pilot 5—Gulf Coast, Puerto Rico and Virgin Islands
U.S. Coast Pilot 6—Great Lakes and connecting waterways
U.S. Coast Pilot 7—Pacific Coast: California
U.S. Coast Pilot 8—Alaska: Dixon Entrance to Cape Spencer
U.S. Coast Pilot 9—Alaska: Cape Spencer to Beaufort Sea
U.S. Coast Pilot 10—Pacific Coast: Oregon, Washington, Hawaii, and Pacific Islands

(14)

Distance Tables

(15) Distances Between United States Ports is available at *https://nauticalcharts.noaa.gov/publications/docs/distances.pdf*

(16)

Center for Operational Oceanographic Products and Services

(17)

1305 East-West Highway
Silver Spring, Maryland 20910
301–713–2815 (phone)
301–713–4500 (fax)
www.tidesandcurrents.noaa.gov

(18)

National Weather Service Offices

(19)

Alaska
NWS Forecast Office Juneau – *www.weather.gov/ajk* 8500 Mendenhall Loop Road, Juneau, AK. 99801 907–790–6800
NWS Forecast Office Anchorage – *www.weather.gov/afc* 6930 Sand Lake Road, Anchorage, AK. 99502 907–266–5105
NWS Forecast Office Fairbanks – *www.weather.gov/afg* UAF-IARC Building Post Office Box 757345, Fairbanks, AK 99775-7345 907–458–3700

(20)

NOAA Weather Radio

(21) National Weather Service VHF-FM radio stations provide mariners with continuous FM broadcasts of

weather warnings, forecasts, radar reports, and selected weather observations. Reception range is typically 20 to 40 nautical miles from the antenna site, but can be as much as 100 nautical miles depending on elevation, terrain, type of receiver, and antenna used. The following VHF-FM radio stations with location of antenna are in or near the area covered by this Coast Pilot:

(22)

Call Sign	Station	Location	Frequency (MHz)
WXM97	Haines	59°17′N., 135°27′W.	162.400
WXK69	Yakutat	59°30′N., 139°39′W.	162.400
WXJ79	Cordova	60°33′N., 145°45′W.	162.400
WXJ63	Valdez	61°08′N., 146°21′W.	162.550
WNG532	Cape Hinchinbrook	60°15′N., 146°37′W.	162.525
WNG527	Potato Point	61°03′N., 146°42′W.	162.425
WNG530	East Point	60°39′N., 147°21′W.	162.500
KZZ93	Point Pigot	60°49′N., 148°23′W.	162.450
KXI29	Whittier	60°47′N., 148°41′W.	162.475
KZZ98	Wasilla	61°36′N., 149°21′W.	162.400
WNG526	Rugged Island	59°52′N., 149°23′W.	162.425
KEC81	Seward	60°07′N., 149°27′W.	162.550
KEC43	Anchorage	61°13′N., 149°53′W.	162.550
WWG39	Soldotna	60°28′N., 151°05′W.	162.475
WXJ24	Homer	59°45′N., 151°37′W.	162.400
KZZ97	Ninilchik	60°01′N., 151°41′W.	162.550
WNG528	Bede Mountain	59°19′N., 151°57′W.	162.450
WXJ78	Kodiak	57°47′N., 152°26′W.	162.550
WNG531	Pillar Mountain	57°47′N., 152°26′W.	162.525
KZZ90	Raspberry Island	58°04′N., 153°23′W.	162.425
WNG718	Sitkinak Dome	56°34′N., 154°11′W.	162.450
WNG714	Sand Point	55°20′N., 160°29′W.	162.550
WNG525	Tuklung Mountain	58°51′N., 159°28′W.	162.425
WNG675	Bethel	60°46′N., 161°50′W.	162.550
WXJ62	Nome	64°30′N., 165°25′W.	162.550
WXK89	Dutch Harbor	53°53′N., 166°32′W.	162.550
KWN30	Kotzebue	66°52′N., 162°38′W.	162.550

(23) The National Weather Service provides **Radio Facsimile Weather Information** for Alaskan waters through Coast Guard Communications Station Kodiak (NOJ). Broadcasts are made on the following frequencies: 2054 (10z, 18z), 4298, 8459, 12412.5 (4z, 22z) kHz. For carrier frequency, subtract 1.9 kHz. Fax schedules are transmitted at 1727 GMT and provide area coverage and descriptions of services. For further information on Marine Radiofax Charts, visit: *https://www.weather.gov/marine/radiofax_charts*

(24)

Marine Weather Forecasts

(25) **Coastal Marine Forecasts** are issued four times daily by National Weather Service Offices. For further information on coastal marine forecasts as well as additional types of forecasts, visit: *https://weather.gov/marine/forecast* -and- *https://nowcoast.noaa.gov/*

(26)

Space Weather Prediction Center (SWPC)

(27) The Space Weather Prediction Center provides real-time monitoring and forecasting of solar and geophysical events that impact satellites, power grids, communications, navigation and many other technological systems.

(28)

NOAA, National Weather Service
National Centers for Environmental Predictions
Space Weather Prediction Center, W/NP9
325 Broadway
Boulder, Colorado 80305
www.swpc.noaa.gov

(29)

Products and Services–Other U.S. Government Agencies

(30) A partial list of publications and charts considered of navigational value is included for ready reference of the mariner. In addition to the agents located in the principal seaports handling publication sales, certain libraries have been designated by the Congress of the United States to receive the publications as issued for public review.

(31)

Government Publishing Office

(32)

U.S. Government Publishing Office
710 North Capitol Street, NW
Washington, DC 20401-0001
202-512-1800
866-512-1800
www.gpo.gov/
ContactCenter@gpo.gov

(33)

Hydrographic Surveys

(34) U.S. Army Corps of Engineers hydrographic survey activity is available at: *https://www.mvr.usace.army.mil/Missions/Navigation/Hydrographic-Surveys/HydrographicSurveysMap/*

(35)

Nautical Charts

(36) **Apalachicola, Chattahoochee and Flint Rivers Navigation Charts**, **Alabama River Charts**, and **Black Warrior-Tombigbee Rivers River Charts**—available from the U.S. Army Corps of Engineers Mobile District for purchase in bound hard copy or as a free download in PDF at *www.sam.usace.army.mil*.

(37) **Flood Control and Navigation Maps of the Mississippi River, Cairo, Illinois to the Gulf of America**—available from the U.S. Army Corps of Engineers Memphis District as a free download in PDF at *www.mvm.usace.army.mil*.

(38) **Upper Mississippi River Navigation Charts (Mississippi River, Cairo, Illinois to Minneapolis,**

Minnesota) and Charts of the Illinois Waterway, from Mississippi River at Grafton, Illinois to Lake Michigan at Chicago and Calumet Harbors—available from the U.S. Army Corps of Engineers Rock Island District for purchase in hard copy format or as a free download in PDF at *www.mvr.usace.army.mil*.

(39)

Publications and Services

(40) **Local Notices to Mariners** are posted weekly by the U.S. Coast Guard Navigation Center at *www.navcen.uscg.gov*. The National Geospatial-Intelligence Agency, U.S. Notice to Mariners are available at *msi.nga.mil/NGAPortal/MSI.portal.*

(41) **Special Notice to Mariners** are issued annually in National Geospatial-Intelligence Agency Notice to Mariners 1. These notices contain important information of considerable interest to all mariners. Interested parties are advised to read these notices.

(42) **Light List**—maintained by United States Coast Guard and available online at *www.navcen.uscg.gov.* Also see Light List, chapter 1, for additional information.

(43) **List of Lights**, **Sailing Directions**, **Radio Navigataional Aids (Pub. 117)**, **American Practical Navigator (Pub. 9) and International Code of Signals (Pub. 102)**—published by the National Geospatial-Intelligence Agency and available at *msi.nga.mil/NGAPortal/MSI.portal*.

(44) The **Nautical Almanac**, the **Air Almanac**, and **Astronomical Almanac**—available through the United States Naval Observatory —*https://www.public.navy.mil/fltfor/cnmoc/Pages/usno_test_page.aspx* -and- *https://bookstore.gpo.gov/agency/united-states-naval-observatory-usno*

(45) **Dissemination of Marine Weather Information**, maintained by National Weather Service on the internet at *https://www.weather.gov/marine/nws_dissemination* -and- **NWS Marine Weather Services** at *https://www.weather.gov/marine/*

(46) **Navigation Rules and Regulations Handbook**—publication produced by the United States Coast Guard Navigation Standards Branch, which contains International and Inland Rules of the Road and Navigation Regulations. Available for download or viewing at *www.navcen.uscg.gov.* Navigation Rules are also found near the end of each individual Coast Pilot volume.

(47)

(48)

Offices and Services—Other U.S. Government Agencies

(49)

U.S. Army Corps of Engineers Offices

(50)

District/Division Office	Contact Information
Alaska District Office P.O. Box 6896 JBER, Alaska 99506-0898	*www.poa.usace.army.mil* 907–753–2504

(51)

Environmental Protection Agency Offices

(52)

Regional Areas, States and Information
Region 1 New Hampshire, Vermont, Maine, Massachusetts, Connecticut, Rhode Island *www.epa.gov/aboutepa/epa-region-1-new-england*
Region 2 New Jersey, New York, Puerto Rico, Virgin Islands *www.epa.gov/aboutepa/epa-region-2*
Region 3 Delaware, Maryland, Virginia, District of Columbia, Pennsylvania *www.epa.gov/aboutepa/epa-region-3-mid-atlantic*
Region 4 Alabama, Florida, Georgia, Mississippi, South Carolina, North Carolina *https://www.epa.gov/aboutepa/about-epa-region-4-southeast*
Region 5 Illinois, Indiana, Michigan, Minnesota, Ohio, Wisconsin *www.epa.gov/aboutepa/epa-region-5*
Region 6 Louisiana, Texas *www.epa.gov/aboutepa/epa-region-6-south-central*
Region 9 California, Hawaii, Guam *www.epa.gov/aboutepa/epa-region-9-pacific-southwest*
Region 10 Alaska, Oregon, Washington *www.epa.gov/aboutepa/epa-region-10-pacific-northwest*

(53)

U.S. Coast Guard Navigation Center (NAVCEN)

(54) The Coast Guard Navigation Center provides cutting edge services for safe, secure and efficient maritime transportation. The center operates the Navigation Information Service (NIS), the Maritime Differential GPS (DGPS) and the developing Nationwide Differential Global Positioning System (NDGPS). In addition, NAVCEN serves as the civilian interface for the Global Positioning System and manages other navigation-related projects.

(55) For further information and/or operational questions regarding GPS and DGPS, visit *www.navcen.uscg.gov* or contact:

(56)

Commanding Officer
U.S. Coast Guard Navigation Center
NAVCEN MS 7310
7323 Telegraph Road
Alexandria, VA 20598-7310

(57)

Coast Guard District Offices

(58)

Districts, Boundary Description and Contact Information
Seventeenth Coast Guard District Alaska; the ocean area that is bounded by a line from the Canadian coast at 54°40'N, due west to 140°W; thence southwesterly to 40°N., 150°W; thence due west to 40°N., 165°E; thence due north to 43°N; thence northwesterly to 51°N., 158°E; thence north and east along the coastline of the continent of Asia to the easternmost point of East Cape; thence north to the Arctic Ocean. P.O. Box 25517 Juneau, AK 99802-5517 907–463–2269 (day) 907–463–2004 (night)

(59)

Coast Guard Sector Offices

(60) **Note:** A Sector Office combines the functions of the Captain of the Port and a Marine Inspection Office.

(61)

Sectors	Contact Information
Sector Anchorage	U.S. Coast Guard Sector Anchorage P.O. Box 5800 JBER, AK 99505-0800 907–428–4200
Sector Juneau	709 W 9th Street Suite 223B Juneau, AK 99802 907–463–2980

(62)

Coast Guard Stations

(63) The stations listed are in the area covered by this Coast Pilot. They have search and rescue capabilities and may provide lookout, communication and/or patrol functions to assist vessels in distress. The National VHF-FM Distress System provides continuous coastal radio coverage outwards to 20 miles on channel 16. After contact on channel 16, communications with the Coast Guard should be on channel 1022 (previously channel 22A). If channel 1022 is not available to the mariner, communications may be made on channel 12. Selected stations guard the International Radiotelephone Distress, Safety and Calling Frequencies.

(64)

Alaska	
Station Juneau	Northwest side of the harbor at the Government Wharf. (58°17'54"N., 134°24'24"W.)
Station Ketchikan (base support unit)	Northeast side of Tongass Narrows about 0.6 mile southeast of Ketchikan. (55°19'54"N., 131°37'30"W.)
Station Kodiak/ Kodiak Air Station (base support unit)	North side of Womens Bay about 4.5 miles southwest of Kodiak. (57°44'18"N., 152°30'24"W.)
Sitka Air Station	On Japonski Island. (57°03'12"N., 135°21'54"W.)
Station Valdez	East side of the small-boat harbor entrance (61°07'30"N., 146°21'06"W.)

(65)

Coast Guard Radio Broadcasts

(66) Urgent, safety and scheduled marine information broadcasts are made by Coast Guard stations. In general, these broadcasts provide information vital to vessels operating in the approaches and coastal waters of the United States including the Great Lakes, Puerto Rico and U.S. Virgin Islands. Types of broadcasts are as follows:

(67) **Scheduled broadcasts—**U.S. Coast Guard stations make scheduled broadcasts on a prepublished schedule of 12-hour intervals. After the preliminary announcements on VHF-FM channel 16, the station advises shifting to working frequency VHF-FM channel 1022 (previously channel 22A).

(68) **Safety broadcasts—**U.S. Coast Guard stations that make scheduled broadcasts issue safety broadcasts upon receipt and on the next scheduled broadcast. Safety broadcasts are preceded by the safety signal SECURITY. After the preliminary signal on VHF-FM channel 16, the station may announce shifting to working frequency VHF-FM channel 1022 (previously channel 22A).

(69) **Urgent broadcasts—**U.S. Coast Guard stations that make scheduled broadcasts issue urgent broadcasts upon receipt and on schedule until canceled. Urgent broadcasts are preceded by the urgent signal PAN-PAN. Both the urgent signal and message may be transmitted on VHF-FM channel 16.

(70)

U.S. NAVTEX Transmitting Stations

(71) NAVTEX coverage is reasonably continuous to 200 NM off the U.S. East, Gulf and West Coasts; Puerto Rico; Southwest Alaska; Hawaii; and 100 NM off Guam. U.S. Coast Guard NAVTEX broadcast stations and message content for the West Coast are as follows:

(72)

Station	Range (NM)	Broadcast Schedule (UTC)
Kodiak (NOJ) *Areas east of Kodiak*	200	0100, 0500, 0900, 1300, 1700, 2130
Kodiak (NOX) *Areas west of Kodiak*	200	0300, 0700, 1100, 1500, 1900, 2350
Astoria (NMW)	216	0300, 0700, 1100, 1500, 1900, 2340
San Francisco (NMC)	350	0000, 0400, 0800, 1200, 1600, 2020
Cambria (NMQ)	350	0200, 0600, 1000, 1400, 1800, 2240
Guam (NRV)	100	0300, 0700, 1100, 1500, 1900, 2330
Honolulu (NMO)	350	0200, 0600, 1000, 1400, 1800, 2220

(73)

Rescue Coordination Centers

(74) Listed below are the locations of the centers in Alaska.

(75) **Juneau, Alaska:** Seventeenth Coast Guard District Headquarters

(76) 907-463-2000

(77) jrccjuneau@uscg.mil

(78)

Customs Ports of Entry

(79) Vessels arriving in the United States from a foreign port or place are required to report their arrival to Customs and Border Protection immediately. Field Operations Offices and contact information is listed below.

(80)

Field Operations Office	Contact Information
Portland	33 New Montgomery Street Suite 1600 San Francisco, CA 94105 415–744–1530 ext. 221

(81)

Public Health Service Quarantine Stations

(82)

Quarantine Stations and Addresses
CDC Anchorage Quarantine Station Ted Stevens Anchorage International Airport 4600 Postmark Drive, Suite NA 212 North Terminal Anchorage, AK 99502

(83) At other ports, quarantine and/or medical examinations are usually performed by Public Health Service contract personnel or by quarantine inspectors from the nearest quarantine station. Inquiries concerning quarantine matters should be directed to the nearest quarantine station.

(84)

Food and Drug Administration Regional Offices

(85)

Northeast Region	158-15 Liberty Avenue Jamaica, New York 11433 718–340–7000
Central Region	20 North Michigan Avenue Suite 510 Chicago, Illinois 60602 215–597–4390
Pacific Region	1301 Clay Street Room 1180N Oakland, California 94612 510–287–2700
Southeast Region	60 Eighth Street NE Atlanta, Georgia 30309 404–253–1171
Southwest Region	4040 North Central Expressway Suite 900 Dallas, Texas 75204 214–253–4901

(86)

Department of Agriculture, Animal and Plant Health Inspection Service (APHIS)

(87) Information on the importation of plants, animals and plant and animal products is available from APHIS, Department of Agriculture, 4700 River Road, Riverdale, MD 20737. See *aphis.usda.gov* for more information.

(88)

USDA Animal and Plant Inspection Service Animal Import Centers:
Los Angeles Animal Import Center (LAAIC) 222 Kansas Street El Segundo, CA 90245 310-955-3311
Miami Animal Import Center (MAIC) 6300 NW 36th Street Miami, FL 33122 305-876-2200
New York Animal Import Center (NYAIC) 474 Animal Import Center Newburg, NY 12550 845-838-5500
John F. Kennedy Airport Office 230-59 Rockaway Blvd. Suite 100, Room 101 Jamaica, NY 11413 718-553-3570
Agriculture Select Service Agents 4700 River Road, Unit 2 Riverdale, MD 20737 AgSAS@aphis.usda.gov 301-851-3300 (select option 3)

(89)

U.S. Citizenship and Immigration Services Offices

(90)

Alaska	
Anchorage Field Office	620 East 10th Avenue Suite 102 Anchorage, AK 99501

(91)

Federal Communications Commission Offices

(92) **District Field Office:**

(93) San Francisco, CA: 5653 Stoneridge Drive, Suite 105, Pleasanton, CA 94588-8543. Telephone toll-free: 888-225-5322; (888-CALL-FCC) to report radio communications interference issues.

(94)

Stations Transmitting Medical Advice

(95) To obtain radio medical advice by reliable voice radio communications urgent calls for assistance may be broadcast using the normal Urgency prowords PAN-PAN as follows:

(96)

Broadcast Language	Details
PAN-PAN	(3 times)
All Stations	(3 times or specific station if known)
This is ship name	(3 times)
Call sign	(call sign)
In Position	(give position)
I require medical advice	
Over	

Weekly Record of Updates

Week of	Action	Chapter	Paragraph(s)	User notes
25 AUG 2026				U.S. Coast Pilot 9, 44th Edition has been issued.
30 AUG 2026	**No Correction**			
06 SEP 2026	**No Correction**			
13 SEP 2026	**No Correction**			
20 SEP 2026	**No Correction**			
27 SEP 2026	**No Correction**			
04 OCT 2026	**No Correction**			
11 OCT 2026	**No Correction**			
18 OCT 2026	**No Correction**			
25 OCT 2026	**No Correction**			
01 NOV 2026	**No Correction**			
08 NOV 2026	**No Correction**			

This record is intended as a log for critical updates applied to this volume. For online versions or Print on Demand (POD) copies, all weekly critical updates issued and applied to this edition at time of download or purchase are listed.
Affected paragraphs within the chapters are indicated by a gray highlight for ease of identification; e.g. (215)

Updates are available from NOAA at http://nauticalcharts.noaa.gov/nsd/cpdownload.htm.

Week of	Action	Chapter	Paragraph(s)	User notes

Week of	Action	Chapter	Paragraph(s)	User notes

Week of	Action	Chapter	Paragraph(s)	User notes

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