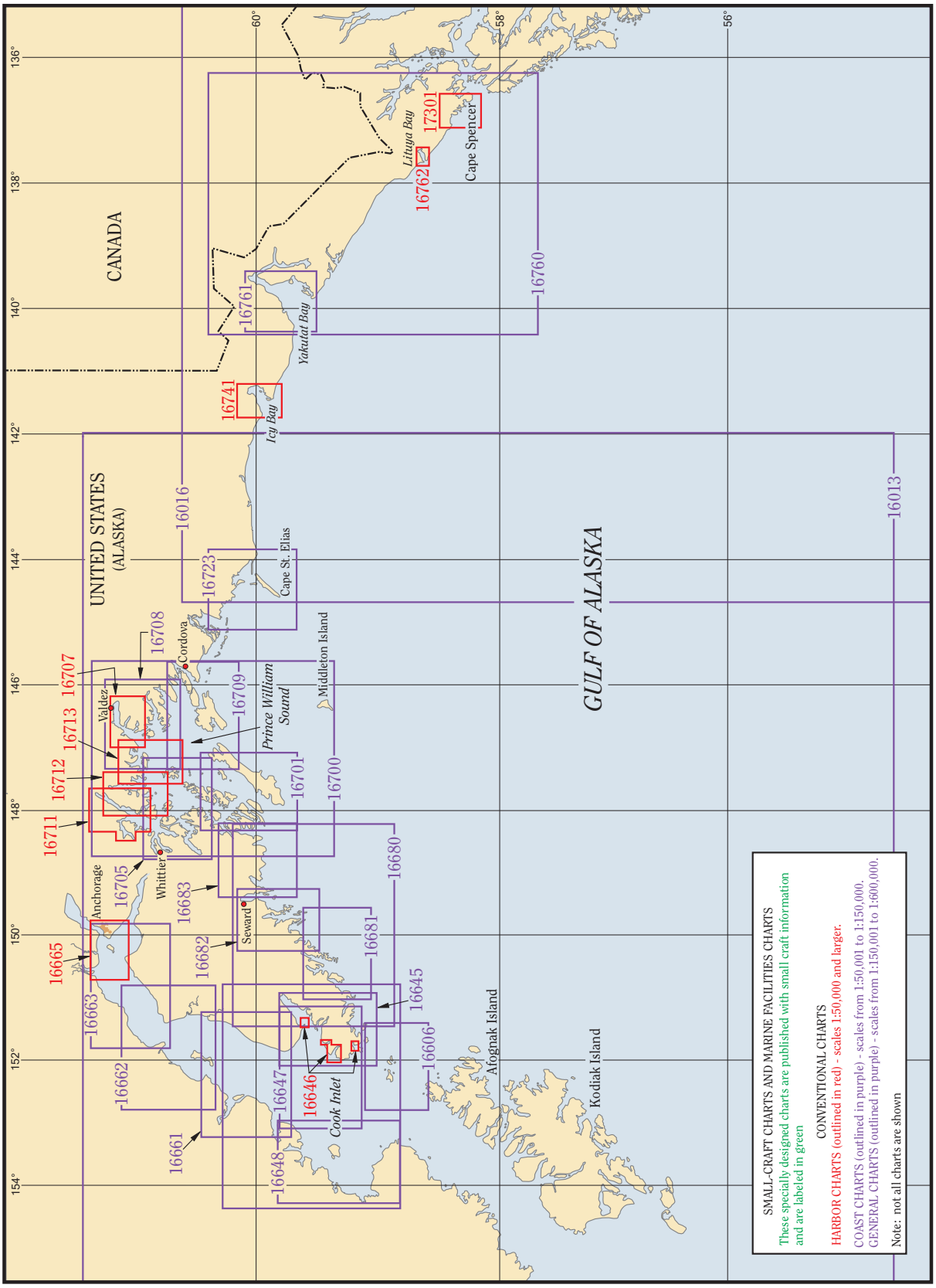
CANADA
UNITED STATES
(ALASKA)
GULF OF ALASKA
Prince William Sound
Cook Inlet
Yakutat Bay
Icy Bay
Lituya Bay
Cape Spencer
Cape St. Elias
Middleton Island
Cordova
Valdez
Whittier
Seward
Anchorage
Afognak Island
Kodiak Island
136°
138°
140°
142°
144°
146°
148°
150°
152°
154°
60°
58°
56°
16016
16013
16760
16761
16762
17301
16741
16723
16708
16707
16713
16712
16711
16709
16701
16700
16705
16683
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16680
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16648
SMALL-CRAFT CHARTS AND MARINE FACILITIES CHARTS
These specially designed charts are published with small craft information and are labeled in green
CONVENTIONAL CHARTS
HARBOR CHARTS (outlined in red) - scales 1:50,000 and larger.
COAST CHARTS (outlined in purple) - scales from 1:50,001 to 1:150,000.
GENERAL CHARTS (outlined in purple) - scales from 1:150,001 to 1:600,000.
Note: not all charts are shown

Cape Spencer to Cook Inlet

(1) This chapter describes the S 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.

Charts 16016, 16013

(2) From Cape Spencer the coast extends NW 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, with a sea face 200 to 300 feet high and partly vertical; Yakutat Glacier, 25 miles E of Yakutat Bay; and the great Malaspina Glacier, W of Yakutat Bay.

Weather, Cape Spencer to Cook Inlet

(3) 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.

(4) 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.

(5) 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.

(6) 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.

(7) 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.

(8) 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 50's (°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).

(9) 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.

Chart 17301

(10) **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 NW side of the entrance to Cross Sound. The large shoal area that extends about 1.3 miles S 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 which are heavily wooded up to 1,500 feet.

(11) **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 S of the cape.

(12) **Cross Sound**, between Cape Spencer and Cape Bingham, 8 miles SE, 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.

(13) **Dicks Arm**, a narrow inlet less than 200 yards wide in places, extends in a NNE direction for about 2 miles along the SE 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 E 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.

(14) **Polka Rock**, 20 feet high, is 2 miles NW 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 SE usually pass between Polka Rock and Graves Rocks.

(15) **Graves Rocks** are a group of islets about 3.5 miles NW of Cape Spencer and about 1 mile from shore. Near the N 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.

(16) **Libby Island**, 5.3 miles NW of Cape Spencer and 0.7 mile from the mainland, is high and wooded. Bare rocks and rocks awash extend about 0.3 mile S 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 SE of the island. **Horn Mountain** is a sharp, bare peak on the mainland N of Libby Island.

(17) **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 S 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 W side of the entrance to the cove.

(18) **Murphy Cove**, on the SE 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.

(19) **Torch Bay**, 7 miles NW of Cape Spencer, extends inland more than 2 miles in a N direction and varies in width from 1 mile at the entrance to 0.3 mile at the head of the W arm. Rocks, which uncover 7 feet and always marked by breakers, are 1 mile S of **Venisa Point,** on the W 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 NE arm.

(20) **Sugarloaf Island**, 9 miles NW of Cape Spencer, was named from its shape as seen from S, from which direction it appears barely detached from the islet-like point projecting from Hankinson Peninsula. The island is high and wooded. From W, it has a uniform N slope; the S slope has a step and is separated from the narrow S extremity by a deep V-shaped ravine. Bare rocks and some that cover, fringe the shore from S around to W.

(21) **Sugarloaf Island Shoal**, about 0.5 mile long, is about 1 mile S 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 W end of the shoal.

(22) During moderate E gales temporary anchorage is possible in 10 to 18 fathoms, rocky bottom, in the cove NE of Sugarloaf Island. The cove is 0.3 mile wide and open to the NW.

Local magnetic disturbance

(23) Differences of as much as 3¼° from the normal variation, have been observed at the S end of Sugarloaf Island.

(24) **Astrolabe Point**, 11 miles NW of Cape Spencer, is rugged and has bare cliffs on its W side; the S face of the point is moderately wooded halfway up. **Astrolabe Rocks,** some bare, submerged, or awash, are 0.3 mile S of the point.

(25) **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 N to Thistle Cove, the NW arm. Depths of 13 to 18 feet are just W of the middle of the entrance. A glacier above the head of the harbor is visible from the entrance.

(26) **Thistle Cove** is 1 mile long in a N direction. At the point on the NE side of the entrance is a grass-covered rock, 20 feet high. In June 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 S or W weather.

(27) **Palma Bay** is between Astrolabe Point and Icy Point, 6 miles to the NNW. 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.

(28) **Boussole Head**, in the E part of Palma Bay, is a prominent wooded 650-foot-high peninsula which extends about 1 mile into the bay. The outer end of the head is a natural arch which rises 60 feet above the water and is quite prominent from the S. **Alder Rock,** 0.3 mile S of Boussole Head, uncovers 4 feet.

(29) **Astrolabe Bay**, SE of Boussole Head, and **Boussole Bay,** on the NW side of the head, are open to the S but afford protection to small vessels in N or E weather. Anchorage is possible in 6 to 8 fathoms, sand bottom, near the head of each bay; the best is in Boussole Bay.

(30) Another anchorage, which affords some protection for small craft in W weather, is off the mouth of **Kaknau Creek,** a large stream which empties into Palma Bay on the NE side of Icy Point; recommended anchorage is close inshore in 6 to 10 fathoms, sand bottom.

(31) **Icy Point**, on the W side of Palma Bay and 17 miles NW of Cape Spencer, is low and wooded; from S La Perouse Glacier can be seen over the point. Many rocks fringe the point but deep water is only 0.3 mile offshore.

Pilotage, Cape Spencer, Alaska

(32) Pilotage, except for certain exempted vessels, is compulsory for all vessels navigating the waters of the State of Alaska.

(33) The pilot association which serves Cape Spencer is:

(34) 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-seapilots@prodigy.com; cable address, SEAPILOTS; radio call, WKD-53. Their pilot office monitors VHF-FM channel 12.

(35) 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.

(36) 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.

(37) 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 effected by weather, tides and currents, and daylight hours.

Chart 16760

(38) 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.

(39) **La Perouse Glacier**, about 24 miles N of Cape Spencer, is an outstanding landmark along this coast because the mountains are often covered by clouds. The face of the glacier is 200 to 300 feet high and is nearly perpendicular; at the foot of the glacier is a narrow strip of sand beach strewn with boulders.

(40) Between La Perouse Glacier and Lituya Bay, 15 miles NW, 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.

Chart 16762

(41) **Lituya Bay**, 39 miles NW 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 NE 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.

(42) 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.

(43) At the head of Lituya Bay are two arms, each leading to a glacier. **Gilbert Inlet,** on the NW, has **Lituya Glacier** at its head; **Crillon Inlet,** on the SE, has **North Crillon Glacier** at its head. 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.

(44) **Harbor Point**, on the E 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 NE; the NW 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 S side of Harbor Point.

(45) **La Chaussee Spit**, on the NW side of the entrance to Lituya Bay, is 100 to 225 yards wide and about 0.7 mile long. The spit is 2 to 12 feet high; the outer side of the spit is covered with large boulders.

(46) 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°30'** lighted range.

(47) **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 S weather, the cove has considerable swell.

(48) **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 N and W sides of the island slope gently, but the S 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.

Tides and currents

(49) The diurnal range of tide is 9.7 feet 2 miles inside the entrance. 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 SW 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.

Ice

(50) The bay has never been known to freeze over but icebergs can always be found in the upper part. With NE 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.

Chart 16760

(51) From Lituya Bay NW 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 NW about parallel to the shore, but it has been observed that winds have a great influence on directions and strengths.

(52) **Cape Fairweather**, 54 miles NW 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.

(53) Protection from SE weather can be had N of Cape Fairweather, which appreciably breaks both wind and swell. Just N is a high rocky slide, with a cataract several hundred feet high, which is prominent from offshore.

(54) **Alsek River**, about 82 miles NW of Cape Spencer, empties into the NE 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.

(55) 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 NW of Cape Spencer and 30 miles E of Yakutat Bay, is 3 miles wide and very prominent.

(56) 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.

Chart 16761

(57) **Yakutat Bay**, 130 miles NW of Cape Spencer, has a 16.5-mile-wide entrance between Ocean Cape on the SE and Point Manby on the NW; 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 N 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 W of Otmeloi and Krutoi Islands, to 141 fathoms off **Point Latouche,** 23 miles above the entrance. Two to 3 miles outside the line between Ocean Cape and Point Manby is a submarine ridge, very narrow on top, with depths of 3½ to 17 fathoms; the water deepens rapidly to more than 30 fathoms on either side except near Point Manby, and the ridge curves NE near Ocean Cape to join shallower water. During heavy weather, it has been observed that breakers or pronounced increased height of swell occur across the entire entrance to Yakutat Bay and may continue N to Disenchantment Bay; at such times entrance is dangerous.

(58) Current predictions are unavailable for Yakutat Bay, but complex currents are known to exist. The current to the E of **Knight Island** flows S on a flood tide and N on an ebb tide.

(59) **Ocean Cape**, on the SE 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 (39.6 m) 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 W of Ocean Cape Light, marks the entrance to Yakutat Bay. Heavy breakers have been observed up to 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.

(60) **Point Manby**, on the NW 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 NE 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.

(61) **Point Carrew** is on the E side of Yakutat Bay 1.5 miles NE of Ocean Cape. A lighted whistle buoy, about 2 miles N of Point Carrew, marks the N 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 N from Point Carrew. The W shore of Phipps Peninsula is foul with large boulders. The N and NE shore of Phipps Peninsula is subject to a periodic buildup of sand often producing sandbars offshore.

(62) **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 SW to S from Point Munoz making the area foul for vessels. The island is about 5 miles long in a NE-SW direction and the greatest width is between Point Munoz and **Point Turner,** 2 miles to the SE. Khantaak Island is low and wooded except at Point Turner, which is a tongue of sand covered with grass and bushes. **Khantaak Island Light** (59°33'36"N., 139°47'03"W.), 28 feet (8.5 m) above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on the S end of the island near Point Turner.

(63) **Monti Bay**, entered between Point Carrew and Point Munoz, extends about 3 miles SE to Yakutat, then turns N to Yakutat Roads anchorage. Depths in Monti Bay are 11 to 40 fathoms. The S side of the bay is clear, but the N 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.

(64) **The Ankau**, on the S side of Monti Bay 1 mile SE of Point Carrew, is the outlet of an intricate system of shallow lagoons within the peninsula between the bay and the ocean. In 1979, a depth of 5 feet could be carried through the entrance to The Ankau; currents are strong and entry should not be attempted except at or near slack water and as close to Ankau Head as possible. A sandbar extending N across the channel from Ankau Head is building to the E making entry into The Ankau very difficult. Several large boulders on the S side nearly block the entrance. Inside The Ankau, tides lag those predicted for Yakutat by as much as 2 hours.

(65) **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 S side of the shoal. Two rocks, awash at lowest tide, are about 0.2 mile N of the shoal. A lighted buoy, (59°33'26"N., 139°45'51"W.), is about 100 yards SE of the shoal.

(66) **Yakutat**, a town at the E end of Monti Bay, has a small hospital, school, and two general stores. Lodging is available at the airport S of the town.

(67) Vessels with drafts greater than 8 feet should anchor on the E side of the harbor.

Tide

(68) The diurnal range of tide at Yakutat is 10.1 feet.

Weather, Yakutat Vicinity

(69) 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. 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.

(70) 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.

(71) 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.

(72) 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 S 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 NE 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 SW of Yakutat. Under these conditions cold winds move down from the glacier slopes and skies are generally cloudless.

Ice

(73) The ice in Yakutat Bay comes from the glaciers at the head of Disenchantment Bay and Russell Fiords. It is usually quite thick in Disenchantment Bay, but at times is scarce. Ordinarily, the ice banks on the W side of Yakutat Bay as far S as Blizhni Point. Scattered bergs usually are found in the bay proper, and occasional drifts find their way as far S as Ocean Cape and Point Manby. Ice flows have reportedly been encountered W of Knight Island on the E side of the bay.

(74) (See page 514 for **Yakutat climatological table.**)

Pilotage, Yakutat Bay, Alaska

(75) Pilotage except for certain exempted vessels, is compulsory for all vessels navigating the waters of the State of Alaska.

(76) The pilot association which serves Yakutat Bay is:

(77) 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-seapilots@prodigy.com; cable address, SEA-PILOTS; radio call, WKD-53. Their pilot office monitors VHF-FM channel 12.

(78) 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.

(79) 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.

(80) 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 effected by weather, tides and currents, and daylight hours.

Wharves

(81) YKI Fisheries Dock is on the S side near the head of Monti Bay and has a 30-foot (9.1 m) face with 29 feet (8.8 m) reported alongside in 2002.

(82) The Delta Western wharf is 100 yards W of the Fisheries Dock and has a 31-foot (9.5 m) face with 35 feet (10.7 m) reported along each side in 2002. Gasoline, diesel fuel, and water are available. Other petroleum products can be delivered by truck from the airport.

(83) Sitka Sound Seafood Pier, 300 yards across the head of Monti Bay from the Delta Western wharf, has a 231-foot (70.5 m) face with 52 feet (15.9 m) re-ported alongside in 2002. The pier is exposed to SE swells.

(84) Another Sitka Sound Seafood Pier is about 500 yards WNW of the Seafood Pier described above.

(85) 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 (14.6 m) grid is on the W side of the approach.. A small-craft float 230 yards E can repair small vessels. Limited repairs to small-craft are available at the cannery, when in operation, and at a garage in town.

(86) The **harbormaster** assigns berths; he can be contacted on VHF-FM channel 16 and by telephone (907-784-3323 or 907-784-3270).

Communications

(87) 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 SE of the town; charter air service is also available.

(88) **Yakutat Roads**, extending NNE from Monti Bay, has a clear width of 0.3 mile E of Tzuse Shoal, a length of about 2 miles, and depths of 4 to 23 fathoms, mud bottom, except for an extensive foul area at its NE end. A light marks the N limit of shoals on the E side of the roads. The best anchorage for large vessels is in the middle of Yakutat Roads in 15 to 23 fathoms.

(89) **Port Mulgrave**, on the W 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.

(90) **Rurik Harbor**, the next arm indenting the inner side of Khantaak Island NE of Port Mulgrave, has depths of 5 to 14 fathoms in its entrance. Small vessels can anchor in the entrance.

(91) **Sea Otter Bay**, NE of Rurik Harbor, is 1.2 miles long and has depths of 10 to 36 fathoms. **Prince Shoal,** between Rurik Harbor and Sea Otter Bay, extends about 0.5 mile SE from the Khantaak Island shore. The shoal is foul with rocks and has an extensive area that bares. **Prince Shoal,** partly bare at low water, extends out 0.4 mile from the point on the NE side of the entrance. Small vessels can anchor in the entrance to Rurik Harbor.

(92) **Johnstone Passage**, at the NE end of Yakutat Roads, connects with several bays and arms between the numerous islands and rocks behind Khantaak Island. The connecting channels are navigable only for small craft at low water. Extensive shoaling and rocks exist throughout the area; local knowledge is advised.

(93) **Broken Oar Cove**, 2.5 miles NE of Yakutat, is the site of a logging operation. **Sawmill Cove,** on the S side of Broken Oar Cove, is used as a log dump and has a log boom with a submerged cable extending across the entrance.

(94) **Redfield Cove**, 3 miles NE of Broken Oar Cove, affords excellent protected anchorage for light and medium draft vessels in 5 to 22 fathoms. The S side is clear of obstructions or shoals. A shoal extends about 0.3 mile SSW from the N entrance point. The safest passage to the bay is from N between Knight Island and **Krutoi Island.** Unlighted buoys mark the passage.

(95) From the SE side of **Knight Island,** 6.5 miles N of Redfield Cove, a 500-yard-wide ridge extends SE to Tla-xagh Island. The ridge provides a good anchorage in 14 fathoms for moderate-draft vessels. About 0.5 mile E of Tla-xagh Island is the entrance to **Eleanor Cove. Chicago Harbor,** just NE of Eleanor Cove, is a well-protected steep-sided cove for small craft.

(96) N of Point Latouche, the bay bends to the NE and joins **Disenchantment Bay.** Depths of 105 to 128 fathoms are found throughout Disenchantment Bay, except in the vicinity of Haenke Island, about 4.5 miles NE of Point Latouche, Osier Island, about 2.5 miles NE of Haenke Island in the entrance to Russell Fiord, and a small islet about 1.3 miles NE of Haenke Island. A partially protected anchorage in 35 fathoms can be found behind **Haenke Island.**

(97) **Turner Glacier** and **Hubbard Glacier** actively discharge icebergs into the bay. The flow favors the W shore but at times heavy ice concentrations can be troublesome throughout the area. Turner Glacier flows into the W side of the bay. The position of the glacier's terminus varies and, at times, a moraine bar is exposed at low tide some distance off the ice cliffs. 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 makes landing on the shores of the N part of the bay hazardous. **Osier Island** is 2.5 miles NE of Haenke Island and located on the N 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 SE 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.

(98) Mariners should contact the U.S. Forest Service Public Affairs Office, Chatham Area, Region 10, 204 Siginaka Way, Sitka, Alaska 99835, for the latest conditions concerning Disenchantment Bay, Hubbard Glacier, and Russell Fiord; telephone, (907) 747-6671.

(99) **Russell Fiord** (see chart 16760) extends 27 miles SE of Osier Island and has depths well over 100 fathoms except in the vicinity of Hubbard Glacier. A branch, **Nunatak Fiord,** extends E for 12 miles from Russell Fiord to **East Nunatak Glacier** which terminates on shoals that bare at low water.

(100) The pass between Disenchantment Bay and Russell Fiord is dangerous and should be avoided by mariners. The narrow entrance, strong currents and the threat of sudden calving of ice from the glacier makes it unsafe.

(101) 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.

Ice

(102) The ice in Yakutat Bay comes from glacier ice. Floating glacier ice and icebergs from Hubbard and Turner Glaciers is usually quite thick in Disenchantment Bay to as far S as Point Latouche.

Chart 16016

(103) 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.

(104) 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.

(105) 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.

Chart 16741

(106) **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 N end of the bay.

(107) **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.

(108) The bay is entered between **Point Riou Spit,** on the SE, and **Claybluff Point,** on the NW. Both points are composed of soft shale and long sandy beaches.

(109) 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.

(110) It is reported that most points on the E side of the bay give adequate radar returns from all positions in the bay.

(111) **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.

(112) **Caution:** Point Riou Spit has been observed to migrate rapidly and in 2000 had migrated 0.5 mile N and W 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..

(113) A dangerous shoal extends about 0.5 mile N from the E sandspit to a 1¾-fathom spot in 59°55'43"N., 141°25'54"W. Depths to the N of the shoal are greater than 5 fathoms.

(114) **Moraine Island**, actually a peninsula, is on the E side of Riou Bay. A bar, with a least depth of ¾-fathom, NW 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 E. 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.

(115) **Gull Island**, a natural bird sanctuary, is 2.5 miles NE of Moraine Island. A 40-foot-high conical hill on the NE end of the island is conspicuous. A shoal extends 1 mile W from the SW tip of the island. Between the island and the SE shore of Icy Bay, the water is foul with rocks and a moraine reef.

(116) The Icy Bay Lumber Company has a logging camp on the NW side of the bay about 2 miles W of Claybluff Point. Caretakers are in attendance at the camp during the nonoperational winter months. An airstrip is also located at the camp.

(117) The Icy Bay Lumber Company also operates a log dump on the NW side of the bay at **Carson Creek**, about 2.5 miles NE of Claybluff Point. Heavy swells, which frequently break along this coast, can make landings difficult. A road terminates at Carson Creek.

Pilotage, Icy Bay

(118) 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.)

(119) 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.

Anchorage

(120) Possibly the best anchorage in Icy Bay is at the entrance to the bight E 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 NW 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 NE, as bergs drift through this area, sometimes with considerable velocity. Off the entrance to Riou Bay, NE 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 E shore which, combined with the presence of Moraine Reef, makes the bay an undesirable anchorage.

(121) A 5½-fathom spot is 3.5 miles SW of Kichyatt Point, 0.9 mile offshore.

Tides and currents

(122) The diurnal range of tide at Icy Bay is 9.9 feet. 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 NW 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 NE and ebbs SW, with a velocity of about 0.5 knot.

Weather, Icy Bay and vicinity

(123) The prevailing winds are E and NE. 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, W of **Claybluff Point,** breakers are frequently heavy enough to make landing difficult in small boats. Surf was observed along the E shore of the bay and along Gull Island but the shore was still often suitable for small craft landings.

(124) The bay trends generally NE for 10 miles with depths of generally less than 50 fathoms below Kichyatt Point. N of prominent **Kichyatt Point,** on the W side of the bay, the shores are barren having been recently exposed by glacier retreat; the bay trends NW for 15 miles to **Guyot Glacier** and **Yahtse Glacier** which discharge large amounts of icebergs. The W shore is high; 7 miles NW of Kichyatt Point, **Tsaa Fiord** extends W 3 miles heading in three calving glaciers. The E shore of the bay is low and composed of glacial moraine and outwash from Malaspina Glacier. Two miles NNE of Kichyatt Point is low **Kageet Point;** N of the point **Taan Fiord** extends 12 miles NE to **Tyndall Glacier**. Most of the waters of these fiords are uncharted and mariners are urged to use caution.

Ice

(125) Ice in the bay originates from the actively calving glaciers at the head of the bay. The part of the bay N of 60°00'N. is usually filled with ice. In the S part of the bay, the ice usually forms long tongues of loosely packed ice. Icy Bay is usually ice-free from the E shore, W 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.

(126) 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 which may roll over or break apart without warning.

(127) Freshwater may be obtained from streams along the W side of the bay in the vicinity of Kichyatt Point. Also, small icebergs can be taken aboard for potable water.

Chart 16016

(128) 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.

(129) **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 W, but landing is possible only with occasionally smooth seas. In 1968, a depth of 9 fathoms was reported about 15 miles S of Cape Yakataga in 59°50.0'N., 142°31.0'W. An aero radiobeacon is at Cape Yakataga.

Chart 16723

(130) **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.

(131) **Cape Suckling** (59°59'24"N., 143°53'36"W.), 25 miles NE of Cape St. Elias, is low and wooded. Two miles N of the cape a prominent mountain ridge 1,500 to 2,500 feet high extends about 8 miles NE. Three bluffs about 100 feet high are 1.5 to 2.9 miles W of Cape Suckling. From the E bluff a sunken reef extends 0.6 mile SW to three rocks awash that are close together.

(132) **Southwest Breaker** is a rock bare at low water, 3.8 miles 260° from Cape Suckling.

(133) **Okalee Spit**, forming the S side of Controller Bay, is low with bare sand dunes, and is 7 miles long in an E-W direction. The SE entrance to Controller Bay between the N end of Kayak Island and Okalee Spit is of little use except for small craft that can cross the flats E of Wingham Island.

(134) Two prominent rocks about 75 feet high are in the approach, about 1.5 miles E of **Lemesurier Point** at the NE end of Kayak Island, and about 0.9 mile S of Okalee Spit. Ledges which uncover are between the two rocks, and extend about 300 yards E and W from them. Foul ground with 13 feet over its outer half extends from Lemesurier Point almost to the shoal surrounding the rocks.

(135) The channel is over a bar with least depths of 17 to 19 feet, thence between Okalee Spit and the two prominent rocks. N from the rocks, the channel has depths of 5 to 6 fathoms until about 1 mile inside the N 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 W of Southwest Breaker when using this channel.

(136) **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 N part, which is low and wooded.

(137) **Cape St. Elias**, the S 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 N. **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.

(138) **Cape St. Elias Light** (59°47'54"N, 144°35'56"W.), 85 feet (25.9 m) above the water, is shown from a white square tower at the corner of a rectangular building on the SW end of Kayak Island.

(139) A breaking reef extends 1 mile SW from Pinnacle Rock. Another breaking reef, about 1 mile E of Cape St. Elias, extends about 1.5 miles SSE 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 SW from the rock. A bell buoy, 3.2 miles SSW from Cape St. Elias Light, is on the broken ground. Tidal currents have considerable velocity across the reefs.

(140) The E 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 SW of the point and 1 mile offshore is a reef 0.5 mile long. Its N end is a rock 10 feet high and its S end uncovers 5 feet. For 9 miles NE from Cape St. Elias, rocks awash and breakers extend 0.8 mile off the E coast of the island.

(141) **Sea Ranger Reef** is off the W coast of Kayak Island 3.3 miles N 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.

(142) The tidal currents on the W side of Kayak Island set N on the flood and S on the ebb, with an estimated velocity of 0.6 knot.

Anchorage

(143) Good protection from all winds except from the W can be found on the W 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 which is used by fishing vessels during the halibut season. Indifferent anchorage can be had on the E 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.

(144) **Controller Bay** is formed by Okalee Spit and Kayak Island on the S and Wingham and Kanak Islands on the W. For some distance back from the E 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 S of Wingham Island and Okalee Channel just N of Wingham Island.

(145) **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 SE tip of Wingham Island is 1 fathom; above that and into the S portion of Controller Bay the depth is not more than 3 feet. Two rocks awash are about 0.3 mile N of the S 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.

Anchorage

(146) Anchorage can be made in 2 to 3 fathoms, bottom soft in places, in Kayak Entrance as far N as abeam of the SE 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 N end of Kayak Island.

(147) Small vessels can anchor in the narrow channel close to the E side of the N end of Wingham Island. This

channel is about 300 yards wide and has depths of 7 to 11 fathom for 1 mile S, then shoals gradually S. The flats on the E 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.

(148) With heavy E winds, anchorage and shelter can be found in 16 to 18 fathoms 0.5 mile off the W side of Wingham Island.

(149) **Wingham Island,** 4 miles long and wooded, has three hills. The highest hill, near its N end, rises to 833 feet. The W shore of the island is precipitous.

(150) **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 S tip of Kanak Island. Further NE, 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.

(151) The shoal on the S side of Okalee Channel, 1.5 miles NE 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 S 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.

(152) Vessels sometimes anchor in Okalee Channel about 2 miles above the N 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.

(153) **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 W side of the island. The S edge of the shoal is within 1.2 miles of the N end of Wingham Island.

(154) The passage between Kanak Island and Strawberry Point is used only by small boats at high water with local knowledge.

Tides and currents

(155) The diurnal range of tide is 10.1 feet at the N end of Wingham Island. The velocity of the current is 1.5 knots on the flood and 1.2 knots on the ebb off the N end of Wingham Island, and 1.7 knots on the flood and 2.0 knots on the ebb in the channel SE 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 S of Wingham Island and SE of Kanak Island.

Weather, Kanak Island and vicinity

(156) During the summer the prevailing winds are from the E around through S to SW. During the early spring and fall, NW 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.

(157) **Point Hey** is a projecting and prominent point, high and narrow, on the NW side of Controller Bay 1 mile N of Kanak Island. **Chilkat,** an abandoned village, is on the W side of the mouth of **Bering River,** which flows into the NE end of Controller Bay.

(158) **Katalla Bay,** 23 miles N from Cape St. Elias, is between Strawberry Point on the E and Martin Islands on the W, 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 SE through SW.

(159) **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 N. A shoal with little water over it, and on which the sea generally breaks at low water, extends nearly 1.2 miles S from the point.

(160) The NE shore of the bay from Strawberry Point to the mouth of Katalla River is a steep sand beach. The NW shore from Katalla to Martin Islands is foul and should be given a berth of about 0.8 mile.

(161) **Palm Point** is 1.5 miles SW of Katalla. A boulder reef, bare at low water, extends 0.4 mile S from it.

(162) **Martin Islands**, two in number and about 150 feet high, have steep rocky sides, and are 0.5 miles from shore. The N island is joined to the shore by a flat, bare at extreme low water.

(163) **Martin Islands Light** (60°09'52"N., 144°36'22"W.), 150 feet (45.7 m) above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on the SW point of Fox Island, the outer island of the Martin group. A 1½-fathom reef extends about 0.8 mile SW of the light.

(164) **Katalla** is an abandoned village at the head of the bay, on the W 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 NE side of Palm Point. The beach always has some surf, and with SE or SW winds, landing is impracticable. Shoals extend on both sides of the river mouth.

(165) The anchorage in the bay is 1.5 to 2 miles S of Katalla, in 5¼ to 7 fathoms, hard sand bottom. The holding ground is generally good, but quicksand S 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 S from Strawberry Point.

Chart 16013

(166) **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 which 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.

(167) 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, 4 to 5 miles offshore. These islets are marked by four seasonal lights, shown 12 feet above the water from steel skeleton towers with red and white diamond-shaped daymarks. The daymarks, moving E to W, are labeled "S", "K", "G", and "P" in black. These lights are frequently destroyed in severe weather conditions. Between 1-2 miles offshore of these lights are corresponding red and white buoys with black letters "S", "K", "G" and "P". They do not mark the navigable channels between the islets and should only be used for position reference. Back of the islets are tidal flats of mud and sand, intersected by sloughs which drain into the Copper River passes and into Glacier and Eyak Rivers.

(168) 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.

(169) **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.

Chart 16709

(170) **Eyak River**, 6 miles ENE 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 W from the mouth of Eyak River.

(171) **Egg Islands**, about 5 miles SE of mainland Point Whitshed and 10 miles E of Hinchinbrook Island, are low and partly grass covered. **Egg Island Channel,** just E of the islands, leads NE between sand and mudflats to Alaganik Slough. The seaward approach to the channel is marked by a lighted whistle buoy.

(172) **Egg Island Light E** (60°22'00"N., 145°45'14"W.), 33 feet (10.1 m) above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark, on the SE island of the group.

(173) The current in the channel is strong. E of Egg Islands, flood and ebb velocities of 3 to 3.5 knots, respectively, setting in the direction of the channel, have been observed. N of the islands a current of 1.5 knots, flooding NW and ebbing SE, was found. SE of Point Whitshed a W flood of 1.5 knots was observed.

(174) Navigation with local knowledge in this area is limited to small craft. Anchorage can be found in the wider parts of the sloughs N of the Egg Islands. There is no protection from prevailing winds but seas are broken up by the surrounding flats.

(175) **Point Whitshed** is at the S extremity of the **Heney Range,** the steep E side of which flanks the alluvial coastal region of the Cooper River. The waterfall, 1 mile E 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 W from Heney Range is rolling hills. **Government Rock,** at Point Whitshed, is 30 feet high and rounded in outline.

(176) The irregular slough, marked by stakes and black oil drum buoys and trending E and W 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.

(177) An abandoned radio tower is near **Gravel Point** on the mainland about 1 mile E from Mummy Island.

(178) **Mummy Island** is about 425 feet high and wooded. **Mummy Island Light** (60°27'54"N., 145°59'27"W.), 21 feet (6.4 m) above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on the islets E of Mummy Island, where there is an approach through a slough. The islet 0.2 mile SW of

Mummy Island has two steep ends, 75 feet high, with a low, flat strip between.

(179) **Little Mummy Island,** 0.7 mile NW of Mummy Island, is rounded in outline and profile.

(180) About 0.8 mile S of Mummy Island is **Pinnacle Rock,** on the edge of a slough extending from Point Bentinck to Mummy Island.

(181) Orca Inlet NE 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. In June 1983, 1¼ fathoms could be carried in the channel from Mummy Island to Cordova. 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.

(182) **Point Bentinck** (60°23.5'N., 146°05.0'W.), at the E 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 SW from **Strawberry Hill** at the S shore of Boswell Bay. The 798-foot knoll with a parabolic antenna N of Boswell Bay is prominent, **Point Bentinck Light** (60°23'33"N., 146°05'27"W.), 47 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on the point.

(183) 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 SE direction, and about 4 miles from the point the shoal drops off into deeper water.

(184) A lighted whistle buoy about 4.5 miles SSE of Point Bentinck marks the seaward approach to a channel that leads between the flats 1 mile E 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.

(185) 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 NE and S, respectively. S of the flats which extend W from Egg Islands, a NW flood of 0.5 knot and a SE ebb of 1 knot were observed.

(186) A ½-fathom spot is about 1.2 miles NNE 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.

(187) **Boswell Bay**, indenting the E end of Hinchinbrook Island, affords anchorage for small craft just inside the entrance. Massive **Boswell Rock** is 100 yards off the N point. Immediately adjacent to the point itself is an undercut rock. A very small rock is 100 yards outside of Boswell Rock.

(188) To enter bring the 65-foot rock, brown in color and near the S 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 S a little and anchor when the NE 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.

(189) **Hinchinbrook Island**, SE coast.–A mountain ridge parallels the SE 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.

(190) 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 NW side of Hook Point and 0.5 mile N of Point Steele. Reefs extend 0.4 mile from the promontory.

(191) NE 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 W side of Hook Point.

(192) Hinchinbrook Entrance is described later.

Chart 16700

(193) **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.

(194) 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 NW from the St. Elias Range and enclose the sound round through N and W. On the N shore glaciers come down to the heads of the bays.

(195) **Prince William Sound Shipping Safety Fairway**, extending SE from Hinchinbrook Entrance at the approaches to Prince William Sound, has separate inbound and outbound traffic lanes that merge in the NW part. (See **166.100 through 166.110 and 166.400**, chapter 2, for limits and regulations.)

(196) There are three **Safety Zones** in Prince William Sound: Valdez Marine Terminal, Ammunition Island, and a Moving Safety Zone around explosive-carrying

vessels. (See **§165.1701, §165.1703, and §165.23,** chapter 2, for limits and regulations.)

(197) **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 charts 531, 16013, 16700, 16709, and 16708. See also, Traffic Separation Schemes (Traffic Lanes), indexed as such, chapter 1, for additional information.) (See **§167.1701, §167.1702, and §167.1703**, chapter 2, for limits and regulations.)

(198) 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 E or W of Seal Rocks, at the vessel master's discretion.

Dangers

(199) The off-lying dangers in the approaches to Prince William Sound are Middleton Island, Fountain Rock, Wessels Reef, and Seal Rocks.

(200) The Hinchinbrook Entrance Safety Fairway has been established to provide an unobstructed approach for vessels from the SE 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.

(201) **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.**

(202) 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.

(203) 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 SE 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.

(204) 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.

(205) 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 **§165.1704**, chapter 2, for more information.)

(206) 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 W side of Valdez Narrows, and the other is on Valdez Spit, which borders the S and E sides of the small-boat basin at Valdez. A continuous radar watch of these areas is maintained by the Vessel Traffic Center.

(207) 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.

(208) The Vessel Traffic Service is shown on the appropriate nautical charts of the area.

(209) The rules governing vessels operating in the Vessel Traffic Service area are given in **§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, Alaska 99686.

(210) 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. ERV's are equipped to tow or assist tankers with power or maneuvering problems, to contain, recover and store oil, and carry spill response equipment.

(211) 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).

Spill Response Resources

(212) Tank vessels carrying oil in bulk are required to have an approved vessel response plan and spill response resources (owned or contracted) to enter US 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 COTP in Valdez for further information.

(213) **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 W side about 1.3 miles from the S end of the island.

(214) From a few miles offshore the island appears flat. The highest ground, on the S, has an elevation of 126 feet. A pinnacle rock at the extreme S end is conspicuous from E and W. The N end slopes to a sandspit.

(215) The E and S 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 W side, extends for 1 mile from the S end. There is also a short section of cliff midway along the W shore.

(216) A sandbar, awash at low water, extends 1.3 miles NW from the N tip of the island. The channel between the extreme end of the bar and the main island, 0.5 mile NW of the tip of the island, carries a depth of 3 fathoms, but strong rips occur and it is dangerous to use.

(217) 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 S of the island, terminating in breakers except in very smooth weather. Seaward of these breakers, the bottom falls off rapidly into deepwater, except that in 1967, a depth of 5¼ fathoms was found to exist about 0.3 mile S of the foul ground in 59°22.3'N., 146°23.1'W. Broken ground extends 3 miles to the E, terminating in breakers which first begin to appear when a moderate swell is running. This side of the island should be given a wide berth.

(218) The waters W 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 S of the N tip and 2 miles W of the island in about 12 fathoms. Small vessels can anchor further E, 1 mile W of the island, in about 7 to 8 fathoms. This area gives protection from the NE and SE. Tidal currents, of about 2 knots, run approximately parallel to the island.

(219) There are two good landing places, depending on the prevailing seas; one is on the NE side of the island 0.3 mile from the N tip; the other is on the W side of the island, directly W of a quonset hut, 0.7 mile S of the N 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.

(220) At the N and S ends of the island the current is irregular and sets in a NE-SW direction. Tide rips are visible several miles to the S of the island, and to the N 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.**

(221) **Fountain Rock**, 4 miles N 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 N tip of Middleton Island in 14 fathoms, but should be done so with caution.

(222) **Wessels Reef**, bare at low water and 2 miles long, NNE-SSW, is about 19 miles N 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 E side of the reef.

(223) **Seal Rocks** are discussed later with Hinchinbrook Entrance.

Routes

(224) Vessels bound for ports on Prince William Sound from E use Hinchinbrook Entrance, between Montague and Hinchinbrook Islands. Vessels approaching from SW use Elrington Passage, it being the best marked. Montague Strait, the widest and deepest of the W entrances to Prince William Sound, Latouche Passage, Prince of Wales Passage, and Bainbridge Passage are also available to vessels approaching from the SW.

Tides and currents

(225) In Prince William Sound high and low water occur about the same time as at Cordova. The diurnal range of tide is 12.5 feet at Cordova and 11.2 feet at Port Etches at the entrance to the sound. (See the Tide Tables for daily predictions for Cordova.) It is reported that the currents along the approach to Prince William Sound set SW invariably, and occasionally with a velocity of 2.5 knots; accordingly, extreme caution is required in approaching Hinchinbrook Entrance in thick weather.

Weather, Prince William Sound

(226) 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

Ice

(227) Glacial ice is rarely found in the open waters of Prince William Sound. Ice is discharged by the Columbia Glacier, N of Glacier Island, and is driven into the sound by N winds; it may be expected, depending on the winds, from Bligh Island to Bald Head Chris Island and as far S as Storey Island. Large bergs may be found at anytime along the N shore from Point Freemantle to Fairmount Island.

(228) There are numerous discharging glaciers in Port Wells, the NW 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 SW side of the sound, and occasionally drifts E as far as Point Helen and the N entrance to Latouche Passage.

(229) During very cold weather ice sometimes forms in the arms of the sound which reach well into the mountains, and is at times heavy enough to impede navigation.

(230) **Montague Island**, on the W 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 N one of the range, can be distinguished from the S. A striking characteristic of the E part of the N 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.

(231) A constant SW current is reported along the E coast of Montague Island. (See remarks on currents in chapter 3.)

(232) Two logging camps are on the N side of Montague Island. Brown bears are numerous on the island, and visitors should exercise extreme caution.

(233) **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.**

Chart 16701

S and E coast of Montague Island

(234) **Cape Cleare**, the SW 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 SW extremity of the cape. Three pinnacle rocks, with least depths of 2.4 fathoms, 2.9 fathoms and 3.8 fathoms are S of the cape and located at:

(235) 59°44'40"N., 147°51'33"W.,

(236) 59°44'22"N., 147°51'38"W., and

(237) 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.

(238) Exposed anchorage can be had in the bight about 5 miles NE 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.**

(239) **Neck Point**, the first prominent point NE 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 SW of Cape Cleare the peak has the appearance of a detached conical island.

(240) **Jeanie Cove**, a bight 10 miles NE from Cape Cleare, is exposed to the S and affords no protected anchorage. There are numerous reefs and rocky patches in this vicinity that should be avoided.

(241) Rocks awash are 0.8 mile NE of the W entrance point, and a reef, which uncovers, is 0.8 mile SW of

Jeanie Point, the E entrance point. A depth of 7 fathoms is about 1.4 miles 212° from Jeanie Point.

(242) **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.

(243) **Wooded Islands**, on the SE side of Patton Bay, are 16 miles NE 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 W end. **Tanker Island,** the middle islet about 0.4 mile E 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 W summit. The area between the islands is foul, and the small passage SW 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 SW of the islands should not be used by small boats.

(244) 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.

(245) **Patton Bay**, 17 miles NE of Cape Cleare, is about 4.5 miles square with Box Point on the NE side and Wooded Islands on the SE side. The deepwater entrance, about 3.5 miles wide, is between the rocky foul ground extending E from Box Point and the irregular rocky ground extending ENE from the Wooded Islands.

(246) Inside the bay, foul areas extend 0.3 mile S and 1.1 miles W of the S tip of Box Point. The E 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 NW of the largest of the Wooded Islands: 0.7 mile NNW, 0.3 mile NE, and 0.8 mile SSE. **Nellie Martin River,** on the S side of the bay, is blocked by a bar across its mouth.

(247) There is good anchorage, except during NE to S weather, for small boats in the bights at the NE, W, and SW parts of the bay in 2½ to 10 fathoms, sand bottom, and for larger vessels in 15 fathoms or more, sand and mud bottom.

(248) **Box Point**, 20 miles NE 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 E with a 4¼-fathom depth in 59°57'08"N., 147°18'10"W.

(249) **Purple Bluff**, 5 miles N 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.

(250) 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 S of Purple Bluff, a spit extends 0.5 mile offshore, terminating in a group of rocks awash.

(251) The W and N coasts of Montague Island are described later.

Chart 16709

(252) **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 SW 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.

(253) The S 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.

(254) **Seal Rocks**, off the entrance, are 6 to 7 miles SW 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 NE and 0.4 mile SW from them. The entire reef within the 10-fathom curve forms an obstruction nearly 2.9 miles long. A lighted whistle buoy marks the E end of this obstruction.

Currents

(255) The tidal currents in the entrance set directly in or out of the sound, except E of Seal Rocks where the currents usually run E to W regardless of the tide. There is a strong set in the direction of Seal Rocks when the wind is blowing from the E 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 E of Zaikof Point, which have been mistaken for breakers. There are also tide rips on the broken ground around Cape Hinchinbrook. The flood entering W of Montague Island sets NE past Montague Point and causes rips between it and Johnstone Point.

(256) Outside the entrance along the SE coast of Hinchinbrook Island the current sets SW almost constantly. (See remarks on current in chapter 3.) Current observations in Elrington Passage indicate a velocity of 1.5 knots.

(257) With a strong S 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.

(258) **Cape Hinchinbrook** is on the E side of Hinchinbrook Entrance, the principal entrance to Prince William Sound from the E.

(259) A few rocky islets are close to the SE and SW sides of the cape, and submerged reefs on which the sea breaks in a moderate swell, are 0.4 mile SE and S from the cape. The cape should be given a berth of at least 1 mile.

(260) **Cape Hinchinbrook Light** (60°14'15"N., 146°38'48"W.), 235 feet (71.7 m) above the water, is shown from a white square tower on the corner of a building on the SW point of the cape.

(261) **Zaikof Point**, on the W side of Hinchinbrook Entrance, is one of three prominent points on the NE end of Montague Island. **Schooner Rock,** marked by a light, is a pinnacle 75 feet high about 0.3 mile off Zaikof Point.

(262) Between the three prominent points are Zaikof and Rocky Bays. Low depressions run through from the heads of these bays to the W side of Montague Island.

(263) **Zaikof Bay** is clear, but exposed to NE winds. A 6¾-fathom shoal area is in the middle of the entrance to the bay, 1.4 miles NW 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 SE 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 SE gales.

(264) A small vessel can anchor in the cove on the SE side 1.6 miles from the head, with shelter from NE winds. Anchor close to the S 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 SE or S 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.

(265) Foul ground marked by kelp extends 0.6 mile N to 1.0 mile WNW off **Middle Point,** which separates Zaikof and Rocky Bays.

(266) **Rocky Bay** is deep, and exposed to N and E winds. A small vessel can anchor in good weather about 0.5 mile from the head and 0.2 mile from the NW 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 SW of the reef.

(267) A reef that uncovers extends about 0.6 mile E from Montague Point which forms the W side of Rocky Bay. The S 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.

(268) **Port Etches**, an inlet in the SW end of Hinchinbrook Island, has secure anchorage, the best in Hinchinbrook Entrance, and is easy of access. The strongest gales are from the NE 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.

(269) 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 S weather.

(270) **Garden Cove**, on the SE 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 NE of it. **Point Horn,** the SW point of the cove, is the most prominent of the projecting points on the SE shore of Port Etches.

(271) Anchor with Point Horn in line with the southernmost of the Porpoise Rocks, and about 250 yards SE 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 E gales.

(272) **English Bay**, on the S 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 N and W winds. E 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 N of the SW entrance point, in about 60°17.5'N., 146°40.9'W.

(273) The two bights on the SE shore of Port Etches, 1.2 and 3.5 miles NE of English Bay, are rocky and should be avoided.

(274) **Porpoise Rocks**, on the NW side of the entrance to Port Etches, are three principal rocks about 48 feet

high, with numerous small rocks among and E of them. The westernmost and largest is flat on top and grass covered, and has a rock covered at high water 200 yards W from it. Deep water is close to the rocks except on their NE 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 SW of Point Barber.

(275) **Nuchek** is an abandoned Indian village at **Point Barber**, the SE end of the shingle spit at the SW end of **Constantine Harbor**. A hunting lodge is conspicuous.

(276) In good weather vessels have anchored off the shingle spit NW 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.

(277) **Constantine Harbor**, the lagoon on the NW 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.

(278) On the NE side of the entrance are three small rocky wooded islets with overhanging sides. Among them are rocks awash, and 60 yards SSE from the W islet is a submerged rock, all marked by kelp at slack water. The channel is close to the W islet, between the foul ground at the islets and a shoal of 9 to 10 feet extending 0.3 mile E from Phipps Point.

(279) Temporary anchorage in 10 to 12 fathoms, sticky bottom, can be had about 0.6 mile SE of the rocky islets in the entrance of Constantine Harbor; there is considerable swell in heavy weather.

(280) The diurnal range of tide in Port Etches is 11.2 feet.

(281) **Bear Cape**, steep and high, is the SW end of the NW mountain ridge of Hinchinbrook Island. **Deer Cove,** 3 miles N of Bear Cape, has anchorage a little S of the middle of the entrance in 3 to 6 fathoms, with shelter from E and SE winds. A light is on the point at the S side of the entrance to the cove.

(282) **Shelter Bay**, 5.5 miles NNE 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.

(283) A vessel has anchored in 10 fathoms, about 0.3 mile NW of **The Seven Sisters,** a group of rocks 2 miles N of Shelter Bay, and found the williwaws less strong with SE winds than at the anchorage in the cove 3 miles N of Bear Cape.

(284) Temporary anchorage, with shelter from offshore winds, can be had SW of the sharp point, with two rocks about 30 feet high close-to, 0.4 mile SW of Johnstone Point. The anchorage is about 0.5 mile off the sand beach, in 10 fathoms, sandy bottom.

(285) **Johnstone Point**, the NW 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 (17.4 m) above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on a pillar rock off the point.

(286) Twin 100-foot communication towers, about 12 feet apart, and several buildings are about 1 mile E of Johnstone Point.

(287) E of Johnstone Point the shore is low, and broken by two shallow bays or lagoons. The E bay has secure anchorage for small craft. The entrance, 4 miles E of Johnstone Point, is W of a large island, and leads between two rocks. The one on the W 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 E side is bare at extreme low water. When inside the rocks, head for the cove in the SW 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 S shore of the bay.

(288) **Middle Ground Shoal**, between Hinchinbrook and Hawkins Islands, extends for 3 miles into Orca Bay. A lighted bell buoy marks the NW 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 NW corner of the shoal SE into Hawkins Island Cutoff. Anchorage can be selected off the shore, SW of Middle Ground Shoal, in 12 to 20 fathoms, soft bottom, with shelter from S and E winds.

(289) **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 E end are extensive flats which bare and are largely covered at high water. Strong tidal currents are in its narrower parts.

(290) **Orca Bay** is the E arm of Prince William Sound, N of Hinchinbrook and Hawkins Islands. From its entrance between Johnstone Point on the S and Knowles Head of the N, Orca Bay extends about 30 miles in a general E direction. The city of Cordova is on Orca Inlet at the head of the bay. The S side of the bay is clear with

the exception of Middle Ground Shoal. The N side is indented by large bays of no commercial importance.

Anchorage

(291) An anchorage area with fair to good holding ground and sand and mud bottom is on the N side of Orca Bay and extends about 2.2 miles S of Knowles Head. (See **110.1 and 110.233,** chapter 2, for limits and regulations.) Williwaws may cause vessels anchored in the E part of the anchorage to drag; caution is advised.

(292) **Knowles Head**, the SW end of the mountainous peninsula between Port Gravina and Port Fidalgo, is a steep massive headland, with a prominent yellowish landslide down its S 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 SW of it, is about 3 miles W of Knowles Head.

(293) **Red Head**, 4 miles ESE of Knowles Head, is a high hill with a long, low, wooded neck behind it. It is the W entrance point to Port Gravina and marked by a light.

(294) **Gravina Point**, on the N side of Orca Bay, is low and wooded, and at its S end is a bare spit. **Gravina Point Light 3** (60°37'22"N., 146°15'13"W.), 27 feet (8.2 m) above the water, is shown from a skeleton tower with a green square daymark on the point.

(295) **Gravina Island**, low and wooded, is 1.5 miles NW of the point and 0.6 mile offshore. Anchorage in about 10 fathoms, with shelter from NE winds, can be had about 0.5 mile offshore between the island and Gravina Point.

(296) **Sheep Bay** has its entrance between Gravina and Sheep Points, and extends N 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 E shore for 2 miles N of Sheep Point. A rock covered 2 fathoms in 60°38'29"N., 146°01'10"W., is about 0.6 mile W of the E shore of the bay. Indifferent anchorage in 18 to 20 fathoms can be selected in the middle about 3 miles NNW of Sheep Point and 0.4 mile S of the NW 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.

(297) **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 W of the point with bare rocks between; foul ground extends 0.3 mile S and W from the islet.

(298) **Hanks Island**, small and wooded, is 0.8 mile ESE 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 feet, extends 0.8 mile SSW from Hanks Island, and is marked at its S end by a light.

(299) **Simpson Bay** is just E of Sheep Bay. **Bomb Point** is the E entrance point to Simpson Bay. The shores of the bay are fringed with numerous rocks and islets. In navigating the N arm, avoid the rock awash at extreme low water 400 yards SW of the E entrance point of the inner part of the N arm. Anchorage can be had at the head of the arm in about 15 fathoms.

(300) The E 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 E 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.

(301) **Hawkins Island**, about 20 miles long and mountainous, is divided by **Canoe Passage** about 8 miles from its SW end; the passage is no longer navigable. The NW shore W of Canoe Passage is low tundra with patches of trees. NE of Canoe Passage the high land is nearer the NW shore of the island; there are bluffs in places, and it is more densely wooded.

(302) Anchorage can be selected in places along the NW shore of Hawkins Island with shelter from E and S winds. The best anchorage in 9 to 12 fathoms, soft bottom, is 0.2 to 0.4 mile off the spit at the S end of Cedar Bay. A round, wooded islet is at the N end of this spit, and a larger wooded one is 0.5 mile NE. Small craft, entering at high water and passing N of the awash and covered rocks inside, can anchor E of the spit, where there is a limited area with a depth of 7 feet.

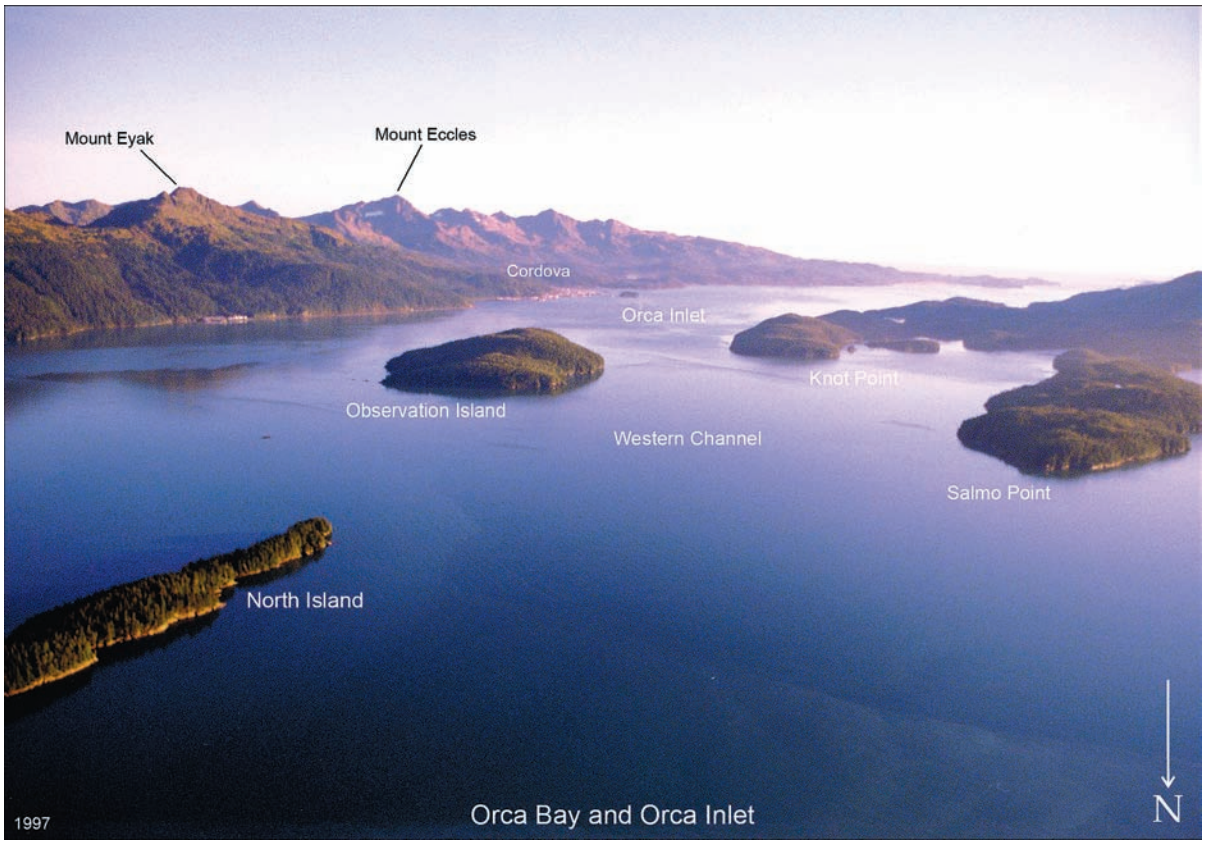
(303) **Windy Bay** is a small inlet on the NW coast of Hawkins Island about 5 miles NE from Canoe Passage.

Charts 16709, 16710

(304) **Channel Islands**, wooded and nearly 1 mile long, are at the E end of Orca Bay, 1 mile W of Salmo Point on the NE end of Hawkins Island, and 4.5 miles N of Cordova. The channel at the islands, 0.5 mile wide, is called **The Narrows.** A rock with 3 feet over it, 0.3 mile SW of the SW end of Channel Islands, is marked by a light. The light and a light opposite it on Hawkins Island mark the SW entrance to The Narrows.

(305) **Orca Inlet** extends SW from the head of Orca Bay to Mummy Island. From North Island to Spike Island, about 4.5 miles to the S, the W side of the inlet is shoal, and S of Spike Island the inlet is largely blocked by flats. N of North Island it has depths of 25 to 30 fathoms, and a flat extends 1 mile from the head of **Nelson Bay** at its N end.

(306) **Salmo Point**, marked by a light, the N extremity of Hawkins Island, is just E of Channel Islands. **Deep Bay,** 1.5 miles long and 0.5 mile wide, is between Salmo



Point and **Knot Point,** the N end of Hawkins Island. A large shoal covered 7 to 17 feet is across the entrance of the bay and extends 1 mile inside; however, there are depths of 19 to 33 feet farther inside. Anchorage is possible for vessels able to cross the shoal.

(307) **Observation Island**, 0.8 mile long, high and wooded, is 0.4 mile NE of Knot Point.

(308) **North Island**, 0.4 mile long, low and wooded, is 1 mile NE of Salmo Point.

(309) **Shepard Point** is a sandspit 1.5 miles ENE of North Island and 6 miles N of Cordova. Ruins of a cannery, wharf, and marine railway are on the point.

(310) The ruins of a cannery and wharf are on the SE shore of **Nelson Bay,** about 1.5 miles NE of Shepard Point.

(311) **Orca** is 2.5 miles NE of Cordova on the E shore of Orca Inlet. Chugach Alaska Fisheries has a cannery and a 200-foot-long wharf with depths of 12 to 22 feet alongside its face, 11 feet off the NE end, and 5 to 8 feet off the SW end. A submerged obstruction covered about 10 feet is about 50 feet N of the SW corner of the face of the wharf. Large vessels make portside-to landings; the dock heading is 224°. Docking on the flood is difficult as the current tends to set off the wharf. In 1990, a fire destroyed a portion of the pier and cannery leaving the end of the wharf detached from shore. A small pier N of the wharf has reported depths of 7 feet at MLLW at the end. To the S of the wharf is the ruins of a marine railway.

(312) **Cordova** is on the E shore of Orca Inlet opposite **Spike Island,** which is wooded and marked by a light at its N 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.

Prominent features

(313) **Mt. Eyak**, 2,498 feet, and **Mt. Eccles,** 2,680 feet, dominate the approach, with the town nesting at the foot of Mt. Eyak.

Traffic Separation Scheme

(314) Prince William Sound Traffic Separation Scheme was discussed earlier in this chapter under Prince William Sound.

Routes to Cordova (see also chart 16709)

(315) **From the S via the Prince William Sound Traffic Separation Scheme** (discussed earlier in this chapter under Prince William Sound). Depart the scheme about

14 miles N 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 E part of Orca Bay, proceeding through The Narrows, S of Channel Islands, then N of North Island Rock Light, thence via marked Orca Inlet to Cordova.

(316) **From the W via Elrington Passage**. Pass 1 mile E of Point Helen Light, thence N to 1.5 miles W and 1.5 miles N of Seal Island, thence E 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 S 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.)

(317) Fishing vessels sometime approach Cordova through **Western Channel** and **Odiak Channel**, on the W and S sides, respectively, of Observation Island. Both channels are buoyed, but local knowledge is helpful. This area of Orca Inlet is subject to shifting shoals. Fishing boats also approach Cordova through Orca Inlet from the S. This route requires local knowledge and was discussed earlier in this chapter.

Channels

(318) The deepest channel, and the one used by larger vessels, leads N of North Island and then follows the E shore S to Orca and Cordova. The channel, marked by lights and a daybeacon, has a controlling depth of about 20 feet on the W side, but deeper water in midchannel can be carried to Orca and Cordova.

Anchorages

(319) Good anchorage can be had in the channel NE of Spike Island in 45 to 55 feet, 0.1 mile NW of Spike Island in 40 feet, and 0.5 mile NW of Spike Island in 26 to 30 feet, sand bottom. A cable area lies just W of this anchorage.

Caution

(320) The area extending from **North Island Rock,** marked by a light and 1.6 miles N of Observation Island, to over 2 miles S of the island has several visible rocks and shoals with little water over them. The E limit of the shoal area is marked by lights and a daybeacon.

(321) A log booming area is on the N side of Channel Islands.

(322) A submerged wreck, covered 16 feet (4.9 m), is about 90 yards W of Spike Island in about 60°32'58"N., 145°46'29"W.

Tides

(323) The diurnal range of tide at Cordova and Orca is 12.5 and 12.4 feet respectively. (See the Tide Tables for daily predictions.)

Currents

(324) The flood current enters the NE end of Orca Inlet and sets SW 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 E shore of Spike Island sometimes attaining 2 knots.

(325) Off Cordova the velocity is 1.8 knots on the flood and 1 knot on the ebb. (See the Tidal Current Tables for daily predictions.)

(326) In the channel W of Big and Gravel Points, 6 miles SW of Cordova (see chart 16709), velocities up to 2 knots have been observed setting along the channel. A NE current can be expected at low water and a SW current at high water.

Weather, Cordova and vicinity

(327) 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).

(328) 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 greater 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.

(329) 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. (See page 515 for Cordova climatological table.) In 2002, it was reported that williwaw winds can plunge down the side of the mountain just E of the Cordova City Dock.

Pilotage, Cordova

(330) 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. (See **Pilotage, General** (indexed), chapter 3, for the pilot pickup station and other details.)

(331) 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.

Quarantine, customs, immigration, and agricultural quarantine

(332) (See chapter 3, Vessel Arrival Inspections, and Appendix A for addresses.)

(333) **Quarantine** is enforced in accordance with regulations of the U.S. Public Health Service. (See Public Health Service, chapter 1.)

Coast Guard

(334) A U.S. Coast Guard vessel is stationed at Cordova. A SAR aircraft is stationed at the airport during the summer months.

Harbor Regulations

(335) The **harbormaster** administers the municipal wharves and the small-boat harbor, and maintains an office at the W end of the small-boat basin.

Wharves

(336) The waterfront facilities at Cordova consist of three wharfs for large vessels, a small-boat harbor with boat ramp and tidal grid, and a few piers for fishing boats.

(337) **Municipal Wharf** (Ocean Dock): L-shaped pier 0.8 mile N of town; 408-foot (124 m) outer face with about 25 feet (7.6 m) alongside; deck height, 30 feet (9.1 m);

140-ton mobile crane; receipt and shipment of containerized general cargo; receipt of petroleum products; and handling supplies for fishing vessels; owned by the City of Cordova. Alaska State Ferry Terminal is at the SW end of the pier.

(338) **Cannery Row Wharf**, just S of Municipal Wharf, is a cannery with docking facilities for receipt of seafood; handling supplies for fishing vessels; and icing fishing vessels; deck height, 30 feet (9.1 m); 10 feet (3.1 m) alongside; owned and operated by Cannery Row, Inc.

(339) **North Fill Wharf** (T-dock): T-shaped pier just S of Cannery Row Wharf and adjacent to 17 acres of storage area atop fill; 213-foot (65 m) outer face with 20 feet (6.1 m) alongside; deck height, 30 feet (9.1 m); mooring U.S. Coast Guard vessels.

(340) **Old City Wharf:** T-shaped pier across from Spike Island; 300-foot (91 m) face; 23 feet (7 m) alongside; deck height, 25 feet (7.6 m); handling supplies for fishing vessels; owned and operated by the city of Cordova.

(341) Ocean Beauty Seafoods and North Pacific Processors are just N of Old City Wharf. Both have unloading facilities for fishing boats with depths of 10 feet (3.1 m) alongside.

(342) **Cordova Small-Boat Harbor**, SE and inshore of Municipal Dock, is protected by two breakwaters, the S of which is lighted. 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 May 2006, the controlling depth in the entrance and access channel was 12.1 feet. The controlling depth in the berthing area was 8.5 feet. Water, electricity, gasoline, and diesel fuel are available in the basin. The basin is owned and operated by the city.

Supplies

(343) Gasoline, diesel fuel, and water are available at Municipal Wharf; gasoline, diesel fuel, and water, and telephone are available at the small-boat harbor. Most provisions can be obtained in town.

Repairs

(344) 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 S of town.

Ferries

(345) The Alaska State Ferry provides daily stops with connections to Valdez and Whittier only in the summer, May through September. No service is provided in the winter. See the Internet at: **http://www.akms.com/ferry**

Communications

(346) 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.

(347) AT&T Alascom maintains a public coastal radio station at Cordova and on nearby Johnstone Point, Hinchinbrook Island.

Charts 16708, 16707

(348) **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.

(349) **Gravina Rocks** are about 0.7 mile offshore N of the SE entrance point.

(350) **Comfort Cove** is a small inlet on the SE shore about 6 miles from Gravina Rocks. The entrance is narrow and the cove is suitable for small craft only.

(351) **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 N side of the island. Depths of 10 to 30 fathoms, mud bottom, will be found in the upper basin.

(352) The upper end of Port Gravina is deep, and terminates in mudflats which extend for about 1.3 miles to the head of the bay.

(353) **Parshas Bay** is a small bay on the N 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 WSW from the W entrance point to Parshas Bay.

(354) **Olsen Bay**, 1.5 miles W from Parshas Bay, shoals gradually from 20 fathoms at the entrance to mudflats at the head. In entering, the W shore should be followed at a distance of 0.5 mile or less to avoid the foul ground extending SW from the W entrance point of Parshas Bay.

(355) **St. Matthews Bay** indents the N shore of Port Gravina 5.5 miles NE from Red Head. The only known dangers are a reef extending 0.4 mile W off the E entrance point and a rock awash 0.1 mile S of the prominent point on the W 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.

(356) 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.

(357) **Port Fidalgo**, an E arm of Prince William Sound, has its entrance between Goose and Bligh Islands and extends E about 22 miles. There are abandoned mines on the shores of Boulder and Landlocked Bays and on the S shore of Port Fidalgo, between Irish Cove and Whalen Bay.

(358) 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 SE arm at the head of the bay by keeping over 0.4 mile offshore.

(359) **Goose Island**, on the S 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.

(360) **Goose Island Light** (60°42'47"N., 146°43'38"W.), 38 feet (11.6 m) above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on the SW side of the island, and marks the entrance to Port Fidalgo.

(361) **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 N of the point. A ledge with a depth of 3 fathoms extends 600 yards N from Porcupine Point.

(362) **Snug Corner Cove**, on the NE side of Porcupine Point, has good anchorage except with NW 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 NE side of Porcupine Point. A low divide is at the head of the cove and another is across Porcupine Point.

(363) To enter Snug Corner Cove, avoid the rock off Porcupine Point and follow the SW shore at a distance of about 0.3 mile. Anchor about 0.3 mile off the bight in the SW shore in 10 to 11 fathoms, soft bottom. Small vessels can find better shelter from N winds in the basin at the head of the cove, in a depth of 5 fathoms. Favor the SW shore slightly when entering and anchoring. The shore of the basin should be given a berth of over 0.2 mile.

(364) **Two Moon Bay** indents the SE 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 SE arm is a basin trending SW where small vessels can anchor in 4 to 7 fathoms. The channel is between the W point and a reef bare at low water near the middle of the entrance. A 4-fathom rocky ledge extends about 0.5 mile NNE of the eastern entrance point of the basin and should be avoided by medium to large vessels.

(365) **Irish Cove**, on the S 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 E side of the narrows and then keep in midchannel.

(366) 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.

(367) A group of islands is near the head of Port Fidalgo. A single islet is about 900 yards SW of this group, the passage to the bight to the N 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 N wind, is located on a 9-fathom mud shelf along the NW shore, about 0.8 mile N of the midchannel entrance to the bight.

(368) The entrance to the E arm at the head of Port Fidalgo is 2 miles ESE of the group of islands. A dangerous foul area is 300 yards W of the NE entrance point in about 60º50'58"N., 146º09'01"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.

(369) A well-sheltered anchorage is in midchannel 0.6 mile W from the above mentioned dangerous foul area in 15 fathoms, mud bottom. Small vessels can find anchorage near the head of the SE arm in midchannel, 0.6 mile beyond the foul area, in 7 fathoms.

(370) **Fish Bay**, on the N 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 NE 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 W side. The channel is E of the island and is obstructed near the middle by a rock covered 2¾ fathoms. Rocks awash are 200 yards off the E 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.

(371) **Landlocked Bay** is on the N 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 (15 to 18 m) in the center with rocks and islets extending from the E 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.

(372) The islands on the E 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 NW of the rock, but the NW 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 N and S.

(373) There are no commercial enterprises in this bay. The mines are abandoned and the wharves are in ruins.

(374) **Bidarka Point** is a high wooded hill with a lower strip at its S end. A shoal extends 0.8 mile SW from the point.

(375) **Boulder Bay**, between Bligh Island and Bidarka Point, has several dangers, the depths are very irregular, and the anchorage is not desirable.

(376) In the approach to Boulder Bay, a reef bare at lowest tide is 0.6 mile E of the E side of Bligh Island. About 0.2 mile E of this reef is a 2½-fathom spot and a depth of 6½ fathoms about 0.7 mile to the SSE. A submerged rock, nearly awash at low water, and a rock awash close N, are 0.4 mile from a point on the E shore and 1.6 miles NW from Bidarka Point. A reef, partly bare at low water, is 0.2 to 0.4 mile SE from the small wooded island in the middle near the head of Boulder Bay.

(377) **Bligh Island**, on the E shore of Prince William Sound, is mountainous. The SW end of the island is a high, steep, wooded head, with yellow landslides near the water. On the NW side are islands with foul ground between.

(378) Good anchorage from N winds for large vessels can be found about 1 mile S of Bligh Island.

(379) **Reef Island**, off the W 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 SW end of the island.

(380) **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 (18.0 m) 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.

(381) **Busby Island**, off the NW end of Bligh Island, is high, and partly wooded. Its W 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 (14.6 m) above the water and shown from a skeleton tower with a red and white diamond-shaped daymark.

Tides and currents

(382) The diurnal range of tide is 12 feet in Snug Corner Cove in Port Fidalgo. At the entrance to Port Fidalgo, N of Goose Island, the velocity of the current is about 0.5 knot.

(383) **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 SSE 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.

(384) **Tatitlek**, a Native community on the N shore at the SE 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.

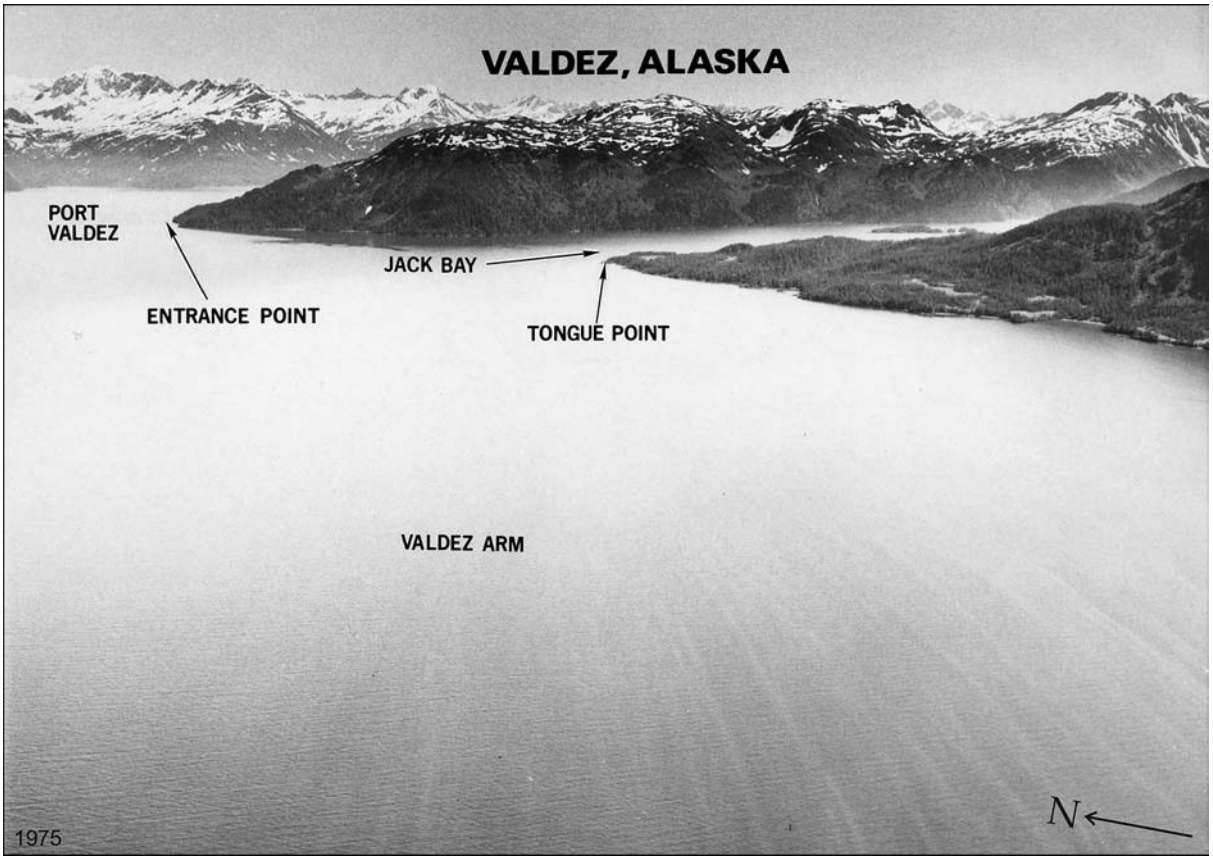
(385) **Virgin Bay** is a shallow bight 0.5 to 0.8 mile long on the NE shore of Tatitlek Narrows. There is little water in the bay, and on the N side of the entrance is a long reef bare at low water.

(386) **Ellamar**, a village on the NE side of Virgin Bay, has a large wharf in ruins. Small craft find shelter S of the ruins.

(387) Anchorage can be had 0.3 to 0.4 mile from the NE shore of Tatitlek Narrows SE of Black Point, and 0.5 to 0.8 mile NW of Ellamar, in 12 to 16 fathoms, sticky bottom.

(388) Larger vessels can find anchorage between Busby Island and Black Point, 1.4 miles NW of Ellamar, in about 30 fathoms, fair holding ground.

(389) **Valdez Arm**, the main N arm of Prince William Sound, extends about 13 miles NE from Busby Island and **Point Freemantle** to the N end of Valdez Narrows, then turns E for 11 miles to the head of Port Valdez. The water is very deep and there are no known outlying dangers except for Middle Rock near the N 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 W edge of the arm about 3.5 miles NE of Point Freemantle. The S side of the 7-fathom shoal is marked by a lighted buoy. Anchorages are few because of the great depths.

(390) 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 are given earlier in this chapter under Prince William Sound.

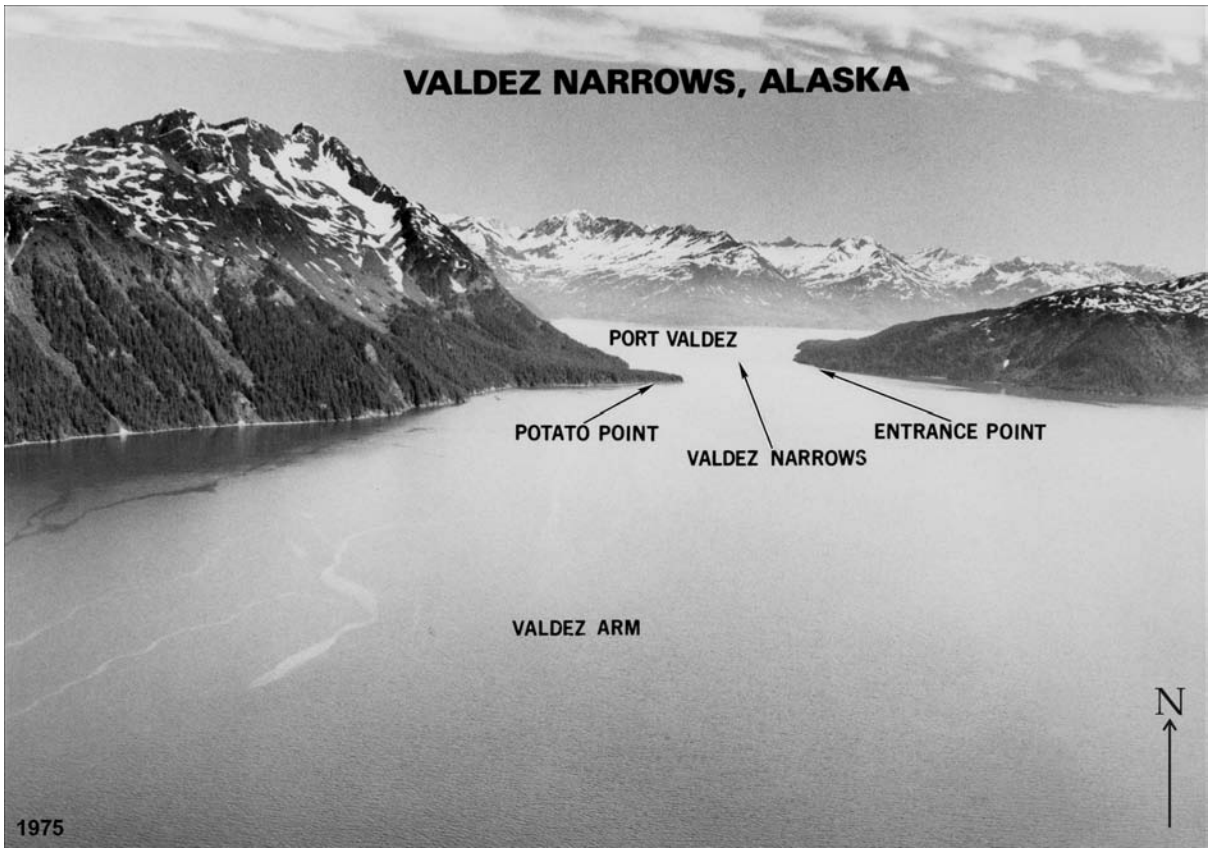
(391) **Sawmill Bay**, on the W shore of Valdez Arm 9 miles NE of Point Freemantle, has depths of about 9 fathoms in its 0.3-mile-wide entrance. Secure anchorage can be had behind the W entrance point, in 5 to 9 fathoms, sticky bottom. The S and W ends of the basin forming the anchorage are shoal, and a flat fills the head of the bay down to the narrows at the N end of the basin.

(392) **Rocky Point** is the W end of the peninsula between Tatitlek Narrows and Galena Bay. A rocky grass-covered islet is 0.2 mile N of the point. **Rocky Point Light 10** (60°57'02"N., 146°47'06"W.), 38 feet (11.6 m) above the water, is shown from a skeleton tower with a red triangular daymark on the SW point of an island W of Rocky Point. The Valdez pilot station vessel, "EMERALD ISLAND," is semi-permanently moored in the narrow bay that indents the southwest side of Rocky Point.

Tides and currents

(393) The diurnal range of tide at Rocky Point is 12.1 feet. The currents in Valdez Arm are too weak or variable to be predicted.

(394) **Galena Bay** is about 5 miles long in a general E 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 S of the islets on the N side at the head of the bay, in about 15 fathoms, bottom soft in places. This anchorage is well protected.



(395) A group of rocky, grass-covered islets extends 0.5 mile NW off the N point at the entrance of Galena Bay. Anchorage can be had in the middle of the cove NE of the islets, in 10 to 12 fathoms, sticky bottom.

(396) **Jack Bay**, on the E shore S 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 N off the NW end and several islets off the SE end. Numerous rocks surround the island and the islets to the SE. Two coves indent the S 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 N shore, in 12 to 15 fathoms. Other anchorages are also available in the entrance to the cove about 1.5 miles ESE of **Tongue Point**, in 9 to 12 fathoms, and in the cove about 0.5 mile E of the island, in 9 to 14 fathoms. The diurnal range of tide is 12.1 feet in Jack Bay.

(397) **Valdez Narrows** is about 0.8 mile wide, with deep water and bold shores. **Middle Rock,** near the middle of the N end of the narrows and marked by a light, is a pinnacle barely covered at extreme high tides. A shoal, W of the light, extends E from the mainland about 0.3 mile. The shoal consists of a rock covered 3 feet 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.

(398) **Entrance Point**, 1 mile N of Jack Bay on the E side of Valdez Narrows, and **Potato Point,** on the W side of the narrows, are marked by lights. **Entrance Island,** 1.2 mile E of Middle Rock, is marked by a light.

(399) **Port Valdez** is the designation given the body of water extending from Valdez Narrows to the head of the bay.

(400) **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 reaches a depth of about 2½ fathoms in a narrow channel at the center. A 1-fathom depth, in about 61°07'05"N., 146°35'55"W., is on the W side of the channel. The bay occasionally has floating ice, some of which escapes into Port Valdez when the wind and tide are favorable.

(401) **Jackson Point** is a jutting point of land extending from the mainland on the S side of Port Valdez. This point of land was once an island.

(402) **Valdez Marine Termina**l is on the S side of Port Valdez between Jackson Point and **Saw Island,** 0.8 mile to the W. It is the terminus of the Trans-Alaska Pipeline which carries crude oil S from Prudhoe Bay on the Arctic Ocean. The terminal and adjacent waters are within a **Safety Zone.** (See **165.1 through 165.8, 165.20, 165.23, and 165.1701,** chapter 2, for limits and regulations.)

Wharves

(403) 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.

(404) No bunker fuel or freshwater are 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. For a complete description of the port facilities for all of Port Valdez refer to Port Series No. 39, published and sold by the U.S. Army Corps of Engineers. (See Appendix A for address.)

(405) Berth No. 1: E end of Jackson Point; 1,200 feet with dolphins, 99 feet alongside; deck height, 32 feet.

(406) Berth No. 3: W side of Jackson Point; 1,050 feet with dolphins; 90 feet alongside; deck height, 38 feet.

(407) Berth No. 4: about 0.4 mile W of Jackson Point; 1,380 feet with dolphins; 90 feet alongside; deck height, 38 feet.

(408) Berth No. 5: about 0.7 mile W of Jackson Point; 1,385 feet with dolphins; 85 feet alongside; deck height, 38 feet.

(409) A rock that uncovers 10 feet is about 175 yards SW of Saw Island.

(410) About 0.5 mile E of Jackson Point, submerged piling of an abandoned cannery wharf may exist. Ruins of the inactive Midas mine wharf are 2.3 miles E of Jackson Point.

(411) **Valdez** is on the N shore of Port Valdez about 2 miles from its head. It is at the S end of **Richardson Highway,** which connects with Fairbanks 374 miles N, Anchorage 308 miles W, and Seward 434 miles SW. Open all year, the highway also links with the **Alaska Highway.**

(412) 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, which provides 25% of all U.S. oil. It also has a commercial fishing fleet, and popular for tour and excursion boats.

(413) 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.

Prominent features

(414) The Coast Guard radar tower at Valdez; group of grain silos in the NE; 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 S shore.

Traffic Separation Scheme

(415) Prince William Sound Traffic Separation Scheme was discussed earlier in this chapter under Prince William Sound.

Routes to Valdez (see also chart 16700)

(416) **From the S via Prince William Sound Traffic Separation Scheme** (described earlier in this chapter under Prince William Sound). Depart the scheme at its N end in Valdez Arm, thence through Valdez Narrows and Port Valdez to Valdez.

(417) **From the W via Elrington Passage**. Pass 1 mile E of Point Helen Light, thence N to 1.5 miles W of Seal Island Light, thence N to 2 miles E of Smith Island, thence E to enter the Prince William Sound Traffic Separation Scheme and depart the scheme at its N end in Valdez Arm, thence through Valdez Narrows and Port Valdez to Valdez.

(418) **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.)

Channels

(419) The approach to Valdez is deep and clear of dangers once through Valdez Narrows.

Anchorage

(420) There are no safe anchorages at Valdez due to the foul ground and high winds that prevail from the W during the afternoons of the summer season. Convenient anchorages in the approaches to Valdez Arm and Port Valdez have been described.

(421) For limits and regulations of Special Anchorage Areas, see Orca Bay, earlier in this chapter and **§110.1** and **§110.233**, chapter 2.

Tides

(422) The diurnal range of tide at Valdez is 12.1 feet. (See Tide Tables for daily predictions.)

Currents

(423) 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 SE 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.

(424) In 1979, it was reported that the surface currents in Port Valdez had a maximum velocity of 0.5 to 1.0 knot.

Pilotage, Valdez

(425) 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. (See **Pilotage, General** (indexed), chapter 3, for the pilot pickup station and other details.)

(426) The Valdez pilot station is the "EMERALD ISLAND"; 91 feet long with black hull, white house. "EMERALD ISLAND" monitors VHF-FM channels 16 and 13, 24 hours daily. Contact the vessel directly. The Valdez pilot boats include: the "COLUMBIA", a 61-foot aluminum boat; the "SILVER BULLET", a 31-foot aluminum launch; and the "BARANOF II", a 43-foot trawler with a red hull and white house. 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.

Towage

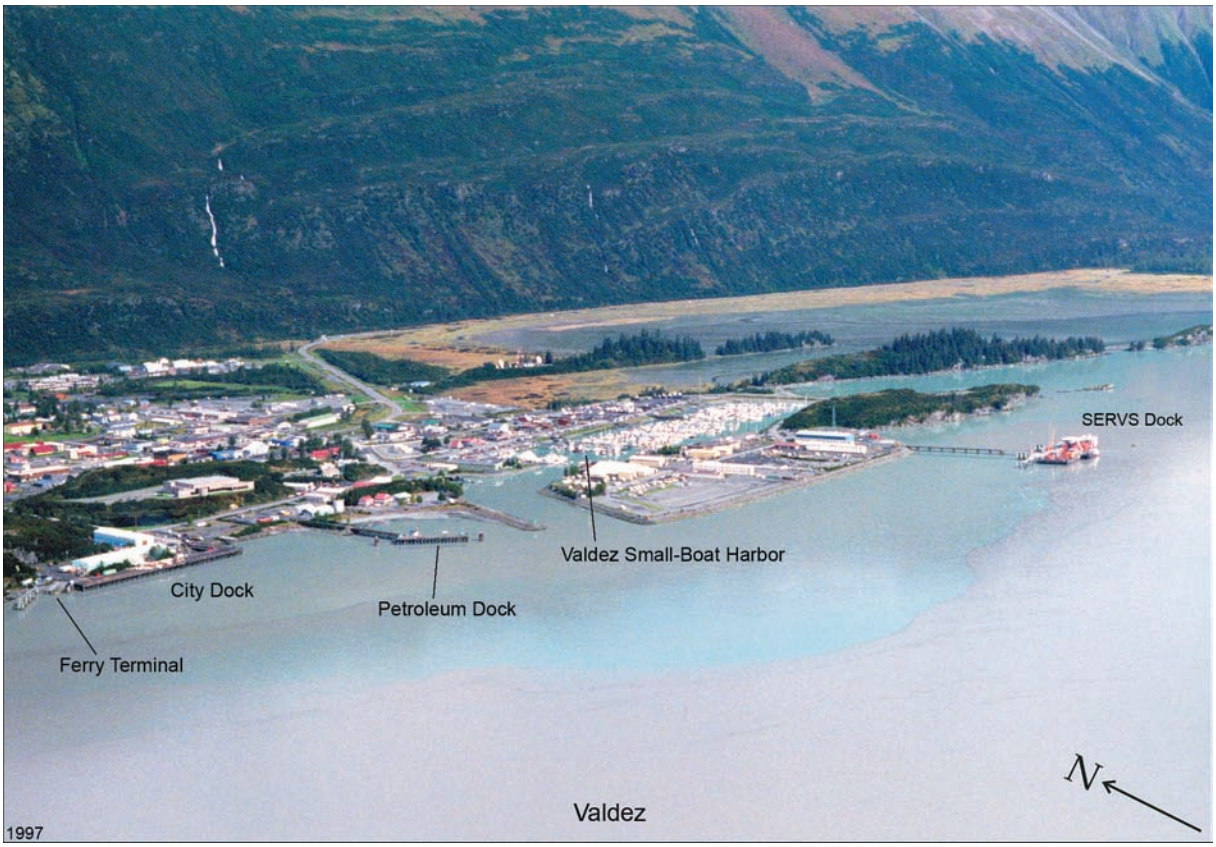
(427) Three 5,750-hp tugs and two mooring launches are available for docking and undocking.

Quarantine, customs, immigration, and agricultural quarantine

(428) (See chapter 3, Vessel Arrival Inspections, and Appendix A for addresses.)

Quarantine

(429) A U.S. Public Health Service Contract Physician is located at the hospital in Valdez. (See appendix for additional information.)



Customs

(430) Valdez is a **customs port of entry.** See **Customs Ports of Entry and Stations** in Appendix A.

Coast Guard

(431) A **Coast Guard Sector Field Office** and **Vessel Traffic Service Center** are in Valdez. (See Appendix A for address.)

Harbor Regulations

(432) The small-boat harbor is administered by the Harbormaster. The office is located on N shore of the small-boat basin, telephone 907-835-4981, FAX 907-835-4479. The rest of the Port is administered by the Port Director, and that office is located at the head of the ferry terminal dock, telephone 907-835-4981, FAX 907-835-4479. The Valdez Marine Terminal is administered by the Alyeska Pipeline Service Company, telephone 907-278-1611.

Wharves

(433) There are three deep-draft waterfront facilities in Valdez. Longshoreman services are provided by North Star Terminal and Stevedore Company. 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.)

(434) **State of Alaska, Valdez Ferry Terminal:** W side of City Dock; 200 feet of berthing space; 20 feet alongside; deck height, 22 feet; landing for passenger and vehicular ferry; owned and operate by the State.

(435) **Valdez City 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.

(436) **Petroleum Dock:** 133 yards E 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.

(437) When approaching this pier care must be taken to avoid a 3-fathom shoal extending about 100 yards out from the W breakwater of the small-boat harbor to E.

(438) **Valdez Small-Boat Harbor,** the small-boat harbor to the E of the fuel pier, is entered between a breakwater to the W of the entrance and Valdez Spit to the E of

the entrance; both are marked by lights. Two seafood plant piers are just inside on the S shore. In May 2006, the controlling depths were 12 feet in the entrance channel to the basin, except for lesser depths to 7 feet along the edges of the channel, thence 10.4 to 12 feet in the basin, except for severe shoaling in the SE corner at the head of the project. The far E end of the basin is locally maintained and has depths of 10 to 12 feet. The harbor can accommodate about 520 boats, and transient berths are also available. The **harbormaster** assigns berths, can be contacted on VHF-FM channel 16, and uses channel 8 as a working frequency. Water, electricity, fuel, telephone, cable TV, boat-launching ramps, and a 60-ton mobile vertical boat lift are available in the harbor. A tide grid is available for underwater repairs.

(439) **Ship Escort Response Vessel System Dock (SERVS Dock)** is about 0.2 mile E 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.

(440) **Port of Valdez, General Cargo and Container Wharf:** 1.5 miles E 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 **§165.1703**, chapter 2, for limits and regulations.)

(441) At the head of the bay are mooring buoys used for oil spill response barges.

Supplies

(442) Gasoline, diesel fuel, and water are available in the small-boat basin. Provisions and some marine supplies can be obtained in town.

Repairs

(443) Minor repairs can be made to small craft.

Ferries

(444) The Alaska State Ferry provides daily stops with connections to Cordova, Whittier, Seward, Homer, Kodiak, and ports W on the Aleutian Chain only in the summer, May through September. No service is provided in the winter. See the Internet at: **http://www.akms.com/ferry**

Communications

(445) 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.

(446) **Glacier Island** is on the N side of Prince William Sound, W of the entrance to Valdez Arm. It is mountainous and indented by a number of bays.

(447) **Glacier Island Light** (60°52'20"N., 147°05'31"W.), 38 feet (11.6 m) above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on the E side of the island.

(448) **Chamberlain Bay**, on the S side of Glacier Island, is exposed to the S 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 W side of the bay about 0.7 mile from the head.

(449) **Jackson Cove**, on the W 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 N 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.** The diurnal range of tide is 11.9 feet in Jackson Cove.

(450) The passage N of Glacier Island in its E part is very deep except near the shore. The N side of Glacier Island is indented by Finski Bay, Growler Bay, Eagle Bay, and Jackson Hole. On the N side of the passage, Columbia Bay, Long Bay, and several other smaller inlets form an irregular coast.

(451) **Finski Bay**, situated on the NE side of Glacier Island shoals from about 5 fathoms at the entrance to less than 1 fathom at the entrance to the inner cove.

(452) **Growler Bay** provides good anchorage near its head for small craft. Several rocks bare at low tide, situated along the S shore near the head of the bay, are the only known offshore dangers once well inside the entrance. The E 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 E side of **Growler Island** (local name), the island between Growler Bay and Elder Point.

(453) **Elder Bay** (local name) E 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 W shore. Anchorage can be had in about 50 feet SE of the island and in 40 feet S of the island. The narrow passage which 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 E cove of the bay, S of a prominent W point on Growler Island.

(454) **Eagle Bay** provides secure anchorage at its head, but shoals are situated in midchannel on the W side of the bay SE of an unnamed island about 1 mile W of Elder Point. Rocks awash at low tide extend about 0.1 mile NE of the NE side of the unnamed island. Dangerous offshore rocks, nearly awash at low tide are situated about 0.3 mile W of this island. Eagle Bay can be entered by maintaining a course about 200 yards off the W shore S from Elder Point until the lowland opens between Eagle Bay and the next bay E, then steering directly SW 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 which is fouled on its S 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.

(455) **Jackson Hole**, about 1 mile W 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.

(456) **Campbell Bay**, on the NW side of Glacier Island, has depths of about 3½ fathoms throughout, with a deeper indentation to 15 fathoms on the NE part of the bay. There is a rock about 0.2 mile SE of the S entrance and 0.1 mile from the S shore.

(457) **Irish Cove**, on the WNW side of Glacier Island, is foul at the head of the bay. A shoal area with a rock is off the point at the N entrance to the bay, extending 0.2 mile W of the point.

(458) **Iceberg Point** forms the W extremity of Glacier Island. A shoal to 2½ fathoms extends 0.3 mile SW of the point. A ½-fathom rock is 0.8 mile S of the point and ¾-fathom is 1.0 mile SSW of the point.

(459) 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 S of **Elf Point** and a 4½-fathom depth is 0.6 mile SE of the point.

(460) **Columbia Bay**, about 6 miles W of Valdez Arm, is deep except near the shores. A moraine shoal, about 3 miles N of the entrance, completely crosses the bay NW from the N end of Heather Island to the W shore of the bay. Both E and W 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 2005, the face of the glacier had receded to approximately 9 miles N of the moraine. 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 S is a narrow, rocky passage, called **Lutris Pass**, which has a maximum depth of 10 feet; due to numerous reefs S and W, this latter island should be given a berth of at least 0.5 mile. Rocks extend 0.2 mile offshore along the NW shore of Heather Island.

(461) **Columbia Glacier** closes the head of Columbia Bay and in 2005 was about 9 miles NE of the moraine shoal restricting the middle of the bay. 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.

(462) **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.

(463) **Heather Bay**, situated E of Heather Island, shoals gradually NE 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 N. The E 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 NE point of Heather Island, and with rocks awash at low tide further NE, 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.

(464) **Emerald Cove**, situated on the SE side of Heather Bay 1 mile NE 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 N side has midchannel depths of 33 feet; sunken rocks are located on both the E and W entrance points to the bight. A drying flat extends 0.1 mile off the stream mouth at the E side of the bay. Another anchorage for small craft called **Jade Harbor** is situated S of an island about 2 miles NE 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 which enters the head of the cove.

(465) The NE corner of Heather Bay is shoal, and even small launches should not proceed N of a group of small islands and rocks situated on the E shore. Fishermen occasionally anchor in good weather in the passages on either side of the largest of the islands while visiting nearby lakes.

(466) **Granite Cove**, situated on the W side of Columbia Bay, has maximum depths of about 1 fathom, rocky bottom, in midchannel in the passage N 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.

(467) 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 E of Flent Point and the beach S of the point is also foul. Vessels are advised to maintain a distance of at least 0.3 mile off these shores.

(468) **Long Bay**, 3.5 miles W of Columbia Bay, extends in a N 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 E of the island located in the center of the W arm, about 1.4 miles NNW of Schrader Island. Passage to the anchorage is midchannel E of Schrader Island then N of two small islets N of Schrader Island, avoiding the rock and shoaling just N of each islet.

(469) **Useless Cove**, which indents the E shore of Long Bay, is reported to be foul. One mile NW of Useless Cove are numerous dangerous rocks which extend as much as 0.4 mile offshore. Other rocks foul the E and W shores of Long Bay, and a midchannel course is recommended. S, W, and N of **Schrader Island,** situated near the center of Long Bay, foul ground is located between a small wooded island and the mainland. The NE 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.

(470) Moderate-sized vessels find good anchorage in 8 to 12 fathoms, mud bottom, in **Buyers Cove** just W of **Slipper Point,** situated off the W 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 W of this cove is **Eickelberg Bay,** about 2 miles long, with depths of 10 feet, possibly less, near the middle of the entrance.

Charts 16705, 16700, 16709

(471) The NW part of Prince William Sound has long inlets and fiords, most of which are very deep. The shores are generally bold, 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.

(472) 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.

(473) **Naked Island**, **Peak Island**, and **Storey Island,** near the center of Prince William Sound, form a group about 8 miles long, N-S, and about 6 miles wide. They are high and wooded to the summits.

(474) 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.

(475) 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.

(476) The best anchorages are in the S part of **McPherson Bay** on the N side of Naked Island in 20 to 30 fathoms for large ships, and in the E 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.

(477) Small craft can anchor in the small bight on the N side of Naked Island and in the small bight on the SW side of Peak Island. They may also anchor in the bay on the N side of the E part of Storey Island with protection from all winds except N. Anchorage in 6 to 10 fathoms on the E side of Naked Island affords protection only from the N and W.

(478) **Bass Harbor**, on the S side of Naked Island, offers secure anchorage in 20 fathoms, mud bottom, about 0.4 mile W of the entrance to a small unnamed cove on its E side. The anchorage is open to S winds, and a slight swell makes in during heavy S weather.

(479) **Outside Bay**, on the SW side of Naked Island provides good anchorage, except in strong W winds, for small vessels in the first bight SW 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.

(480) **Cabin Bay**, on the W side of Naked Island, offers some protection from E winds for vessels up to 500 tons, but the bottom is broken and not ideal holding ground. Small vessels can find protection from W winds in the head of the S arm in 5 to 7 fathoms, mud bottom. A ¾ fathom sounding is in the middle of the entrance to the S arm.

(481) **Fairmount Island**, 7.5 miles N of Storey Island, is high. Buildings of a former fox farm are on the gravel beach on the SW 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 SE through SSW of the S shore of Fairmount Island. Use extreme caution when navigating near these islands.

(482) **Wells Bay** (60°53.5'N., 147°28.5'W.) is a large bay just E of Unakwik Inlet and separated from it by a narrow peninsula. The bay extends N 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 N 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 E of the W 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 E shore of the bay. **Granite Bay,** 1.3 miles from the mouth, extends ENE 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 NE about 3.5 miles and averages 0.5 mile in width; an island near its head almost closes the upper part of the bay.

(483) A group of islands and bare rocks between Granite and Cedar Bays extends W past the center of Wells Bay. A prominent point juts out about 0.5 mile on the E side of this bay 1.3 miles N of the entrance; an island is on the SE side of the point. Temporary anchorage for moderate-sized vessels may be had about 0.2 mile N of the point and 0.2 mile E of the W 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.

(484) **Unakwik Inlet** has its entrance 6 miles W of the W point of Glacier Island, 2 miles W of Wells Bay. The inlet extends N about 18 miles and averages 1.5 miles in width, narrowing to 0.5 mile at its N end at **Meares Glacier,** which discharges large quantities of small icebergs. Numerous rocks and islets are situated off the E and W shores; in midchannel, excepting the dangerous shoal off Jonah Bay described below, the inlet's depth gradually diminishes from over 170 fathoms at its S end to 89 fathoms near the glacier.

(485) **Olsen Island** is situated on the W side of the entrance to Unakwik Inlet. A rock awash at low water is 0.6 mile E of the island and a group of rocks are situated 0.4 mile off its NW side; the passage between the island and these rocks is foul. Many rocks foul the passage between Olsen and a small island SW; rocks and shoals extend a mile or more S of this latter island. The passage between Olsen Island and the mainland is used by small vessels. A course slightly W of midchannel is recommended, due to numerous rocks on both sides.

(486) **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 N shore just outside of the entrance narrows, which has a least depth of 14 feet. Once inside the narrows, a course slightly S of midchannel should be maintained to avoid rocks situated about 400 feet offshore midway between the two N points. A sunken rock is also located about 300 feet W of the S entrance point. The main basin appears to be clear of danger with the exception of shoals and a drying rock which block the NW extremity of the cove.

(487) **Mueller Cove**, 1 mile N of Olsen Cove, affords good anchorage for small craft near its S shore just W of the two small wooded islets marking the S entrance point. Depths shoal gradually from 25 to 8 fathoms, sand and gravel bottom. This anchorage is exposed to the NE. In 1993, there was a 3½-fathom shoal at the entrance at about 60°53'18"N., 147°36'27"W. and the NW end of the cove is foul ground.

(488) **Siwash Bay**, on the W side of Unakwik Inlet about 6 miles N of Olsen Island, affords excellent anchorage in 10 to 15 fathoms, mud bottom, about 0.2 mile W of the entrance island. This bay is about 2 miles long, 0.5 mile wide, and has a wooded island near the S shore at the entrance. The deep channel is to the N of the island. Entering on a midchannel course the depths shoal rapidly to 10 fathoms just N of the island, continuing at that depth until well inside. Sheltered from all directions, the anchorage appears suitable for large vessels.

(489) **Jonah Bay**, on the W side 8 miles N 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 S 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.

(490) A dangerous moraine bar completely crosses Unakwik Inlet just N of Jonah Bay. The shoal extends from **Jonah Point** to the E shore of the inlet. A low, grassy islet, difficult to observe in thick weather, is situated approximately one-third of the channel width from the E shore to which it is connected by drying rocks. The deepest channel crossing the moraine is about 0.1 mile W of the islet and 0.8 mile E of Jonah Point with a least depth of 5¾ fathoms. There are 1½ fathom shoals located 0.4 mile and 0.7 mile ESE of Jonah Point. Shallow water extends about 0.5 mile ESE from Jonah Point and well offshore W to the mouth of Jonah Bay. The ruins of an abandoned cannery and wharf are on the E shore just S of the bar in a small cove. A mooring buoy is near the ruins. A rock, depth unknown, lies at the entrance to the cove S of the cannery ruins. A fish hatchery and fish pens are also located in the cove.

(491) On the E side of Unakwik Inlet, about 10 miles N 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.

(492) **Eaglek Bay**, midway between Unakwik Inlet and Esther Passage, is a large irregularly shaped bay extending N about 7 miles. The S half is about 2.5 miles wide and the N half about 1 mile wide. Two coves are on the W side, each extends W for about 1.5 miles. One large and several small coves are on the E side. The shores are extremely ragged and there are many wooded islets, bare rocks, and rocks awash. The large cove on the E 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 W of the small prominent wooded islet 0.5 mile SW of **Point Pellew**.

(493) **Axel Lind Island,** 2.5 miles SSW of the entrance to Eaglek Bay, is high. The buildings of a fox farm are prominent on a stretch of gravel beach on the N side. Passage to the N is deep, but there are several off-lying dangers. In July 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 N of Bald Head Chris Island when bound for Port Wells via Esther Passage. In 1993, the passage N of Bald Head Chris Island was 71 fathoms deep, 0.4 mile N of the island. There is shoaling to 2¼ fathoms about 0.3 mile off the SW shore.

(494) **Squaw Bay**, 1 mile E of Esther Passage and 1.5 miles N of Bald Head Chris Island, extends NNE 2 miles and averages 0.5 mile in width. Its E side is irregular, with numerous islands and rocks baring at various stages of the tide. The W 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 E side, that affords excellent anchorage with good holding ground for small craft in 8 fathoms.

(495) **Lone Island**, about 3 miles E of Perry Island and 5.5 miles S of Axel Lind Island is wooded, comparatively level, and high. Foul ground extends nearly 0.5 mile N. Foul ground extends 1.3 miles S of the group to two prominent rocks about 5 to 10 feet high. A 3½-fathom shoal 1.4 miles S 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.

(496) **Dutch Group** consists of several wooded islands and bare rocks 4.3 miles NNW of Lone Island, the largest having elevations up to 150 feet. Foul ground extends 1.3 miles S 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 N island of the Dutch Group and is prominent from offshore.

(497) **Fool Island**, 3 miles W of the Dutch Group, is wooded and about 50 feet high. A rock that uncovers is 0.3 mile S of Fool Island.

(498) **Egg Rocks** are prominent bare rocks 1.5 miles WNW of Fool Island.

(499) **Perry Island**, in the NW corner of Prince William Sound, is wooded to a height of about 1,000 feet. It is prominently marked on its NE 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.

(500) **Perry Island Light** (60°39'17"N., 147°55'57"W.), 35 feet (10.7 m) 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 S of the light. A rock awash is 0.4 mile NW of the light.

(501) Foul ground extends 0.5 mile E from the E end of Perry Island at **Billings Point**, and nearly 1 mile SE and S from the SE point of the island.

(502) **South Bay** is on the E 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 E side of the entrance to the cove. An oyster farm is near the head of the cove.

(503) **East Twin Bay**, indenting the N 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 S 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.

(504) **West Twin Bay,** on the NW 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 W side on the entrance. Small craft entering should favor the NE side until past the narrow area about 1 mile from the head of the bay, and then favor the SW side, passing W 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 N of the narrow section approximately 0.1 mile from the point of land protruding NE from the W shore.

(505) From the point on the W side of entrance to West Twin Bay, a chain of islets and foul ground extends N for over 1 mile.

Anchorage

(506) 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 S of the W point and about 0.1 mile N of the gravel spit extending from the E shore, and E of the rock in the middle of the bay. The area S of the gravel spit is shallow and rocky.

(507) **Perry Passage** is between Perry Island and Culross Island, 2.5 miles to the W. **Wells Passage,** between Perry and Culross Islands on the S and Esther Island on the N, is over 2 miles wide. The two passages have depths of 100 to 250 fathoms. Caution should be exercised when approaching or departing the E end of Wells Passage. Numerous islands, islets, rocks, and shoals extend E and SE for about 5 to 9 miles.

(508) **Esther Island** is mountainous, wooded to a height of about 1,000 feet, and the summits are bare rocks. The peak on the SE point of Esther Island, and the sharp twin peaks on the SW 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 SW side of the island. Three bays are between the light and Esther Passage. **Esther Bay,** the easternmost is 3.5 miles E of the light on Point Esther and extends N 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.

(509) **Quillian Bay,** the middle bay, 1.3 miles E of the light, extends 1.7 miles NNE, 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.

(510) When transiting the bay from S, vessels are advised to stay midchannel between the easternmost islet and the E shore. Continuing N from the islets, the bay widens to 0.4 mile, average depth 12 fathoms. A foul area extends approximately 0.1 mile off the E shore at the widest part of the bay. About 0.45 mile N of the islets, the bay narrows to 0.1 mile with numerous rocks extending W from the E shore. Vessels should stay within 50 yards of the W shore until the bay starts widening again. Continuing N to the head of the bay, vessels should favor for the W shore. Average depth in the area is 3½ to 5¼ fathoms. The entrance to the lagoon NW of the head of the bay is blocked by a rock.

(511) **Lake Bay,** the westernmost bay, is 0.7 mile E of the light, extends 1.2 miles NW, and is about 0.2 mile wide. Fishing craft find indifferent anchorage near the E shore SE of the narrowest part where the bay widens to its maximum of 0.3 mile. Rocks awash extend about 110 yards SE of the point forming the NW 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 anchorage. About 0.5 mile from the head on the E side is a freshwater stream that discharges from **Esther Lake.** A fish hatchery and fish pens are near the stream.

(512) **Esther Passage** separates Esther Island from the mainland. The S entrance, 7.5 miles E of Point Esther and 1.8 miles NW 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 E of the W 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 NW for about 10 miles and connects with Port Wells about 8.5 miles N of Point Esther and 3.5 miles S 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 S half is about 0.7 mile wide and the N 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 NE from the S shore near the bend 1 mile E of the W entrance to Esther Passage. The best way to avoid the submerged rock is to hold well into the N half of the channel when swinging on the turn. Fishing craft use the passage regularly.

(513) **Esther Rock**, 1 mile W of **Point Esther,** is 15 feet high and sparsely covered with grass.

(514) A reef, bare at lowest tide, is reported to extend about 1 mile off the S point of **Granite Bay,** on the W side of Esther Island.

(515) **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 (12.2 m) above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on the NE point of the island.

(516) **Culross Bay,** on the N side of Culross Island, has good anchorage in 30 fathoms with limited swinging room about 1 mile inside the entrance just SW of a prominent point on its NW side. The center at the head of the bay shoals to 3¾ fathoms 0.6 mile SW of the prominent point and 0.1 mile W of a ledge containing two islets and several rocks extending 0.1 mile N from the S shore. The bay is open to NE winds, but no swell makes in, and it is not subject to williwaws.

(517) **Hidden Bay** is on the E side of Culross Island, 3.0 mile S of Pt. Culross. The NW arm of the bay is bounded by three small islands to the N and one large island to the S. The entrance to the NW arm has average depths of 8 to 13 fathoms shoaling to 4 fathoms 100 yards S of the center N island. Depths at the head of the NW arm range from 16 to 22 fathoms.

(518) The long W arm should only be entered by small craft at high tide and slack water. Enter the W arm just S of the largest island, between the largest island and the nearest island S. 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 W, pass S of the midchannel islet, staying close to the S shore. A large ledge surrounds this islet and extends 75 yards W of the islet. Once past the large island, favor the N shore leaving a group of islands that extend 150 yards N from the S shore to the S. The center of the head of the bay has depths from 27 to 33 fathoms, mud bottom.

(519) **Culross Passage,** between Culross Island and the mainland to the W, 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 S of the N entrance in about 35 fathoms, mud bottom. No swell makes in, and the area offers protection from all but N weather. The small bay on the E side 1 mile from the N entrance affords good anchorage in 3 to 8 fathoms, mud bottom.

(520) **Goose Bay,** on the E side of Culross Passage 3.5 miles S of the N entrance, is narrow and extends NE 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 S of Goose Bay offers good anchorage for larger vessels in 15 fathoms of water, clay, and gravel bottom.

(521) **Long Bay,** on the W side of Culross Passage across from Goose Bay, is narrow and extends SW about 2 miles. The bay appears clear on the S side of the channel, with depths of about 10 fathoms; however, it shoals rapidly in the vicinity of the small islets at the SW end of the bay.

(522) 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. E winds funnel into Long Bay blowing from the NE with considerable force and gusts; vessels should guard against dragging onto the shoals at the head of the bay.

Routes

(523) When entering the narrowest part of Culross Passage from the N, small vessels are advised to pass between the westernmost small islet just off the W shore about 2 miles inside the entrance and the W shore. Continue S between the larger island in midchannel and the W shore. A 2¾-fathom shoal is midchannel, 160 yards S of the large island, then shift to midchannel to avoid a shoal extending off the point on the W shore. One mile farther S and off Goose Bay, are numerous islands. The channel, with a least depth of 4¼ fathoms, passes to the E of the island.

(524) In entering the passage from the **southward,** give a wide berth to the many dangerous rock ledges and rocks that extend off the S shore of Applegate Island on the E side of the entrance. Considerable current has been observed through this area.

Charts 16700, 16705, 16711

(525) **Port Wells** extends N from Wells Passage along the W side of Esther Island for 13 miles to **Point Pakenham** where it divides into **Barry Arm** to the W and **College Fiord** to the E. Except for the two submerged terminal moraines extending SW and SE 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.

(526) **Pigot Bay**, on the W side of Port Wells just N 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 NE corner of the bay and in **Ziegler Cove**, on the N side of the bay immediately inside the entrance.

(527) 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 W head of the bay.

(528) **Pirate Cove**, on the W side of Port Wells, 3.5 miles N of Wells Passage, is exposed to NE winds. There is a 2-fathom rock shoal about 350 yards NE of the S entrance point. A rock, in the N part of the bay with a 2¾-fathom shoal just to the S, is about 350 yards offshore and 550 yards NW of the S entrance point.

(529) **Hummer Bay**, about 1 mile N 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.

(530) **Bettles Bay,** on the W side of Port Wells, about 2.5 miles N of Hummer Bay, is free from dangers in midchannel. A 3-fathom shoal extending 0.2 mile N from the S 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 NE 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 rise abruptly from 20 fathoms to 1 fathom. An abandoned mine building is on the hillside NW of the stream.

(531) **Hobo Bay**, on the W side of Port Wells just N 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 NW course. Several rocks, bare at low water, are along the S shore of the bay. A grassy rock is close offshore near the head of the bay.

(532) About 1.5 miles NE 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.

(533) **Harrison Lagoon**, a small shallow lagoon, is about 2 miles N of Hobo Bay, at the W entrance point to Barry Arm. A Forest Service cabin is located at the lagoon.

(534) **Golden**, 3.5 miles SE of Point Pakenham, is an abandoned mining camp on the E shore of Port Wells

and forms the SE entrance point to College Fiord. Vessels can anchor 200 to 300 yards S 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.

(535) The NW entrance to Esther Passage, 4.5 miles S of Point Pakenham, connects Port Wells with Wells Passage and is described earlier.

(536) **Granite Bay**, 2.5 miles SW 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 SW of the islet forming the S entrance point of the S arm.

(537) **Barry Arm**, at the head of Port Wells is the W of two arms extending N. A submerged moraine completely crosses the S entrance from Harrison Lagoon to Point Pakenham with dangers extending off both ends. A low spit extending well off the W shore has depths of less than 2 feet, ¾ mile from shore. From the E shore, a 4½-fathom rock shoal is 1.5 miles SSW and another 3½-fathom rock shoal is 1.2 miles SSW of Point Pakenham. Mariners should stay midchannel, 1.5 miles from the W shore in 13 to 18 fathoms. Barry Arm is deep and free of dangers N to Point Doran, about 4.5 miles NW of Point Pakenham.

(538) **Harriman Fiord**, 5 miles above the entrance to Barry Arm, extends SW 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.

(539) 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 which uncover extend over 300 yards offshore at the NW entrance to Harriman Fiord. The preferred channel up Barry Arm, N to **Cascade**, **Barry**, and **Coxe Glaciers**, is slightly E of midchannel, 0.6 mile E of Point Doran. The preferred channel from the glaciers to Harriman Fiord is slightly S of midchannel, avoiding a 1-fathom sounding 0.7 mile NW of Point Doran. The preferred channel from Harriman Fiord to S Barry Arm is 150 yards off Point Doran in about 4 fathoms, avoiding a 10-foot sounding 500 yards NE of Point Doran.

(540) **Serpentine Cove** on the N shore of Harriman Fiord, 3 miles W of Doran Strait is shallow and almost completely blocked at the entrance by gravel bars.

(541) **Surprise Inlet** on the N shore, 5 miles W of Doran Strait, is about 0.8 miles long leading to **Surprise Glacier**. Shoaling extends out about 0.3 mile along the N shore. Midchannel is recommended. A submerged flat with depths of 10 feet and less extend E from the S entrance point of the inlet.

(542) **Harriman Glacier** is at the head of Harriman Fiord.

(543) **College Fiord**, at the head of Port Wells, is the E of two arms extending NE 16 miles to **College Point** where it divides into **Harvard Arm** to the W and **Yale Arm** to the E. Caution should be exercised when entering the fiord due to a dangerous reef with rocks awash extending 1.3 miles SSE from Point Pakenham and shoal water with rocks awash extending as much as 0.8 mile off the SE shore from Golden N to Coghill Point. Icebergs are common to Coghill Point, but rarely extend to Port Wells.

(544) **Coghill Point** on the E shore of College Fiord is about 5.5 miles NE of Point Pakenham. Anchorage with good holding is 0.2 mile E 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 ENE along Coghill River 3.5 miles to a Forest Service cabin.

(545) **Harvard Glacier** closes Harvard Arm about 4 miles NE of College Point. Over a half dozen glaciers line the NW shore of the arm and upper College Fiord, with 5 of the glaciers being tidal.

(546) **Yale Glacier** closes Yale Arm about 3 miles E of College Point.

Charts 16700, 16705

(547) **Point Pigot** is the SE end of the peninsula between Pigot Bay and Passage Canal. Low valleys extend across the peninsula from Entry Cove and **Logging Camp Bay.** The S 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 (10.7 m) above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on the S tip of the point. A rock that bares at lowest tides is 0.8 mile ENE of the light. A similar rock is 200 yards WNW of the light.

(548) **Entry Cove**, immediately W of Point Pigot, affords good anchorage in 13 fathoms, soft bottom, with swinging room for one vessel up to 200 feet long.

(549) **Cochrane Bay** empties into the S end of Port Wells opposite Point Pigot. The middle of the bay has depths of 100 to 200 fathoms and the shores are steep-to.

Anchorage

(550) Anchorage is available in a cove near the head SE Cochran Bay. Small vessels should stay approximately 100 yards S of a small islet in the center of the cove to avoid a reef that extends 260 yards N from the S 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 5 to 7 fathoms of water, mud bottom, or in the E finger in 2 to 4 fathoms of water, mud bottom. The cove is open to winds from the E, and local knowledge reported the cove freezes in winter.

(551) **Surprise Cove** is on the W side of Cochrane Bay 0.5 mile SW of **Point Cochrane**. The SW arm of the cove appears clear of dangers with 33 fathoms in the middle decreasing towards the head, near which indifferent anchorage is available in 12 to 15 fathoms mud and pebble bottom. The thin layer of glacial silt over the rocky bottom is poor holding ground. The W arm of Surprise Cove has a restricted entrance and can be entered only by small craft. Small craft are advised to enter the W arm of the cove S of the largest island staying midchannel in 6 to 8 fathoms of water. Continuing W past the large island, the W arm widens to 0.4 mile with average depths of 16 to 21 fathoms in the center, mud and pebble bottom.

(552) **Blackstone Bay** empties into the S side of Passage Canal SW 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 N of the island. A 7¾-fathom shoal is 0.4 mile NNE of the N end of the island. An islet and nearby rocks awash are on the E 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 E 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 E 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.

(553) Depths along the W side of Willard Island range from 4¼ fathoms off the S side to 66 fathoms off the N 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 W shore. Strong localized W winds can occur over the moraine creating standing waves of 2 to 4 feet. **Blackstone Glacier**, and **Beloit Glacier** in the SE arm,

are active and there are generally numerous small icebergs in the head of the bay.

(554) **Passage Canal** has its entrance at the SW end of Port Wells between Point Pigot and **Blackstone Point,** the N extremity of the peninsula separating Cochrane and Blackstone Bays. The canal trends NW for 4 miles, then W and SW about 7 miles.

(555) 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.

(556) 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.

Chart 16706

(557) **Decision Point**, on the S side of Passage Canal about 3 miles W of Point Pigot, is marked on the N end by **Decision Point Light** (60°48'22"N., 148°27'20"W.), 35 feet (10.7 m) above the water and shown from a skeleton tower with a red and white diamond-shaped daymark.

(558) **Shotgun Cove,** on the S side of Passage Canal 2.5 miles W 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 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.

(559) The bight on the SE 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 NE part of this bight in 15 to 20 fathoms, mud bottom.

(560) **Trinity Point** is on the S side of Passage Canal 3 miles W of Decision Point. Tiny **Emerald Island** is 0.4 mile W 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 SW from the island. Small craft can anchor just outside the bay in 2½ to 3¾ fathoms of water with mud bottom.

(561) Anchorage in 12 to 18 fathoms, sticky bottom, can be had on **Bush Banks** which extend 0.3 mile from the S side of Passage Canal at a point 0.7 mile WSW from Emerald Island and 3 miles from the head. The least depth is 4½ fathoms at the SW end of the banks.

(562) Small craft can anchor at the NW end of the head of the canal in 6 to 12 fathoms.

(563) **Whittier** is on the S 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 1970's. 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.

Prominent features

(564) 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.

Routes to Whittier (see also chart 16700)

(565) **From the S via Prince William Sound Traffic Separation Scheme** (described earlier in this chapter under Prince William Sound). Depart the scheme N of Hinchinbrook Entrance and set courses to pass 1.5 miles NE of Smith Island, 1.5 miles N of Point Eleanor Light, 1.5 miles SW of Perry Island Light, 1 mile NE of Culross Island Light, 0.5 mile S of Point Pigot Light, 0.5 mile N of Decision Point Light, 0.5 mile N of Trinity Point Light, and thence to Whittier, clearing the S 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.)

(566) **From the W via Elrington Passage**. Clear the E side of Evans Island by 1 mile, thence 0.5 mile E of Pleiades Light, thence 2 miles E of Crafton Island Light, thence 1.5 miles SW of Perry Island Light, thence the same as from the S to Whittier.

(567) Vessels from Valdez usually use Perry Passage when going to Whittier.

Anchorages

(568) Large vessels sometimes anchor clear of the 4½-fathom shoal on Bush Banks about 2 miles NE of Whittier or in Pigot Bay.

Tides

(569) The diurnal range of tide at Whittier is 12.3 feet.

Currents

(570) The currents have little velocity in Passage Canal.

Weather, Whittier and vicinity

(571) Whittier is a town located at the SW 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.

(572) 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 S shore of Passage Canal is exposed to surge waves generated by avalanches occurring on the N shore.

(573) Generally, winds in Whittier flow from Portage Pass out Passage Canal (SSW) or the opposite direction (NNE). The wind vector with the greatest impact on Whittier is the S wind which blows off the Whittier Glacier. Such a wind may blow in the 30 to 40 m.p.h. range for considerably long periods.

Ice

(574) Whittier is a year round ice-free port.

Pilotage, Whittier

(575) 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. (See **Pilotage, General** (indexed), chapter 3, for the pilot pickup station and other details.)

(576) Vessels en route Whittier or Valdez can contact the pilot boat by calling "EMERALD ISLAND" on VHF-FM channels 13 and 16, 24 hours daily.

Towage

(577) 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.

Quarantine, customs, immigration, and agricultural quarantine

(578) (See chapter 3, Vessel Arrival Inspections, and Appendix A for addresses.)

(579) **Quarantine** is enforced in accordance with regulations of the U.S. Public Health Service. (See Public Health Service, chapter 1.)

Harbormaster

(580) The Port Director enforces harbor regulations. The office is located at S shore of the small-boat harbor, monitors VHF-FM channel 16, telephone 907-472-2330, FAX 907-472-2472.

Wharves

(581) There are two deep-draft facilities; a railroad-car barge facility, a ferry dock, a passenger loading dock. Whittier also has a small-boat harbor. Cargo handling equipment arrangements are made with the Alaska Railroad. 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. The Alaska Railroad can be reached by telephone at 907-265-2617 or 907-265-2670.

(582) **DeLong Pier:** at the E 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.

(583) **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 NE end of the wharf is still in use. The wharf is owned by the Alaska Railroad.

(584) **Prince William Sound Cruises & Tours Float:** Seasonal floating pier for tour boats, located just SW 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.

(585) **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.

(586) **Ocean Dock**, just W 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.

(587) **Whittier Small-Boat Harbor**, 0.25 mile W 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.

(588) A floating breakwater, marked by a light on its W end, restricts the entrance to less than 80 feet. A rock awash is near the center of the entrance, closer to the SW side. In 2003, 15 feet was available alongside the piers.

(589) **Whittier Passenger Loading Dock** is just W 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 W end of dock from Whittier Creek, 40 yards W.

(590) A floating dock, just W of the mouth of Whittier Creek, is available for docking cruise ships. A small-boat harbor is between the dock and the shore.

Supplies and repairs

(591) 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.

Ferries

(592) The Alaska State Ferry provides daily stops year round with connections to Valdez and Cordova.

Communications

(593) 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.

Charts 16705, 16709

(594) **Port Nellie Juan** extends 23 miles SW from its entrance between Culross Island and the mainland to the S. **Applegate Island,** on the NW side of the entrance, is low, flat, and wooded. **Port Nellie Juan Light** (60°35'52"N., 148°06'07"W.), 23 feet (7.0 m) above the water, is shown from a skeleton tower with a red and

white diamond-shaped daymark on the N end of the point on the SE side of the entrance.

(595) Port Nellie Juan is divided into three right-angled reaches into which many glaciers discharge. The innermost reach is **Kings Bay.** Midchannel 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.

(596) 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.

(597) **McClure Bay**, the first of two bays which indent the SE shore of the first reach, is deep and narrow and extends S 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 E 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 W arm is clear in midchannel and affords shelter for small vessels.

(598) Ruins of a cannery and wharf are on N side of a cove on the E side of McClure Bay near the entrance. A rock, with little water over it, is on the N side of the cove close S of the wharf ruins. A submerged rock is close off the S shore of the cove just inside the entrance. The cove accommodates only small craft.

(599) **Blue Fiord**, the second bay, is at the head of the first reach and extends S 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.

(600) **Derickson Bay**, **Deep Water Bay**, and **Greystone Bay,** are three prominent bays along the S shore of the middle reach of Port Nellie Juan. Along the N shore of this reach are long and narrow East Finger and West Finger Inlets, with Shady Cove midway between them.

(601) **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.

Anchorage

(602) 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 SE side of the entrance. The S of the two coves in this bight has a wide, even, gravel shore that is excellent for beaching a small vessel.

(603) Another indifferent anchorage is available for vessels up to 250 tons 0.7 mile SW 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.

(604) Small craft can find indifferent anchorage in some of the bights on the NW side of the first reach. The best of these is in the area W 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.

(605) **Main Bay**, 4 miles SE 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.

(606) **Falls Bay**, 2 miles SE 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 NE weather. The main part of the bay is clear and deep, but the entrance is restricted by rocks which protrude into the mouth allowing a narrow 0.2 mile width, in which the least found depth is 12 fathoms.

(607) **Crafton Island** is 1 mile long and wooded. At its N end are rocky bluffs about 100 feet high, while its S part is lower and has sandy beaches in places. Two low islets with sandy beaches are off its S end. **Crafton Island Light** (60°30'42"N., 147°56'04"W.), 70 feet (21.3 m) above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark at the NE end of the island.

(608) Crafton Island is surrounded by foul ground to a distance of about 0.5 mile on its E and S sides, where no sounding has been done. An exceedingly broken area extends over 2 miles SE from the island. Rocks, bare at about half tide, are 1 mile SE from the S end of the islets. Vessels should avoid all broken areas in this vicinity where depths less than about 50 fathoms have been found.

(609) The passage W of Crafton Island is foul along the shore of the islets, and three rocks which uncover are in the middle of the S entrance. This passage should be used only by small craft, proceeding with care and preferably at low water. The channel favors the W shore from the S entrance until abreast the middle of Crafton Island. A 4-fathom shoal is 0.1 mile E of the W shore point opposite Crafton Island.

(610) The clearer channel to Eshamy Bay follows the shore N 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 N, and rocky broken ground of 14 to 9 fathoms, or less, extends 0.6 mile N from the S point at the entrance of Eshamy Bay.

(611) **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 SE corner of the bay. The better entrance is through the middle of the deep narrow channel between the small islands and the E shore. **Eshamy Lagoon** extends W from Eshamy Bay, but its foul entrance with strong currents makes it inaccessible for strangers.

(612) **Point Nowell**, 4.5 miles S 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.

(613) **Knight Island** (see also chart 16700), on the W 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 N from Knight Island to Point Eleanor, the N end of the group.

(614) **Eleanor Island** has bluff, rugged shores. Broken ground extends 0.4 mile N and NW from **Point Eleanor** the N point of the island. **Point Eleanor Light** (60°34'51"N., 147°33'47"W.), 45 feet (13.7 m) above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on the point. **Northwest Bay,** on the NW side of Eleanor Island, is deep and clear. Anchorage for small vessels is available in the SW arm of the bay, about 0.4 mile from the head in about 20 fathoms.

(615) Near the E point of Eleanor Island, 1.8 miles S 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 S 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 SSE 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 SW of the group; it should be given a berth of over 0.4 mile from the SE.

(616) **Upper Passage**, separating Eleanor and Ingot Islands, is generally deep and suitable for small craft. One mile SE of N entrance is a 2½-fathom depth, position approximate, about 150 yards from a point on Ingot Island. **Block Island,** 1 mile long with its N end joined at low water to Eleanor Island, narrows the S part of the passage to about 400 yards. On the NW point of Block Island is an underwater rock, position approximate, reported in 1990. About 600 yards SE of Block Island is a ledge with 5 fathoms over it, possibly less.

(617) **Entrance Island**, high and wooded, is 0.3 mile S of Eleanor Island and on the N side of the S approach to Upper Passage. It is surrounded by deep water. A submerged rock, reported in 1990, is 0.3 mile S of Entrance Island. Foul ground extends 0.4 mile NE of Entrance Island.

(618) **Sphinx Island**, on the S side of the S approach to Upper Passage and 0.4 mile E of Ingot Island, is high and wooded, and surrounded by deep water. About 0.9 mile SE of Sphinx Island is a rocky area with a least known depth of 18 fathoms.

(619) **Ingot Island** is between Upper and Lower Passages. A prominent high wooded island is 0.2 mile off the NW end of Ingot Island. Two small bare rocks, close together and nearly awash at high water, are 0.5 mile SE from the S point of Ingot Island. Broken ground extends 0.5 mile SE from the rock to a ledge covered 3¾ fathoms.

(620) **Disk Island** is separated from Ingot Island on the E by **Foul Pass,** a narrow passage blocked by reefs. A landlocked bay with two narrow entrances makes into the W 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 S entrance which is reported to be about 80 feet wide and has a least depth of 3 fathoms. It is reported that the N side of the S entrance should be favored to avoid a ledge which 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 E side of the bay. In 1998, a rock awash was reported 0.1 mile W of Disk Island in about 60°29'30"N., 147°40'21"W.

(621) **Lower Passage**, between Ingot Island and the N 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 W entrance point of Louis Bay. A rock that uncovers at half tide, is 350 yards from the W shore, 0.8 mile inside the NW end of the passage. Foul ground extends from this rock to the head of the cove, 0.5 mile SW.

(622) A rock covered 1 fathom, is about 0.4 mile NW from the N end of Disk Island, and a 6-fathom area, position approximate, is 0.3 mile further N. These rocks are well out of the usual track of vessels going through Lower Passage.

(623) **Louis Bay** indents the NE side of Knight Island about halfway through Lower Passage, about 2.2 miles S 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 W arm is clear so far as is known.

(624) The E 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 E shore and 350 yards N from the entrance of the E arm. The arm is 0.1 to 0.2 mile wide; a ledge extends about 30 yards from the wooded islet on the W side of the entrance. When inside the entrance, favor the W side to avoid three rocks which bare at lowest tides.

(625) **Herring Bay**, at the NW 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 E 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 E of the rock.

(626) **Herring Point**, the N end of a narrow ridge about 1,000 feet high, forms the W side of Herring Bay.

(627) **Smith Island**, near the center of Prince William Sound, is high and wooded, and lowest at its SW end. Broken rocky bottom extends 3 miles NE from Smith Island. A lighted bell buoy is 0.3 mile S of a 5-fathom patch, 1 mile E of the island.

(628) **Little Smith Island**, close W of Smith Island, is bluff, high, and wooded. Rocky patches of 4¾ to 16 fathoms are about 1.5 miles N of the island. A rocky area of 9 to 10 fathoms extends 1 mile S from the island.

(629) **Seal Island**, 5.5 miles S of Smith Island, is wooded, high, and round. **Seal Island Light** (60°25'47"N., 147°24'56"W.), 45 feet (13.7 m) above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on the NW side of the island. Close to the E end of the island are two bare rocky islets, and about 0.1 mile off the W end is a small rock which uncovers 8 feet.

(630) Rocky, broken areas extend 1 mile E, NE and N from Seal and Smith Island. **Pennsylvania Rock,** 1 mile N of the island and marked by a buoy, is covered 2¼ fathoms. About 0.8 mile SW of the island is a 4½-fathom rocky area.

(631) Vessels generally use the channel between Seal and Smith Islands rather than the channels to the SE.

Chart 16700

(632) **The W 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.

Charts 16701, 16709

(633) **Montague Strait**, between Montague Island on the E and Latouche and Knight Islands on the W, is the broadest of the passages W of Montague Island leading from the sea to Prince William Sound. The strait affords an unrestricted channel 4.5 miles wide. Below the N 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 E part of Prince William Sound is via the passage W of The Needle, Green Island, and Seal Island, thence through the passage between Seal and Smith Islands. (See also chart 16705.)

(634) **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.**

(635) The W 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.

(636) **San Juan Bay**, an open bight just N 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.

(637) **Stair Mountain**, just N of San Juan Bay, is a prominent conical-shaped 1,595-foot peak which shows unmistakably from the S and SW. The summit is bare and the slopes have a scattering growth of trees.

(638) **Point Bryan**t is a rounding point of high eroded bluffs, about 3 miles N of San Juan Bay. The rocky shore is fringed with heavy kelp.

(639) **Macleod Harbor**, on the E side of Montague Strait, 6.5 miles N from Cape Cleare, is an excellent anchorage protected from all directions except the SW. **Point Woodcock,** on the N 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 S entrance point is gently rounding. The head of the harbor is marked by extensive mudflats.

(640) Large vessels entering Macleod Harbor favor the N 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 N

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.

(641) **Hanning Bay**, indenting the W side of Montague Island 13 miles N of Cape Cleare, is a good anchorage with E winds. Shoals to 2 fathoms extend about 0.5 mile from the S shore into the entrance to the bay and shoals to 4½ fathoms extend about 0.5 mile from the N 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 S winds is about 1.0 mile from the S shore of the bay, with Danger Island bearing, **256°** and **Point Bazil**, the N entrance point, bearing approximately N, in about 14 fathoms. Care should be taken to avoid the dangerous submerged wreck.

(642) **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 SE from Point Helen, the S extremity of Knight Island. Rocks that uncover are close NNE and SSW of The Needle. A shoal with a depth of 5.2 fathoms at the S end and 5.0 fathoms at the N end extends NE about 2 miles from a point 0.5 mile S of The Needle and extends W about 0.3 mile. A depth of 1.5 fathoms is about 0.6 mile NE of The Needle. A shoal spot with a depth of 3.7 fathoms is about 0.9 mile NNE of The Needle.

(643) **Little Green Island**, heavily wooded and about 100 feet high, is 6 miles NNE 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 SW off the S end of the island. A rock, covered 3½ fathoms, is 1.8 miles SW of the island, and two rocks with little kelp that uncover about 1.6 miles E of the island and close to the 50-fathom curve. A shoal area with depths of 3¾ to 9 fathoms is about 2 miles NE of the island.

(644) **Green Island,** between Knight Island and the N part of Montague Island, is wooded. The highest elevations are near the E side of the island, and slope gradually to the N and S 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 NW shore of Green Island. A prominent outlying rock, 26 feet high, is 1.2 miles NW of Putnam Point. The W 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.

(645) **Gibbon Anchorage** is a secure harbor for craft up to 500 tons in the cove about the middle of the NW side of Green Island. Pass 0.3 mile S of the outlying prominent 26-foot-high rock; avoid a ½ fathom shoal about 0.6 mile SW of the rock in 60°16'53"N., 147°28'49"W. Steer SE for **Putnam Point,**the prominent wooded point with a small bluff on the SW side of the cove. A 9-foot high rock in 60°16'55"N., 147°27'10"W, is 0.6 mile SE from the 26-foot-high rock. When about 0.2 mile from shore, steer more E and pass midway between Putnam Point and the islet, 0.2 mile N of the point. Anchor in the cove SE 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.

Passage between Green and Montague Islands

(646) The middle of the E 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 NE from this group.

(647) 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 SE of Channel Island.

(648) **Caution:** The area between Green Island and Montague Island has many rocks and shallow reefs. The area is foul and should be avoided with great care.

(649) **Port Chalmers**, on Montague Island 5 miles S of Graveyard Point, is S of **Gilmour Point** and extends NE about 1.2 miles. At its NE end are two small lagoons, the outer one having about 3½ feet of water along its S shore.

(650) A small wooded island, 165 feet high, is 1 mile SW of Gilmore Point. An islet, 10 feet high, is 0.16 mile SE of the island. Also, a kelp marked reef that uncovers 9 feet and other dangerous rocks and shoal areas extend almost a mile N of the island.

(651) 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 E 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 SE of Gilmore Point.

(652) 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 N of the

165-foot-high island and avoid the dangers in the approach. The reef 0.4 mile NE of **Wilby Island**, uncovers approximately 4.5 feet. Another reef, which uncovers 4 feet, is 0.9 mile WSW 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.**

(653) Small cannery tenders frequently anchor in 10 to 12 fathoms about 0.2 mile inside the 95-foot-high island SW 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.

(654) The small bay just N 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.

(655) **Stockdale Harbor**, just S of **Graveyard Point,** has three small tree-covered islets in the S part of the harbor that connects to one another and to Montague Island at low tide. The N half is clear except for a kelp-marked ¾-fathom reef which is 0.4 mile SW of the N entrance point in 60°19'18"N., 147°13'12"W. Anchorage is available in 15 to 20 fathoms along the N side of the harbor providing sufficient protection for small vessels against NE winds. The S end of the harbor is fouled with rocks and shoals and should be avoided.

(656) A ¾-fathom submerged reef marked by kelp, is 1.4 miles SW of Graveyard Point.

(657) **Montague Point** is the large rounded N end of the W 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 NE of Montague Point.

(658) **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 (7.3 m) above the water and shown from a skeleton tower with a red and white diamond-shaped daymark. A second reef 0.25 mile NE 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 SW of the light.

(659) 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.

(660) 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 NNW of Putnam Point is a good leading mark in entering this passage from the N.

(661) **Latouche Island**, on the W 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 E shore is precipitous and the 100-fathom curve is less than 0.3 mile off in places.

(662) **Danger Island**, 1.4 miles S 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.

(663) **Point Helen,** the SE extremity of Knight Island, is marked by **Point Helen Light** (60°09'11"N., 147°45'59"W.), 35 feet (10.7 m) above the water and shown from a skeleton tower with a red and white diamond-shaped daymark.

(664) **Hogan Bay**, on the E side of Knight Island, 2.5 miles N 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 E. A rock covered ¾-fathom is about 0.1 mile off the N 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 E side of the inner cove that extends outward about 109 yards which should be avoided. Favor the steep sloping spit on the W side of the channel when entering the inner cove.

(665) **Snug Harbor** is on the E side of Knight Island, 6.7 miles N of Point Helen. Its W arm is 0.3 mile wide and clear near midchannel, except for a 6.7-fathom shoal ENE 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 N and NE winds, can be had in the broad cove on the S side of the harbor in 12 to 15 fathoms, rocky bottom. **Discovery Point,** the S entrance point to Snug Harbor, is bold and high.

(666) A 14-fathom pinnacle is 1.5 miles NE, position approximate, and a 5½-fathom rock area is 2.0 miles NNE from Discovery Point.

(667) **Marsha Bay**, 5 miles N of Discovery Point, has a crooked narrow entrance and is suitable only for small craft. The depths are great except at its N end, where anchorage can be selected in 9 fathoms or less. The best entrance is N of the island that chokes the mouth of the bay. The N passage is deeper and wider than the S passage. Extreme caution is advised because rocks and shoal areas abound.

(668) **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 E 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.

(669) **Bay of Isles**, on the E 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.

(670) Foul ground extends 0.5 mile SE from the N point of the entrance to Bay of Isles. At the end of the foul ground is a rock covered 1¾ fathoms, 0.9 mile ENE from an island near the N shore.

(671) To enter Bay of Isles, pass in midchannel N of the islets in the middle of the bay. Continue 0.5 mile past the islets, and pass in midchannel W of the islands near the S shore. Then keep about 150 yards off the N shore in entering West Arm. Anchor in the middle of the broad part of the arm in 9 to 11 fathoms.

Chart 16702

(672) **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 W from Latouche. The recommended route, however is by way of Erlington Passage and the N part of Latouche Passage. Numerous submerged rocks and shoals with depths from 3.0 to 4.4 fathoms are about 1 mile N of Danger Island in 59°56'39"N., 148°05'25"W. to about 2 miles S of Point Erlington in 59°54'10"N., 148°14'22"W.

(673) Occasionally with W winds large pieces of glacial ice drift into Latouche Passage from Knight Island Passage.

(674) Latouche Passage, E 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 S winds. Avoid the E part of the passage in the vicinity of Izmaylov Island, the crescent-shaped islet 2.2 miles SW of Chicken Island. Rocks and kelp are in the passage between **Izmaylov Island** and Latouche Island.

(675) A rocky ledge extends 220 yards from the W shore of Latouche Island and lies directly E of Izmaylov Island. A rock lies 120 yards from the NW tip of Izmaylov in about 60°00'42"N., 147°59'25"W.

(676) From **Point Grace,** the N point of Latouche Island, to the N 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 E shore of Latouche Island 0.3 mile SE of Point Grace, and a dangerous rocky reef, awash at low tide, lies about 300 yards off the W shore of Latouche Island 0.8 mile SW of Point Grace in 60°04'20"N., 147°52'27"W.

(677) The SE shore of the E 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 SW 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 E end of Evans Island, 0.8 mile N of Bishop Rock. The island is connected to the shore by a gravel bar at low tide.

(678) **Latouche**, on the W side of Latouche Island 2.3 miles S 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 N of Latouche, is the site of a homestead. There are piles on the beach in this vicinity.

(679) The cove immediately E of **Powder Point** is shoal, and a reef extends 100 yards from the point. Anchorage can be had about 600 yards N of Powder Point in 10 to 15 fathoms.

(680) Two rocks lie about 300 yards W of Powder Point at 60°03'00"N., 147°54'37"W. Another rock lies about 500 yards SW of Powder Point at 60°02'56"N., 147°54'43"W.

(681) **Chicken Island**, 3.5 miles SW 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 W of Latounche Island towards the SE and 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 NE to SW and lies in the middle of **Wilson Bay**, just E of the N end of Chicken Island.

(682) **Horseshoe Bay** is on the W side of Latouche Island, 4.5 miles SW of Point Grace. Its S half is shoal with depths of 1/3 fathom. Small craft should enter near the N shore of the bay where they can anchor in about 3 fathoms. A mooring pile is in the N part of the bay. Vessels can also anchor about 0.3 mile off the entrance in 16 fathoms.

(683) **Elrington Passage**, W of Elrington Island, is generally used by vessels proceeding between Prince William Sound and points to the W. 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.

Currents

(684) The flood current sets NE and the ebb SW with a velocity of about 1.5 knots.

(685) **Elrington Island**, high and mountainous, is between Latouche Passage and Elrington Passage. The

SW end of the island has three prominent points between which are South Twin Bay and North Twin Bay.

(686) **Point Elrington**, the SW 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 E of the point, has a low divide about 100 feet high at the E end, separating it from the main island.

(687) **Point Elrington Light** (59°56'11"N., 148°15'01"W.), 30 feet (9.1 m) above the water and shown from a skeleton tower with a red and white diamond-shaped daymark, marks the extremity of the point.

(688) **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 W and SW winds.

(689) **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 S 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 S one.

(690) The N point at the SW end of Elrington Island is a high hill, connected with the island at its SE end by a long, low, wooded neck. **Lonetree Point,** the most N 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 (9.1 m) above the water, shown from a skeleton tower with a red and white diamond-shaped daymark.

(691) On the SE end of Evans Island is **Evans Island Light** (59°59'07"N., 148°07'28"W.), 20 feet (6.1 m) above the water, shown from a skeleton tower with a red and white diamond-shaped daymark.

(692) A high island is in the bend at the S end of the passage close to Elrington Island, from which its SE 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 S of the high island in what is locally called **Fox Farm Bay.** This anchorage offers good protection in most weather.

(693) A pyramidal pinnacle rock, about 8 feet high with grass on top, is about 250 yards off the N point at the SW entrance to Elrington Passage, about 1.4 miles NE 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 E side of the passage, 3.2 miles E of Lonetree Point Light. In the SE angle of the passage, 1.4 miles SW of the grass-covered rock, anchorage can be had in 5 to 20 fathoms, muddy bottom, depending on the swinging room required.

(694) The N end of Elrington Passage is marked by **Elrington Passage Light** (60°02'46"N., 148°00'42"W.), 25 feet (7.6 m) above the water and shown from a skeleton tower with a red and white diamond-shaped daymark, on the S extremity of the island W of Bettles Island.

(695) **Sawmill Bay** indents the E side of Evans Island near the N entrance to Elrington Passage. The end of the long peninsula on the SE 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 (4.3 m) above the water, shown from a skeleton tower with a green square daymark, and visible through the entrance N of Bettles Island. The entrance from Elrington Passage is 700 yards W of Elrington Passage Light between two islands W of Bettles Island; a daybeacon marks a reef about 0.5 mile NW of Elrington Passage Light which uncovers 3 feet.

(696) There is a 2.2-fathom shoal at the E approach to Sawmill Bay, approximately 800 yards S of Johnson Cove at 60°03'25"N., 147°58'34"W. A rocky 8-fathom patch is about 900 yards N of the peak of Bettles Island. A shoal of 7½ fathoms lies 850 yards E of the daybeacon NW 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 SW from the W point of the mouth to Johnson Cove. The second set of buoys runs from Port Benney (60°03'48"N., 148°00'54"W.), in a SW direction to Sawmill Bay Light 3. In the event of an oil spill, containment booms will be extended along the buoys.

(697) **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.

(698) **Johnson Cove**, on the NE 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.

(699) **Bettles Island**, the largest of the high wooded islands at the entrance to Sawmill Bay, has foul ground along its N and S shores.

(700) **Crab Bay** is a small indentation on the N shore of Sawmill Bay. A saltery just inside the W entrance point has a wharf in ruins. A small boat harbor with a floating pier available for seaplanes and small craft is on the W side of the bay and marked by a daybeacon. A reef covered 1 fathom is about 300 yards SE 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.

(701) **Chenega Bay**, a Native community on the W 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. The Village Council Office can be reached by phone at 907-573-5172. Chenega Bay was established in 1984 after Chenega, on the S end of Chenega Island 13 miles N, was abandoned after the 1964 earthquake.

(702) **Port Benney** (abandoned) was formerly the site of a saltery just W of Crab Bay. There is a small floating pier in the protected cove at the port.

(703) **Port Ashton**, on the NW 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 NE from the wharf ruins.

(704) **Port San Juan** is at the SW 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 October 2000. A waterfall is behind the fish hatchery. A fish pen lies 90 yards E of the hatchery pier and is marked by orange buoys on each corner. A daybeacon lies about 500 yards E of the pen. A rock covered ½-fathom, is about 150 yards S of the daybeacon. Another rock, covered 1¼ fathoms, is about 325 yards NE of the wharf. In the approach to the wharf, there are spots with less than 4.5 fathoms over them. A small boat pier is opposite of Port San Juan about 0.3 mile SW of Sawmill Bay Light 3.

(705) 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.

Anchorage

(706) 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.

(707) Sawmill Bay can be entered by either the NE or the SW entrance. The former is recommended because of its greater width. In proceeding toward the SW 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 N side, the island should be favored to avoid the rocks off Port Ashton. When entering through the SW entrance, care should be taken to avoid a reef on the E side of the entrance in about 60°02'54"N., 148°01'03"W.

Tides and currents

(708) The diurnal range of tide in Sawmill Bay is 11.3 feet. Little or no current exists in the bay.

(709) **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 SW along the coast; otherwise Elrington Passage is more direct and is generally used.

(710) Prince of Wales Passage has several dangers. The principal channel at the N entrance is E of Flemming and Ship Islands, and the 2¼-fathom shoal in 60°08'19"N., 148°02'07"W., about 0.5 mile S of Flemming Island, then W 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 SE of a prominent point on the E 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 E side of the passage from 3.2 to 5 miles S 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 W of the middle island is an area of broken ground on which the least depth is 4 fathoms and extends over 0.7 mile SW 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 NE of **Amerk Point**, a prominent low sand point with a fringe of trees on Bainbridge Island. These areas should be avoided by vessels.

(711) The channel W 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 W of the S end of Flemming Island at **Panhat Point** on Bainbridge Island. To enter the anchorage area from the S, pass 300 yards off the point on the N course until 500 yards N of the point, head W and then S to the anchorage.

(712) **Gage Island**, wooded and with a group of partly bare rocks off its S side, is 0.5 mile N of Flemming Island and is a good mark for the N entrance of Prince of Wales Passage.

(713) **Ship Island**, with a few trees, is the S of two on the E side of Flemming Island. A reef bare at low water extends 225 yards SE.

(714) **Iktua Bay**, in the NW shore of Evans Island, opens to the N on the E side of the passage about 1.5 miles S 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 E 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 W shore of the bay may be followed about 200 yards off for 0.7 mile until abeam of the S of two small islets. Good anchorage for small craft in 2 to 10 fathoms, mud bottom, is E of these islets.

(715) **Iktua Rock**s, a group of bare rocks, highest about 3 feet, are 0.4 to 0.5 mile off Evans Island and 1.5 miles S of Flemming Island.

(716) **Guguak Bay** is on the E side of the passage about 1.3 miles S of Iktua Rocks. A rock that bares at half tide marks the W side of the narrow entrance. Rocks, that uncover, are across a narrow portion of the bay, about 0.2 mile S of the entrance. There is anchorage in 3¾ to 7 fathoms outside the bay entrance.

(717) The only good anchorage in Prince of Wales Passage is in circular **Squirrel Bay,** at the SW 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.

Ice

(718) Glacial ice is sometimes discharged through Prince of Wales Passage.

Currents

(719) Off Amerk Point at the narrowest part of the passage, the flood sets N at a velocity of 0.8 knot and ebbs SW at a velocity of 2.5 knots. Between Flemming and Evans Islands at the N end of the passage the velocity is from 1.5 to 2 knots.

(720) **Bainbridge Passage**, between Bainbridge Island and the mainland, extends NE for 10 miles from Port Bainbridge to Knight Island Passage. A 6.7-fathom (12.3 m) shoal in 60°06'33"N., 148°17'22"W., is in the middle of the W entrance to the passage.

(721) **Point Waters** is the NW point of the SW entrance to Bainbridge Passage. A ledge with rocks awash is 250 yards offshore.

(722) 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 S of **Point Countess,** the NW point of the NE entrance to Bainbridge Passage. Another ledge that uncovers 4 feet is about 250 yards off the N shore, 1.8 miles E of Point Waters, the NW point at the W entrance to the passage. Although there is deep water between both these ledges and the N shore, vessels should pass SE of them.

(723) A recommended anchorage in the passage is in the small bay about 2.2 miles SW 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 NE entrance point. A 2-fathom (3.6 m) shoal in 60°10'39"N., 148°07'05"W., is about 0.3 mile SE of the entrance to the bay.

Currents

(724) The tidal current in Bainbridge Passage floods NE at a velocity of 3.1 knots and ebbs SW at 2.4 knots.

Chart 16700

(725) **Knight Island Passage**, on the W and S sides of Knight Island, is used by vessels calling at bays on the W side of Knight Island. With E winds it offers a smoother channel from Latouche Passage to the N end of the Naked Island group than the generally used route E of Knight Island.

(726) From its N entrance between Herring Point and Crafton Island, where it is 5 miles wide, the passage extends S for about 16 miles to Pleiades Islands, with a least width of 2 miles at the SE end of Chenega Island. The channel leads E of the Pleiades, where it is 1.2 miles wide between them and Point of Rocks. From these islands the passage has a SE trend for 10 miles, with widths of 3 to 4 miles, to Montague Strait between Point Helen and the N end of Latouche Island.

(727) 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 W side is generally bold, except for the bight between Crafton Island and Point Nowell. From Lower Herring Bay to Pleiades Islands, the E shore is foul for 0.8 mile off, with islands, rocks, and reefs. The bays on the W 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.

(728) **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 NW of the northernmost island is a bare rock islet and S of the southernmost wooded island is a long, low lying reef that extends 300 yards. A rock, about 400 yards W 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 E of the N end of the southernmost island. **Pleiades Light** (60°14'24"N., 148°00'38"W.), 30 feet (9.1 m) above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on the N end of the northernmost island of the group.

Currents

(729) The tidal currents in Knight Island Passage have a velocity of 1 to 2 knots.

Ice

(730) Considerable glacial ice has been seen in the passage S of Pleiades Islands. It comes E between Point

Countess and Chenega Island, and drifts as far as Latouche Passage with the ebb.

Chart 16702

(731) **Little Bay**, on the S side of Knight Island, 1.8 miles NW 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 S winds.

(732) **Mummy Bay,** in the S 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 which extends 200 yards from the E side of the small tree covered island at the entrance to the arm.

(733) **Thumb Bay** is a small inlet opening into the S 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 NW.

(734) **Lucky Bay** and **Italian Bay** are unimportant inlets on the S shore of Knight Island between Long Channel and Mummy Bay.

Chart 16704

(735) **Squire Island** and Mummy Island, two large islands on the E side of Knight Island Passage, are separated from Knight Island by Long Channel. Squire Island, the S one, is the higher of the two. A drying ledge is 0.3 mile SW from **Squire Point,** the S end of the island. Two small islands are 0.3 mile off the W side of Squire Island, and from these islands a large reef extends 0.4 mile W 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.

(736) **Long Channel** is an inside passage, 4.5 miles long, for small craft from Drier Bay to the S 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 E side and keep within 100 yards of Knight Island to avoid the dangers. A rock, covered at high water, is in the N entrance 0.3 mile E from the N end of Mummy Island. The tidal currents have little velocity.

(737) **Copper Bay**, on the E side of Long Channel, is abreast the N 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.

(738) **Mummy Island**, on the S side of the entrance to Drier Bay, is high and wooded; on the S half of the island are patches of grass. Reefs extend 0.3 mile SW from the N end of the island, and wooded islets with reefs around them extend 0.6 mile W from the middle of the island.

(739) **New Year Islands** are on the N 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 (7.0 m) above the water and shown from a skeleton tower with a red and white diamond-shaped daymark, is on the SW side of the island S of the largest island. Bare reefs extend 300 yards SW from the light. Rocks that uncover, about 500 yards NNE from the N 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 N.

(740) **Drier Bay** has its main approach between New Year Islands and Mummy Island. The SE 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 N arm and found to be clear of dangers except those charted.

(741) Local knowledge may be required in recognizing the entrance to Drier Bay, as there are several groups of islands on the E side of Knight Island Passage, both N and S of the entrance. Approaching from N, the island in the mouth of Johnson Bay is a good mark. The chart is the guide.

(742) **Clam Islands**, two in number, low and wooded, are between New Year Islands and **Rocky Point,** the N point of Drier Bay. A 3.1-fathom rocky patch is 0.3 mile S from Clam Islands, about in the middle of the entrance.

(743) **Range Isle**, small and wooded, is close to the N side of Drier Bay and 2 miles E of New Year Islands. The line of Range Isle just clear of the N shore E of it, leads about midway between Mummy Island and New Year Islands, and is sometimes used as a range for entering the bay.

(744) **Cathead Bay** is on the S 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 W 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 E of the S island. A large foul area extends 175 yards S of the S island almost to shore.

(745) **Cathead Shoal**, with a least known depth of 3½ fathoms, is about 500 yards NE from **Cat Head,** the point on the W side of Cathead Bay entrance. Entering Cathead Bay, favor the E side to avoid Cathead Shoal

and the 0.6-fathom shoal, then proceed with caution on either side of the islands at its head.

(746) **Mallard Bay**, on the S 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 SE weather.

(747) **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.

(748) The point on the NE side of Barnes Cove is prominent and high, with bare rocky slides. A reef extends 150 yards off the NW side of this point.

(749) **Chase Island**, small and wooded, is 700 yards from the NW side of Drier Bay and 1.8 miles E of Range Isle. A ledge awash and numerous rocks, covered and awash, extend 200 yards SW to 200 yards SE of Chase Island.

(750) A ledge awash at half tide is 0.4 mile NE of Chase Island. A rock that uncovers at lowest tide is 275 yards NNW of the half-tide ledge.

(751) **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 W from the entrance. Anchorage can be selected about 0.3 mile from shore in the NE end of Drier Bay, in about 20 fathoms.

(752) **Port Audrey** is the N arm of Drier Bay. A rock covered 1.2 fathoms in 60°20'26"N., 147°46'04"W., is about 500 yards S 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.

(753) **Squirrel Island**, 1 mile N of New Year Islands and 0.5 mile from the E shore, is the northernmost of the islands extending 1.5 miles N of the entrance to Drier Bay. It is high and wooded.

(754) **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, N of the island, is about 125 yards wide between reefs that bare. The axis of the channel is about 125 yards from the N shore. From Knight Island Passage, a course for the N 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.

(755) A covered rock, dangerous for small craft, is 0.1 mile S of **Aguliak Island** and a 2½-fathom shoal is about 0.4 mile SW of the island. In October 1999, there was a 5 fathom shoal about 0.47 mile S of Aguliak Island in about 60°21.2'N., 147°53.3'W, and about 0.93 mile SW of Aguliak Island, there was a 4 fathom shoal in about 60°20.9'N., 147°53.9'W.

Charts 16701, 16705

(756) **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 NNE from Channel Rock and 0.6 mile from the shore of Knight Island. From this rock S, the E side of Knight Island Passage is very broken and foul, with deep water extending close to the dangers.

(757) **Lower Herring Bay** is suitable only for small craft. The best entrance is E 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 E end of the bay. The passage between this rock and the point N, 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 S side 1.2 miles inside the entrance of the bay, in not less than about 10 fathoms.

(758) 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 SW of the reef in 60°22.7'N., 147°52.8'W.

(759) **Chenega Island**, on the W 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 S shore of Chenega Island is indented by several small bays where small vessels can find anchorage and shelter from the prevailing NE storms.

(760) **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**.

(761) **Chenega,** an abandoned village, is at the head of a cove indenting the S end of the island, which is marked by three small wooded islets. A rock bares 4 feet 150 yards N 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 S.

(762) Small vessels can anchor in the cove fronting Chenega, in 5 to 15 fathoms, soft bottom. The anchorage is only partly protected from the S by the entrance islets and is not recommended in S weather. To enter, pass 300 yards W 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.

(763) **Whale Bay** indents the mainland 4 miles SW of Chenega. A low portage at the head of the W arm connects with the head of Port Bainbridge. The bay is deep, but small craft can find anchorage along the E shore of the S arm, and in 6 to 10 fathoms, mud bottom, in the small bight in the N side of the W 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.

(764) **Dangerous Passage** separates Chenega Island from the mainland. The N entrance of the passage is obstructed for a distance of about 0.6 mile off the N 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 NNW of the island. It is difficult to pick up the N entrance at night.

(765) About 5.5 miles from the N 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 N of Delenia Island; a 1¾-fathom shoal is 425 yards N of the grassy islet. The deepest and straightest channel is between this shoal and the nearby W shore of Dangerous Passage, and is 300 yards wide. The channel to the E and S of Delenia Island is wider, but a rock, bare only at lowest tides, is 225 yards E of the grassy islet. There are numerous shoals between the island and the E shore. Deeper draft vessels should pass to the W of Delenia Island, maintaining a distance of not more than 200 yards off the W shore of Dangerous Passage in the vicinity of the 1¾-fathom shoal.

(766) The best anchorage in Dangerous Passage is in the vicinity of Delenia Island. There is good holding ground about 0.3 mile SW of the Island in 15 to 20 fathoms.

(767) **Granite Bay**, on the N side of the N entrance to Dangerous Passage, has irregular depths and is not recommended for anchorage.

(768) **Paddy Bay** is about 3 miles SW of Granite Bay. Vessels entering should favor the E side to avoid a 2½-fathom submerged ridge located 0.3 mile W of **Paddy Point**. To avoid dangers, a distance of 200 yards should be maintained from the shore throughout the bay. The small embayment found N 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 W of the S end of the islet near the head of the bay, and near the middle of the entrance to the NW arm. The bay affords anchorage for moderate-sized vessels in either of the two arms at the head.

(769) **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.

(770) **Ewan Bay** indents the N shore of Dangerous Passage about 5 miles from the N 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.

(771) **Jackpot Bay** is about 3 miles SW 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 E 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 N part of the bay; the entrances are narrow but free of dangers.

Charts 16700, 16701

(772) **Icy Bay**, at the SW 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 E 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 W shore of Icy Bay, 0.8 mile N of the entrance to Nassau Fiord.

Ice

(773) 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 W of the Pleiades Islands and extend N into Dangerous Passage. The discharge is continuous but irregular in volume, and is mainly SE. When heavy it blocks the entrance to Whale Bay and passes S of the Pleiades Islands. Isolated bergs of considerable size frequently drift E as far as Latouche and are a menace to navigation. Ice floes have been known to pass S through Bainbridge Passage and then N into

Prince of Wales Passage. No ice has been observed E of Delenia Island.

Chart 16683

(774) **Procession Rocks**, 4.3 miles N 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.

(775) **Port Bainbridge** is a deep body of water that extends about 12 miles N 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 (13.1 m) shoal in 60°07'38"N., 148°20'51"W., and on the W side of the bay is about 1.5 miles NW of Point Waters.

(776) **Point Pyke**, the E entrance point to Port Bainbridge, is a prominent headland that rises almost vertically.

(777) At the head of Port Bainbridge, the W arm extends about 1.5 miles to the N. 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 E entrance point.

(778) **Bainbridge Glacier**, about 1 mile wide, discharges into Port Bainbridge opposite Bainbridge Passage.

(779) **Auk Bay**, on the W 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 N shore, 1 mile inside the entrance. The S entrance point is marked by a prominent pinnacle rock.

(780) A prominent brown rock about 10 feet high is 0.3 mile offshore, 2.5 miles N of Cape Puget.

Chart 16702

(781) **Swanson Bay**, a long narrow bay just N of Point Pyke and extending 3.5 miles to the E, 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.

(782) **Hogg Bay**, about 2 miles N 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 N shore about 1 mile inside the entrance, and a rock awash at low water 180 yards off the S shore, 1.7 miles from **Swanson Point.**

(783) Fair anchorage can be had near the head of the bay at the entrance of the N arm, in 25 fathoms, hard bottom, with patches of sand and gravel. Small craft can find excellent shelter at the head of the N arm. A beach suitable for beaching small craft is behind the N island near the entrance to the N arm.

(784) Bainbridge Passage was discussed earlier in this chapter.

Chart 16683

(785) 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.

(786) A constant current sets SW along the Kenai Peninsula. (See remarks on currents in chapter 3.)

Caution

(787) A danger zone of an air-to-air gunnery practice area is in **Blying Sound**. (See **334.1300**, chapter 2, for limits and regulations.)

(788) **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 E or W. Several bare rocks are off the cape, the farthest being about 0.2 mile.

(789) **Puget Bay**, the first indentation W of Cape Puget, is funnel shaped and extends N for about 6 miles. The bay is deep throughout and free from dangers except for rocks and reefs close inshore.

(790) **Goat Harbor** is an inlet on the E 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 SW. A gravel and shingle bar with a least known depth of 5½ fathoms extends across the entrance. A rock awash is 0.2 mile W of the small islet off the N entrance point.

(791) Near the head of Puget Bay, and on the E side, is a small cove that affords shelter for small craft. A rock awash is about 100 yards off the S entrance point.

(792) **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 December 1998, a rock awash was reported about 0.4 mile south of Cape Junken in about 59°54.7'N., 148°38.15'W.

(793) **Johnstone Bay** is a large open bight W 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 N of

Johnstone Bay and drains through a stream at the E end of the sand beach. An unnamed cove with a shingle beach is at the E entrance to the bay, just NW of Cape Junken. It is wide open to the SW and affords little shelter. A black rock, 35 feet high, marks the W entrance, and there is a low rock nearly awash at the E entrance.

(794) **Cape Fairfield** is a bold, rounding cape with eroded bluffs and many rockslides. A large pinnacle rock, 126 feet high, is off the SE pitch of the cape.

(795) **Whidbey Bay**, a large open bight just W of Cape Fairfield, has a black sand beach at the head. Up the valley is a prominent hanging glacier.

(796) 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 W end of the sand beach.

(797) **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.

(798) Just W of Cape Mansfield is **Horsehead Bay**, approximately 1 mile wide at the entrance, with rocks awash extending 0.3 mile SE at the W entrance point. It is exposed to the S 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.

(799) **Day Harbor**, a spacious body of water just E 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.

(800) **Fault Point**, the E entrance point to Day Harbor, terminates in a narrow point showing several remarkable faults in the rock formation.

(801) **Anchor Cove**, about 2 miles N from Fault Point, is a small cove affording excellent shelter for small craft. A short distance off the E shore of the cove near its head is a reef awash at high water. The shores are heavily wooded.

(802) **Bowen Anchorage**, 4 miles N 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.

(803) 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 NW corner of the bay, NW of Bowen Anchorage, affords anchorage 0.4 mile offshore in 15 to 18 fathoms.

(804) **Talus Bay** is a small cove on the W shore of Day Harbor, affording anchorage in 10 to 15 fathoms, but it is exposed to the SE. A rock bare at low water is about 100 yards off the E entrance point.

(805) **Safety Cove** is a small deep cove about 1 mile S of Talus Bay. Anchorage can be had in the center of the cove in 25 to 30 fathoms.

(806) **Killer Bay**, a small cove about 2 miles S 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 S entrance point.

(807) **Driftwood Bay** is about 3 miles N 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 S shore of the bay.

Chart 16682

(808) **Cape Resurrection** (59°52.1'N., 149°17.0'W.), at the E entrance to Resurrection Bay, is a precipitous headland of solid rock, with little vegetation except some trees on the lower slopes. From the E two dome-shaped peaks, the N one the higher, show at the end of the cape, and a low saddleback of the peaks rises to higher mountains farther N. These are the only dome-shaped peaks in the vicinity, which assures easy recognition of the cape.

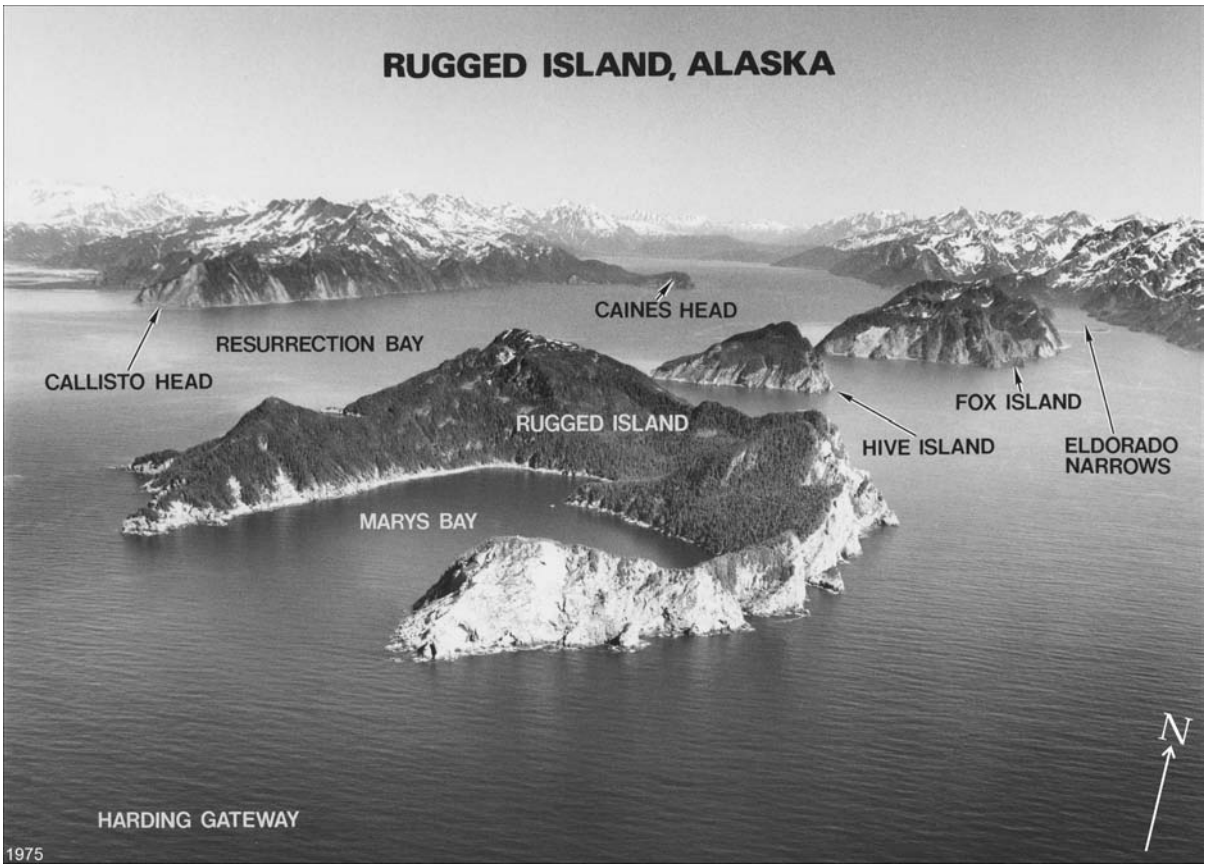
(809) **Barwell Island**, 0.4 mile S from Cape Resurrection, is small, bare, rounded, precipitous, and high.

(810) 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 E weather because of tide rips, confused seas, and seas bouncing back off the cliffs of Cape Resurrection.

(811) **Resurrection Bay** extends about 16 miles inland N 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 N 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.

(812) **Harding Gateway**, the S entrance to Resurrection Bay, is between Cheval and Rugged Islands.

(813) **Seal Rocks**, the southernmost land feature in the W 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°31'12"N., 149°37'48"W.), 285 feet (86.9 m) above the water, is shown from a skeleton tower with a diamond-shaped red and white daymark on the summit of the largest islet.

(814) **Lone Rock** stands well SW 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 N of it. The passage between Seal Rocks and Lone Rock is clear and is frequently used by vessels between Resurrection Bay and the coast SW.

(815) **Chiswell Islands**, a group of high precipitous, rocky islands, on the W side of the approach to Resurrection Bay, are sparsely wooded, most have off-lying rocks, and there are strong tidal currents between them.

(816) **Pilot Rock**, 9.5 miles SW of Cape Resurrection, is a bare, rounded, rocky islet about 100 feet high. **Pilot Rock Light** (59°44'31"N., 149°28'12"W.), 100 feet (30.5 m) above the water, is shown from a skeleton tower with a diamond-shaped red and white daymark on the highest part of the rock.

(817) **Agnes Cove**, just W of Cheval Island, is sheltered from the SE, but is too deep for convenient anchorage. However, it is reported that during E gales small vessels can find good anchorage in the E part of the cove.

(818) **Porcupine Cove**, about 4 miles S from Bear Glacier, offers a good anchorage for small craft in all except SE weather. Two shoals are in the entrance to the cove. A depth of 1.6 fathoms is on the W side of the entrance in 59°50'42"N., 149°35'04"W. and 2.3 fathoms is on the E side of the entrance in 59°50'52"N., 149°34'27"W. Two islets are in the cove about 200 yards off the W 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 which 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.

(819) **Bulldog Cove**, the first cove S from Bear Glacier, affords a good anchorage for small craft in SW weather. In N weather it is exposed to winds sweeping off the glacier. The best anchorage is in the S bight in about 10 fathoms, sticky mud bottom.

(820) **Bear Glacier**, large and prominent, is on the W shore W of Cape Resurrection. It is inactive and has an earthy appearance.

(821) Toward the E shore in the entrance of Resurrection Bay are three large, high, rugged islands, named in order from S, 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 SE end of Fox Island.

(822) **Marys Bay**, a large cove indenting the S shore of **Rugged Island,** affords fair anchorage in E weather. Anchor in the E part with Pilot Rock about on range with the S entrance point. An Army pier, in poor repair, is on the S shore of the cove. **Rugged Island Light** (59°50'18"N., 149°22'26"W.), 438 feet (133.5 m) above the water, is shown from a square frame with a diamond-shaped red and white daymark on the SE end of the island.

(823) **Sunny Cove**, the S bight on the W 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 W winds. The williwaws are bad with E 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.

(824) Small craft can also anchor in the SE arm of **Humpy Cove,** the two-arm bay on the E shore 1.7 miles NNE of Fox Island. In the winter this bay affords better protection than Sunny Cove, which is bad for small craft in NW weather. The anchorage is in 7 to 8 fathoms, sandy bottom. The narrow bight extending E is filled with a sandflat which bares at low water.

(825) **Thumb Cove**, on the E shore NE from **Caines Head,** is 0.8 mile wide. The cove is subject to strong williwaws in E weather. In N weather, good protection is reported close to the bluff just W of **Likes Creek,** at the N end of the cove. Anchorage can be selected 0.4 to 0.5 mile from its head in 25 to 30 fathoms, soft bottom. A flat makes out 200 to 300 yards from the N shore for a distance of 0.4 mile from its head. The point on the N side of the entrance is marked by a light. Caines Head is marked by a light.

(826) **Seward** is on the W side of the N end of Resurrection Bay. The town is the S terminus of the Government-owned Alaska Railroad. Seward is 1,234 miles from Seattle via the outside route from Strait of Juan de Fuca, and 1,398 miles via the inside passage to Cape Spencer.

Prominent features

(827) Cape Resurrection, Bear Glacier, and the mountains that rise precipitously from the shores of the bay are conspicuous in the approaches.

Channel

(828) The approach to Seward is in depths of over 50 fathoms and is clear of obstructions.

Anchorages

(829) 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.

Dangers

(830) 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.

(831) Submerged ruins and obstructions may exist in an area about 550 yards channelward of the high water line at Seward.

Routes

(832) Eastward: From the entrance point, 0.6 mile SSW of Barwell Island, set courses to pass 0.6 mile W of the SW part of Fox Island, 0.5 mile E of Caines Head Light, and thence to the waterfront at Seward.

(833) Westward: From the entrance point, 1 mile E of Pilot Rock, set courses to pass 2.5 miles W of the S extremity of Rugged Island, 0.5 mile E of Caines Head Light, and thence to Seward.

Tides

(834) The diurnal range of the tide is 10.6 feet at Seward.

Weather, Seward and vicinity

(835) 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).

Pilotage, Seward

(836) 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.)

(837) Vessels en route 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.

Towage

(838) Tug services are available 24 hours a day at Seward and can be obtained through ships' agents.

Image courtesy of Denny Hamilton (2006)

Quarantine

(839) A U.S. Public Health Service Contract Physician is located at the hospital in Seward. (See Appendix A for additional information.)

(840) **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.

Coast Guard

(841) A Coast Guard cutter is stationed at Seward in the small-boat harbor.

Wharves

(842) Seward has a deep-draft terminal, coal terminal, ferry terminal, small-boat harbor, and many shallow-draft wharves. 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.)

(843) **Alaska Railroad Cargo Dock:** NW corner of Resurrection Bay; W side of breakwater; 500-foot (152 m) face; 570 feet (173 m) berthing space with dolphins; 35 feet (10.7 m) alongside; deck height, 24 feet (7.3 m); 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.

(844) **Alaska Railroad Cruise Dock:** 400 feet (122 m) W of Cargo Dock; 200-foot (61 m) face; 38 feet (11.6 m) alongside; 735 feet (224 m) each side; 33 to 35 feet (10.1 to 10.7 m) alongside; deck height, 24 feet (7.3 m); 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.

(845) **Coal Dock:** 500 feet (152 m) W of Cruise Dock; 1,763 feet (537 m) of berthing space with dolphins; 52 feet (15.9 m) alongside; shipment of coal; owned by Hyundai Merchant Marine America, Inc. and operated by Seward Terminal, Inc.

(846) **Seward Small-Boat Harbor**, adjacent W of Coal Dock, is protected by breakwaters. The entrance and

breakwaters are marked by lights. The harbor has 12 feet (3.7 m) alongside the docks for mooring commercial vessels, recreational craft, excursion vessels, U.S. Coast Guard vessels, and tugs

(847) 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.

(848) The **City "T" Dock** and **Seward Fisheries Wharf** are at the N 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.

(849) **University of Alaska Institute of Marine Science Wharf:** S 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.

(850) **Note:** A section of sheet metal, submerged 3 feet, extends 10 feet SW of the SW 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.

(851) **Smoky Seafoods Wharf:** 300 yards SSW of the University of Alaska Wharf; 250-foot (76 m) face; 14 feet (4.3 m) alongside; deck height, 18½ feet (5.6 m); receipt of seafood and icing fishing vessels; owned and operated by Smoky Seafoods, Inc.

Supplies

(852) Some marine supplies are available and there are stores in town. Fuel is available from numerous wharves in Seward and on the E side of Resurrection Bay at the North Dock.

Repairs

(853) Limited small boat hull and engine repair facilities are available. A 50-ton boat lift is at the Small Boat Harbor.

(854) **Seward Marine Industrial Center**, on the E side of Resurrection Bay, just above the mouth of **Fourth of July Creek**, has a 5,000-long-ton marine elevator and a 250-ton mobile boat lift operated by Seward Ship's Drydock, Inc. In 2001, shoaling to 18 feet (5.5 m) was off the entrance to the Seward Marine Industrial Service facility.

Communications

(855) 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.

(856) Seward has radio and cable communications with the other Alaska ports and Seattle. Telephone and telegraph communications are maintained.

(857) **Aialik Bay**, W of Resurrection Bay, extends 16 miles inland from the N 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 S part of the bay to an elevation of about 1,000 feet. The N shores are covered with alders in places.

(858) 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 SW from Resurrection Bay sometimes enter the bay at Aialik Cape, pass S of Chat Island, round the N end of Harbor Island, and pass out at Granite Cape.

(859) **Chat Island** is a steep, high, rocky, and wooded island; two conspicuous pinnacles are close to its S shore. Between it and **Aialik Cape** are a smaller island and a number of rocks.

(860) **Harbor Island** is the largest of a group of high, precipitous, rocky, and partly wooded islands in the mouth of the bay and NW of Chiswell Islands. The shores in many places are sheer cliffs, especially the E shore of **Natoa Island,** Midway in the channel between **Beehive Island** and the small island at the SE end of the Harbor Island group is a rock that is awash at lowest tides.

(861) Small vessels proceeding along the coast use the pass locally known as **Petes Pass,** between Harbor Island and the first island to the E. A depth of 2.5 fathoms is avaiable in the pass. Vessels using this passage should favor Harbor Island when passing through this narrow opening.

(862) **Granite Cape**, the S 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.

(863) **Twin Islands**, in Dora Passage, resemble each other in contour and are high and wooded. The arch off the S end of the N island is conspicuous.

(864) **Holgate Arm** is the largest indentation on the W side of Aialik Bay. The arm is too deep for anchorage and terminates in **Holgate Glacier.**

(865) **Slate Island**, long, narrow, and high, is close to the W 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.

(866) **Coleman Bay**, **Tooth Cove**, and **Bear Cove,** are bays on the E side of Aialik Bay. None of them afford good anchorage except the SE arm of Coleman Bay. It is reported that good protection from E and S weather can be had for small craft in about 6 fathoms.

Anchorages

(867) The anchorages in Aialik Bay are few and indifferent because of the great depth. With S weather a swell makes well into the bay.

(868) The best anchorage is in 30 fathoms, good holding bottom, near the head of **Paradise Cove** in **Three Hole Bay,** on the E side of Aialik Bay about 3 miles N of Harbor Island. Small craft find good shelter along the S shore of the cove in 3 to 10 fathoms, mud bottom.

(869) Anchorage can be had in 28 fathoms near the center of the cove on the W side of the bay, W of the N 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 N entrance is a sharp pinnacle rock about 12 feet high; about 600 yards NE of this pinnacle is **Hub Rock** which covers at high water.

(870) Vessels can find convenient anchorage in the area about 1 mile SE of the S end of Harbor Island. There is good shelter here with winds from N around to SE.

Ice

(871) There are discharging glaciers at the heads of Aialik Bay and Holgate Arm, and ice is frequently driven to Harbor Island by N winds. Holgate Arm and the entire bay above the bar are frequently filled with ice.

(872) **Harris Bay** is about 5 miles NW 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.

(873) **Granite Island** is a high, long narrow island. Its shores are bold and its slopes are very steep except at the N end.

(874) **Taz Basin** is a remarkable cliff-walled harbor on the SW side of Granite Island about 2 miles from its NW 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 N side of the rock where there is a reported depth of about 2 fathoms. Once inside there is plenty of room. The channel S of the rock is shoal and foul with rocks nearly awash at low water.

(875) **Granite Passage**, which leads from Aialik Bay to Harris Bay, is deep and free from dangers. At the narrowest part of the passage, just N of Fire Cove, a ridge with 4 fathoms extends across the passage. The ridge affords convenient anchorage in any but heavy weather.

(876) **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.

(877) **Ripple Cove**, the next cove to the N, 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.

(878) **Crater Bay** is a large inlet about 1 mile N from the N end of Granite Island. A good anchorage will be found in the bight just E of the projecting point on the S shore, in 25 fathoms, sticky bottom. This anchorage is well protected but is subjected to severe williwaws. In the S cove at the head of Crater Bay is a stream where water can be obtained.

(879) **Cataract Cove**, just N from Crater Bay, is another of the characteristic small deep bays of this region. It is exposed to the S, and is not recommended as an anchorage. Water can be obtained from cascades at the head of the bay.

(880) A terminal moraine bar, about 4 miles N 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 E 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 NW and may be filled with floating ice. **Northwestern Lagoon**, in the SW 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 NW of the passage, is steep and barren with a height of 1263 feet. A steep-walled fiord extends about 3 miles N 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 SW of the island. Most of the

shoreline of Northwestern Lagoon is barren as a result of the recent rapid recession of the glaciers.

(881) **Harris Point**, a prominent point on the W 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.

(882) **Cup Cove** is a small indentation just N 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 E winds.

(883) **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 S and suitable for anchorage in fine weather only.

(884) **Two Arm Bay** has Paguna Arm on the N and Taroka Arm on the W.

(885) **Surok Point** is on the E side of the entrance to Two Arm Bay. It is bold and high, with deep water extending close up.

(886) **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 E shore where small craft can find anchorage close to the beach. The shores are steep and precipitous except for a small sandspit on the E shore near the head. There are numerous places in Paguna Arm where water can be obtained.

(887) **Bear Point** is a bold, high point separating Paguna and Taroka Arms. A group of rocks extend 100 yards off the point.

(888) **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 S shore.

(889) **Cloudy Cape**, on the S 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.

(890) **Thunder Bay** is 2 miles wide at the entrance, and about 2.5 miles long with the upper end extending in an E 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 N 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 SW from Thunder Bay.

Chart 16681

(891) **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.

(892) The point on the N 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.

(893) The NW arm of Black Bay is not recommended as an anchorage because it is too deep and narrow. The NE 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 E 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.

(894) The point 1.2 miles S of the W entrance point of Black Bay has a large granite rock about 150 feet high close to the S 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 W of the point is not recommended as an anchorage.

(895) **Nuka Bay** has its main entrance between Pye Reef and Nuka Point. The bay may be entered from the E through McArthur Pass or Wildcat Pass and from the W 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.

(896) Nuka Bay is generally deep throughout. There is, however, a considerable area of irregular depths, less than 25 fathoms, adjacent to the W shores of the lower bay.

(897) **Pye Islands**, on the E 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 E 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 SE shore of the island. A large reef, part of which shows at all stages of tide, is 300 yards S of the rock. A large, bare, granite rock, 82 feet high, is close to the SW point of the island.

(898) A 2½-fathom shoal that breaks is 0.4 mile SE of the E 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.

(899) The S 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 223.202,** chapter 2, for limits and regulations.)

(900) **Pye Reef**, awash at high water, is 2.1 miles 205° from the high peak of Outer Island. The line of the W ends of Outer Island and Rabbit Island barely clears to the W of the reef, and the line of the E end of Outer Island and Hoof Point on Ragged Island leads 0.4 mile E of it.

(901) **Rabbit Island**, the second of the Pye Islands, is densely wooded. The E shore of the island is bold and rocky, with no dangers except close inshore.

(902) Between Outer and Rabbit Islands is a deep body of water with no good anchorage. At its E end is a small opening called **Kitten Pass.** The pass is between a small islet and a group of three bare rocks to the N. 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.

(903) **Kitten Pass** is only 65 yards wide. By favoring the group of rocks on the N 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.

(904) **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 N of Wildcat Pass; and the rocks off Hoof Point.

(905) **Hoof Point**, 3.5 miles NE of Wildcat Pass, is the SE end of the E 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 S of the point. A rock, covered at high water 0.5 mile S of Hoof Point, can be cleared to the S 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.

(906) **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 W approach to the pass, 400 yards W of the line of the W ends of Rabbit and Ragged Islands. This shoal has deep water all around it. In the E 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 N point to the center of the pass, but 20 fathoms and over can be found 100 yards off the S point. The tidal currents in Wildcat Pass have an estimated velocity of 4 to 5 knots.

Anchorag

(907) Anchorage can be found in the cove just S of the pass, in 24 to 27 fathoms, rocky bottom. Small vessels can find indifferent anchorage in the cove in the W end of Rabbit Island, close inshore, in 8 to 10 fathoms, rocky bottom.

(908) **Wildcat Cove** is a large arm in the SE shore of Ragged Island, 2.8 miles N from Wildcat Pass, and is the second cove W 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 E shore of the cove.

(909) **Roaring Cove** is a small bight in the W shore of Ragged Island, 2 miles N from the W approach to Wildcat Pass. A small wooded island is on the N side of the entrance, and a wooded point, resembling an island, is on the S side. Partially protected anchorage for small craft can be found in the center of this cove in 4 to 5 fathoms, mud bottom.

(910) **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 (13.7 m) above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on the N side of the pass.

(911) 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 S shore, in the narrowest part, with deep water close-to.

Tides and currents

(912) 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 E weather and ebb tide may cause dangerous seas in the entrance.

(913) 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.

(914) **McArthur Cove** is a large cove in the N side of Ragged Island, 1 mile SW 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 N side of Ragged Island, W 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 W, 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 S side of the cove, near the center.

(915) **Morning Cove**, on the S side of the E approach to McArthur Pass, affords protected anchorage for small craft near its head in 10 to 12 fathoms, rocky bottom.

(916) **Chance Cove**, on the N side of the E 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 E of this rock is foul, but a depth of 8 feet can be carried into the lagoon through the passage W of the rock, the best water being found by favoring the W 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. The diurnal range of tide in Chance Lagoon is 11 feet.

(917) Small vessels can find good anchorage in the small bight on the S side of McArthur Pass, close W 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 N side of the pass, NW from McArthur Cove, in 10 to 15 fathoms, rocky bottom.

(918) **McCarty Fiord (East Arm)**, the NE 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 N, 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 N part of McCarty Fiord is barren because of the recent recession of McCarty Glacier.

(919) The square-shaped bay on the E side of McCarty Fiord, 2 miles N from the W entrance of McArthur Pass, affords indifferent anchorage off its SE side in 12 to 15 fathoms, rocky bottom. The small bight on the NE side of the bay is foul.

(920) **Moonlight Bay**, on the E 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 E from the N side of Moonlight Bay, but they must avoid a 5-foot shoal about 300 yards off the N side of the entrance.

(921) 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.

(922) The small cove just N from Moonlight Bay has depths of from 5 to 8 fathoms, mud bottom, but with W 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.

(923) **McCarty Lagoon**, on the E side of McCarty Fiord and about 1.5 miles N 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.

(924) **James Lagoon**, on the W 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 NE side of the entrance. The entrance, about 0.8 mile long, has a least midchannel depth of 3 feet. In entering, favor the W shore to avoid a long sandspit, partly bare at low water, which makes out to S for about 300 yards from the W end of the large, flat, sandy island on the E side of the channel. The tidal currents in the entrance have an estimated velocity of 6 to 10 knots.

(925) Vessels should not attempt to enter James Lagoon except at high water slack. The entrance is often obstructed by ice which 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 N shore. The lagoon may freeze over in the winter.

(926) **Harrington Point**, the S 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 S of the point. Another bank, with a least found depth of 11 fathoms, is 0.5 mile W of a large rock, 35 feet high, close to the SW side of the peninsula.

(927) **West Arm** of Nuka Bay is about 7 miles long in a NW 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.

Tides

(928) The diurnal range of tide is 11.4 feet in Beauty Bay.

(929) **Shelter Cove**, on the S 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.

(930) **Diablo Peak**, on the W side of Beauty Bay, is a good mark.

(931) **Yalik Bay**, on the W 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 S. This shoal is the only danger in the bay except rocks close inshore and two rocks, bare at low water, 150 yards off the N shore 0.6 mile from the head.

Anchorage

(932) 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 N side of the bay, 0.5 mile from the entrance, in 3 to 5 fathoms, and sand bottom.

(933) A reef makes out for 0.2 mile E from Yalik Point, the S 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 N entrance point to Yalik Bay.

(934) **Surprise Bay** indents the E 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.

(935) **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 E side of the entrance until past the point on the W side, to avoid a rock lying E of this point; thence favor the W side of the channel into the lagoon. A large sandspit with boulders on it, is on the E side of the entrance of the inner end.

(936) 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.

(937) **Ariadne Cove** is behind prominent **Ariadne Island** on the S 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 NW winds, the cove becomes quite rough. There are two entrance channels, one on each side of Ariadne Island. The N entrance has a rock, bare at low water, near midchannel SE of the island; the best water is E of this rock, but care should be taken to avoid reefs that make out from the N shore of the cove.

(938) The W 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 S 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 S from the second point from the entrance on the S side of the island.

(939) **Quartz Bay** is on the E side of West Arm, 4 miles NW from Harrington Point. **Beautiful Isle,** a wooded islet with a cluster of bare rocks, is on the S side of the entrance. A shoal with a least depth of 31 feet is 300 yards W. Another shoal is 0.2 mile off the N shore of the entrance. A rock, reported covered 6 feet, is in the S 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.

(940) **Moss Point** separates Beauty Bay from North Arm. It has a number of grass-covered rocks and wooded islets close-to.

(941) **North Arm** branches off for 5 miles to N 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.

(942) **Pilot Harbor** is on the E side of North Arm about 1 mile from its head. A bare rock, 3 feet high, is 275 yards off the S point of the entrance and a submerged rock is 100 yards NE. A large bare rock, 4 feet high, is 125 yards S of a wooded islet close off the N 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.

(943) Small vessels can anchor 100 yards to W of the point that resembles a small wooded islet, on the NE 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.

(944) A small cove, on the W 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 NW from the head of the cove.

(945) **Nuka Island**, on the W side of Nuka Bay, is mountainous and densely wooded on the lower slopes in the N part and grass covered in the S part. The E shore rises precipitously to the mountain tops and is bare shale and talus formation. The W shore, bordering on Nuka Passage, is broken up into numerous bays and coves.

(946) **Nuka Point**, the S 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 E and S shores rise in sheer cliffs, making a landing impossible. Two rocks about 3 feet high are 0.3 mile off the point E of the peak, and a reef covers the area inshore of them.

(947) **Nuka Rock**, 3 feet high and 20 feet across, is 0.4 mile S of the SE tip of Nuka Point. Irregular depths of less than 25 fathoms extend about 3 miles S from Nuka Point. A rocky patch of 8 fathoms is 1.5 miles ESE from Nuka Rock; another patch of 8 fathoms is about 2.8 miles NE from Nuka Rock, 1.2 miles offshore.

(948) **Pinnacle Rock**, 3 miles NE 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.

(949) Along the coast between Pinnacle Rock and Nuka Point, and for 0.5 mile N of Pinnacle Rock, are numerous rocks, some of which are 250 yards offshore. About 1.5 miles N of Pinnacle Rock, a small foul bight is filled with a cluster of rocks and islets.

(950) An area with sandy bottom extends about 1 mile S 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.

(951) A prominent reef 5.2 miles NE of Nuka Point and 3 miles S 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 E 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.

(952) The small inlet about 1 mile S from the E entrance to Nuka Passage is the only important indentation in the E shore of the island. Off the N 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 SE, and the S side is foul, but small craft can approach its head as follows:

(953) Enter in midchannel and when 200 yards past the wooded islet on the N side, anchor in 6 to 9 fathoms, sandy bottom. If going to the head of the inlet, favor the N 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 S 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.

(954) For 1.5 miles NW 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.

(955) **Nuka Passage**, between Nuka Island and the mainland, is about 12 miles long from the E entrance to the S entrance.

(956) 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.

(957) In the approach to the E entrance is a bank with a least depth of 8 fathoms 1 mile S of the point on the N side. Between this bank and the N shore of Nuka Island are depths of over 100 fathoms. A shoal, with a least depth of 4¾ fathoms, is in midpassage, 1 mile SW of the N point of the entrance, and nearly 0.5 mile SE of a prominent wooded islet on the N side of the pass. Between this shoal and the S shore are depths of 90 fathoms. About 1.5 miles inside the E entrance, on the N side, is a small cove open to the E; good anchorage is available for small craft in 4½ to 10 fathoms, mud bottom, and water may be obtained from the stream.

(958) **Division Island**, a group of three wooded islands connected at low water, is in midpassage about 2.2 miles from the E entrance. The ship channel is S of the islands.

(959) A rock awash at high water is 180 yards S of the E tip of Division Island. A rock bare at minus tides is in midchannel N of the island. A shoal with a rock awash extends S from the W extremity of the Division Island group, reaching almost halfway across the channel towards Hardover Point.

(960) A near midchannel course, slightly favoring the S shore, is recommended in making this passage. The tidal currents have considerable strength.

(961) From **Hardover Point,** the NW end of Nuka Island, the pass trends S toward Gore Point. About 0.6 mile NW of Hardover Point, on the N side of the channel, a large sand-and-gravel flat extends NW 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 SW end where it is shoal for a considerable distance offshore.

(962) **Home Cove**, 1.5 miles S from Hardover Point, is small.

(963) **Berger Island** is a prominent wooded islet, 25 feet high, about 5 miles S from Hardover Point. The island is the outermost of a group making off from the E shore, and appears from N to be in the center of the channel.

(964) A rock 8 feet high is 250 yards NE 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.

(965) About 0.6 mile S of Berger Island is a grass-covered islet, 45 feet high and topped by a spruce tree which shows up well from the N or S, but blends into the background when viewed from the W. The spruce tree in range with the W tangent of Berger Island to the N, marks the 3½-fathom spot in the middle of the entrance to Westdahl Cove.

(966) **Westdahl Cove** is 1 mile S 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 W of the S entrance point. A 3½-fathom shoal is in the middle between the entrance points.

(967) **Yalik Glacier** formerly discharged into the W arm of Nuka Passage. There is good anchorage off the SW end of the glacier moraine in 14 to 17 fathoms, soft bottom; however, care should be taken to avoid a 2-fathom rocky shoal about 0.4 mile S of the low waterline of the moraine and about 0.3 mile E of the W shore. An unusual rocky reef, bare at low water, extends 300 yards in a SE direction from the extreme SW end of the moraine.

(968) **Petrof Point**, on the W side of the passage opposite the middle part of Nuka Island, is a prominent, low, rounding point with a wide sand beach.

(969) **Petrof Glacier**, which shows prominently from the S, discharges into the W side of the passage around the base of a prominent ridge about 2 miles S of Petrof Point.

(970) **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 E.

(971) **Tonsina Bay**, 7 miles N 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 N 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 N side of the N entrance is a bold wooded islet. About 380 yards S of this islet is a reef awash at high water. Thick kelp extends between the reef and the islet.

(972) A rock awash at half tide is 660 yards 275° from this reef; it is 250 yards S of the N shore, and there is kelp inshore of it. Numerous rocks and islets make off to N from Long Island. The northernmost is a well-defined rocky islet sparsely covered with grass and about 25 feet high.

(973) Entrance should be made at low water when the various rocks and reefs are visible. Anchorage can be had in 22 fathoms, mud bottom, NW 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.

(974) **Front Point**, rising abruptly to 170 feet, is 5 miles NNW of Gore Point, on an island which is separated from the mainland by a narrow band of water about 25 yards wide.

(975) A reef bare at minus tides is 0.4 mile E from the point and there are several covered rocks and kelp patches inshore from this danger. The coast from the S entrance to Tonsina Bay to the bight N of Gore Point has numerous rocks awash at low water, and kelp patches that extend about 0.3 mile offshore.

(976) Anchorage can be had anywhere in the bight N of Gore Point by keeping clear of the kelp and avoiding the rock, which bares 3 feet at low water, 300 yards NE of the well-defined rock point at the W end of the bight.

Chart 16645

(977) **Gore Point** (59°11.8'N., 150°57.8'W.) is the SE end of a prominent headland on the E side of the entrance to Port Dick. From E and W, 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 N by a narrow gap. The arch in **Arch Rock,** at the E end of Gore Point, shows over a small arc from S, and a folding in the strata in the face of the cliff shows on the S side of the headland.

(978) 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 S of the point in general depths of 10 to 15 fathoms.

Caution

(979) Tide rips with steep, short choppy seas have been reported 3 to 5 miles S of Gore Point, especially on an ebb current with either a strong W or SE wind.

(980) The neck joining the headland at Gore Point to the mainland is low and wooded. On the W side of the neck

is a cove affording indifferent anchorage with E winds. The S point of the cove is the W 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 NW. A rock, covered at high water, is about 100 yards from the cliff at the SE end of the cove. A large kelp area extends about 200 yards NW 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 S side. The water deepens rapidly NW, the swinging room is scant, and the anchorage is uneasy. It is recommended only as a temporary anchorage.

(981) **Port Dick**, W of Gore Point, extends N 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 W side of the entrance to Port Dick. The areas near the point are foul.

(982) **Takoma Cove** and **Sunday Harbor** are branches of the arm or bay on the E side of Port Dick, 2.5 miles above the entrance. A dangerous reef, covered 1¼ fathoms, is 0.3 to 0.5 mile W from the S 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 SE weather. The holding ground is fair in Sunday Harbor.

(983) Anchor in the entrance to Takoma Cove with the shore to the SW open with the point at the W 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 E and NE weather, but poor protection for SE through SW weather.

(984) **Taylor Bay**, the N arm of Port Dick, extends in a N 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 N of the entrance and 130 yards off the first well-defined point on the E shore. At the beginning of the narrows are two rocks, awash at half tide and about 100 yards off the E shore.

(985) At the upper end of the bay is a basin, with depths of 20 to 25 fathoms, surrounded by extensive mudflats.

(986) **West Arm** extends W for a distance of 7.5 miles. There are two coves on the N 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 E of the islands in 16 to 19 fathoms, rock and mud bottom. Smaller vessels anchor W to NW of these islands in 17 fathoms, especially during W and E winds. Another anchorage for small vessels can be had behind a short peninsula 3 miles in on the S side of the Arm. Good protection from E weather is found close to the beach. The westernmost cove is practically bare at low water. At the head of the arm on the S side are two islets, the W one marking the low-water line which extends directly across the arm at this point.

(987) 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.

(988) **Qikutulig Bay**, 5 miles W of Port Dick, has good anchorage for small craft in 15 fathoms and less. 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.

(989) **Rocky Bay**, the large bay N 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 NE 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.

(990) Two rocks that uncover 9 feet are 1.2 miles S from the large wooded island in the middle of Rocky Bay. There is also a 2½-fathom spot 1.3 miles SW from the E entrance point of the bay. A sunken wreck is on the NE side of the bay in about 59°14'43"N., 151°23'43"W.

(991) **Windy Bay**, just W of Rocky Bay, extends 3.5 miles W 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 SE weather and a strong W breeze that draws through the bay. Boats entering this bay should favor the S side, keeping about 440 yards offshore when N of the S entrance point.

(992) **Chugach Bay**, the large bay S of Windy Bay, has a N bight with deep water close inshore, and a W arm, 2 miles long, with good holding mud bottom. The W arm anchorage is not recommended for small boats because of its exposure to E weather and the strong W breeze that draws through the anchorage. The bottom in the S half of the entrance is broken, with a rocky spot covered 1¾ fathoms.

Charts 16660, 16640

(993) **Cook Inlet**, on the W side of Kenai Peninsula, merges with Shelikof Strait through a wide unobstructed passage W of the Barren Islands. Leading from the Gulf of Alaska to Cook Inlet are Kennedy Entrance

and Stevenson Entrance, N and S 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 S 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.

Prominent features

(994) 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. Prominent in their respective localities are four parabolic antennas, lighted atop, along the E shore from Cape Starichkof to Kenai, the bluff between Bluff and Anchor Points; 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.

Anchorages

(995) Port Chatham, Port Graham, Seldovia Bay, NE 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.

Dangers

(996) 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.

(997) 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.

(998) The shoal which extends 16 miles S from Kalgin Island (**South Kalgin Bar**) is marked at its S end by a lighted buoy. Care should be taken for the entire distance to avoid drifting into shoal waters.

(999) 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 which 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 SW wind accompanies a flood current. Vessels N and S 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.)

(1000) 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.

(1001) 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.

Oil Production Platforms, Cook Inlet

(1002) Oil drilling and production operations continue in Cook Inlet extending as far N 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, fog signals, and retro-reflective material.

(1003) 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 fog signals used to mark the various structures are operated as privately maintained

aids to navigation. (See **67.01 through 67.10**, chapter 2, for regulations.)

(1004) 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.)

(1005) During winter months all buoys in Cook Inlet N of Anchor Point are removed from station. (See the Light List.)

Winter Guidelines for Operating in Cook Inlet

(1006) 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. 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. 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. 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.

Vessel Examinations

(1007) 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: http://pafc.arh.noaa.gov/ice.php

General Requirements

(1008) 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 -40ºF. 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.

(1009) 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.

(1010) Vessel crews should have adequate personal protection for cold weather during deck operations.

(1011) 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.

RECOMMENDATIONS SPECIFIC TO VESSEL TYPE

Self Propelled Cargo Vessels with Internal Combustion Engines:

(1012) Any vital systems which 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.

(1013) 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.

Tug and Barge Operating Guidelines:

(1014) When Ice conditions exist, the Captain of the Port 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 Captain of the Port (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.

(1015) At any time while ice is present, in addition to filing a voyage plan with the COTP, the following actions should be considered.

(1016) 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.

(1017) A minimum of one tug is recommended in addition to the attending tug to stand by the tow while at berth.

(1018) The attending tugs' main engines should remain running while the tow is moored at a facility.

(1019) 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.

(1020) Only tow vessels with keel-cooled engines should be employed for operations during periods when ice is present.

(1021) 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.

WHILE MOORED AT FACILITIES

(1022) 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.

(1023) When ice is in the vicinity of the vessel, the following actions are recommended:

(1024) 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.

FACILITIES

(1025) Facility operators should also follow their own ice procedures when deemed necessary.

(1026) Additional Guidelines for Operations when Ice Extends South to Nikiski

GUIDELINES FOR SELF PROPELLED CARGO VESSELS MOORED AT KPL, AGRIUM AND CONOCO PHILLIPS DOCKS

(1027) The Southwest Alaska Pilots Association's (SWAPA) Tide & Current Tables booklet has been agreed upon to be used as the reference for forecasted tides and currents at the Nikiski docks. These tables are based on the reference station at Wrangell Narrows.

(1028) **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:

(1029) Discontinue all transfer operations.

(1030) Disconnect all transfer hoses/loading arms.

(1031) 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.

(1032) Vessels should not remain alongside the KPL or Agrium dock when the referenced flood current is 5 knots or greater.

(1033) **Conoco Phillips dock:** When the referenced flood current is greater than 5 knots, it is highly recommended that the following actions be taken:

(1034) Discontinue all transfer operations.

(1035) Disconnect all transfer hoses/loading arms.

(1036) 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.

(1037) 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.

(1038) The vessel Master or Pilot may also make a decision to utilize an ice scout vessel anytime that circumstances warrant.

GUIDELINES FOR TUG AND BARGE OPERATIONS

Nikiski Docks Barge Operating Guidelines:

(1039) In addition to filing a voyage plan with the COTP, the following actions should be taken.

(1040) A tug should assist the barge and attending tug to the facility.

(1041) 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.

(1042) 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 re-position itself alongside the moored barge anytime ice becomes a threat.

(1043) 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.

(1044) 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.

(1045) Only tow vessels with keel-cooled engines should be employed for operations during periods when these guidelines are applicable.

(1046) 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.

(1047) 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.

(1048) 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 Captain of the Port Order under Title 33 USC 1221. Vessel operators or their agents should contact the Captain of the Port, 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) 271-6956 or Marine Safety Detachment Kenai at (907) 283-3292.

Routes

(1049) 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.

(1050) Kennedy Entrance and Stevenson Entrance are the main deep-draft entrances to Cook Inlet from the E. (See chart 16606.) 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 E of East Amatuli Island Light, Cowanesque Rock, covered 2½ fathoms, 7.3 miles SE of East Amatuli Island Light, and Dora Reef covered 1¼ fathoms, on the N side of Kennedy Entrance and 2.7 miles WSW of Perl Island. In addition, for more westerly-bound traffic, especially those in transit from Prince William Sound to Chugach Passage should use care to avoid Gore Rock about 8.2 miles ENE from the light at the S end of Chugach Island.

(1051) Some smaller vessels approaching from the E, pass N 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 S and passing between East Amatuli Island Light and Cowanesque Rock to the SE, 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. (See chart 16640.)

(1052) 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, Loran C (with attention paid to land mass distortions), and fathometer. Note: Large exposed tidal flats in front of the shore will often give a strong radar return.

"Securite" (Se-cur-it-tay) Broadcasts

(1053) 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, 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.

Tides and currents

(1054) The diurnal range of tide in Cook Inlet varies from 14.3 feet at Port Chatham to 28.8 feet at Anchorage.

(1055) 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 N of Anchor Point, can carry it to Fire Island.

(1056) 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 S end of Kalgin Island. A 6-knot ebb current was reported E of the shoal which extends 8 miles NNE of Kalgin Island at a point about 5 miles NE of Light Point. Ebb currents are reported to last 1 hour longer than predicted in this area.

(1057) 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.)

(1058) Information for several places in Cook Inlet is given in the Tidal Current Tables. Current table information should be relied upon for all localities listed in those tables. 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.

(1059) 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.

Ice

(1060) The upper part to Cook Inlet is generally obstructed during the winter by ice which normally forms on the flats and in the shallower waters. Tidal currents then move in and break them up into ice pans which 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.)

(1061) 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.

(1062) 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.

(1063) 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 which 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.

(1064) Ice does not generally interfere with navigation S of Ninilchik except on the W 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.)

Pilotage, Cook Inlet

(1065) Pilotage, except for certain exempted vessels, is compulsory for all vessels navigating the waters of the State of Alaska.

(1066) Pilots for the Cook Inlet are available from the Southwest Alaska Pilots office at Homer; call sign, KCE-203, on VHF-FM channels 10 and 16 (24 hours daily); telephone 907-235-8783, FAX 907-235-6119, cable address SWAPILOT HOMER. A 36-hour notice is required.

(1067) Vessels en route Cook Inlet ports and facilities — Homer, Kenai, Nikiski, Drift River, Anchorage, etc. — can be contacted by calling "KATMAI" or "MARY DELE" on VHF-FM channels 10 and 16, or through the Southwest Alaska Pilots office at Homer, mentioned earlier. The pilot boats are a 55-foot aluminum boat (KATMAI) and a 42-foot trawler, green hull, red and white deckhouse (MARY DELE). Both have the word "Pilot" forward. The pilot boat displays the appropriate day identification and night signals when on duty. It is a common practice for vessels to shape a course (weather permitting) ½ mile S of Homer Spit Light 3 to allow for a starboard turn in picking up or disembarking a pilot starboard-side-to. Vessels picking up a pilot should maintain a speed of about 6 knots and have the pilot ladder 3 feet above the water. (See **Pilotage, General** (indexed), chapter 3, for the pilot pickup station and other details.)

(1068) **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).

Towage

(1069) 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.

Supplies

(1070) The principal communities along Cook Inlet are Seldovia, Homer, Kenai, Nikiski and Anchorage; supplies, water, and some repairs are available.

Oil Spill Response Resources

(1071) Tank vessels carrying oil in bulk are required to have an approved vessel response plan and spill response resources (owned or contracted) to enter US 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.)

(1072) **Cook Inlet**, N of a line from Cape Douglas to Point Adam, is a Marine Managed Area. (See **MMA 4-1**, Appendix C, for additional information.)

Chart 16606

(1073) **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.

Dangers

(1074) An unmarked pinnacle rock, covered 4½ fathoms, is in the approach to Cook Inlet 16.2 miles E from East Amatuli Island Light and 10.7 miles S of East Chugach Light. The top of the rock is of very small area and apparently is the high point of a larger shoal. It may or may not be marked by a current slick. Another shoal area, **Cowanesque Rock**, unmarked and with a least depth of 2½ fathoms, is 7.3 miles 124° from East Amatuli Light. Mariners are cautioned to give both of these shoals a wide berth.

(1075) A rock awash at half tide is 1.2 miles N from the northernmost point of West Amatuli Island.

(1076) A bare rock, 8 feet high, is about 0.8 mile W of the NW point of Ushagat Island. Two rocks awash at half tide are 220 yards NW and 0.5 mile ESE of the bare rock.

(1077) Operators of small boats should take particular care to avoid being caught in the tide rips off the Barren Islands. With a moderate W sea, wind force 4 to 5, coaming seas in series of three to four high waves have been seen N 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.

Currents

(1078) **Tidal currents** of considerable velocity are found in Kennedy Entrance and Stevenson Entrance, the flood current setting approximately NW and the ebb SE. 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 SW off Ushagat Island which 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.

(1079) 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.

(1080) Ebb currents set strongly to the E along the edge of the bank bordering the N side of the Barren Islands, to the S between Ushagat and Amatuli Islands, and to the E, N of Sugarloaf Island. The ebb currents are variable for a few miles S from the Barren Islands. Farther S, they set steadily SE.

(1081) On the flood a narrow band of strong current will be felt a few miles N of the Barren Islands. Some lee from the flood current is afforded closer inshore, but even there a steady set to the W will generally be found.

(1082) 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.

(1083) **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.)

(1084) **Stevenson Entrance**, S of the Barren Islands, is the second main entrance to Cook Inlet from the E. It has a clear width of about 8 miles between the dangers that extend off the Barren Islands on the N and off Shuyak Island on the S, with general depths of 26 to 100 fathoms. The S shore of Stevenson Entrance is described in chapter 5.

(1085) **East Amatuli Island**, at the E end of the group, has high peaks along its length, except 0.8 mile from the SW 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 E 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 E of the light.

(1086) **Puffin Peak**, with a conical top on East Amatuli Island, is the highest peak in the E group of the Barren Islands.

(1087) **Amatuli Cove,** on the N side of East Amatuli Island and close to the W end, affords insecure anchorage near its head for small craft, in 6 to 8 fathoms, sand and gravel bottom. With a heavy NE wind, considerable sea makes into the cove and the williwaws are heavy. Winds draw through the cove with great force, especially from the SE and S. 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.

(1088) **West Amatuli Island** is mountainous. A cluster of rocks about 30 feet high is 0.5 mile E from the NE end of the island, with a reef between. A rock, 6 feet high, is 370 yards off the N point of the island. A rock awash at half tide, which does not always break, is 1 mile N of the 6-foot rock.

(1089) **Sugarloaf Island** is 1.1 miles S 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 S of Sugarloaf Island, with foul ground between. A rock awash is 200 yards from the SW corner of the island and a 10-fathom bank, on which tide rips are common, is about 0.4 mile W.

(1090) 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 223.202**, chapter 2, for limits and regulations.)

(1091) **Nord Island** is 1.3 miles N from the E end of Ushagat Island with deep water between. Its S half is a dome 690 feet high, while its N half is lower and irregular. Strong currents with tide rips are reported just N of Nord Island.

(1092) **Sud Island**, 1.1 miles off the SE side of Ushagat, is high near its SW end. Near its NE 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.

(1093) A small rocky grass-topped island, 380 feet high, is 1.5 miles SSE from the SW point of Ushagat Island. Foul ground surrounds the island and extends almost

to a bare rock 48 feet high, about 1 mile to the S. A low rock is between the island and the bare rock. Strong tide rips in this vicinity extend to the S 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 SE shore of Ushagat Island.

(1094) **Ushagat Island**, the westernmost and largest of the Barren Islands, is wide near its W 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 W end. The island is practically inaccessible except at the low neck near the NE end, and at the beaches fronting the valley in the NW part. The summit of the island is the highest in the Barren Islands. **Table Mountain**, at the NE end, is separated from the other high land of the island by a low narrow neck.

(1095) Outlying rocks are to the N and W of the NW point of Ushagat Island. Outlying rocks and islets are to the S and W of the SW point of the island. The W 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 E winds can be had in the bight at the N end of the bay. (See the earlier introduction description for Barren Islands anchorages.)

Anchorage

(1096) Anchorage with shelter from S weather, and some protection from W weather, can be had off the N side of Ushagat Island near the head of the deep bight 2.5 miles from the NW 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.

(1097) Fair protection in N or W weather can be had in the bight on the S side of Ushagat Island, N of Sud Island. Williwaws are strong, but a small boat can avoid the worst of them by anchoring under the cliffs to the W 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.)

Charts 16645, 16646

(1098) **Chugach Islands** consist of mountainous East Chugach, Perl, and Elizabeth Islands near the coast of Kenai Peninsula at the entrance to Cook Inlet.

(1099) **East Chugach Island** has a low valley through the middle in a NE and SW direction. The S peak is 1,400 feet high, and the peak near the W end is higher. The SE 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 (99.0 m) above the water, and shown from a skeleton tower with a diamond-shaped red and white daymark on the SE end of the island.

(1100) Considerable foul ground extends from the island into the passage to the N. A rock awash at low water is 0.5 mile off the NE point. A 4¼-fathom, kelp-marked shoal is 1.4 miles NE of the low-wooded spit at the NW 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.

(1101) 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.

(1102) If the passage from Gore Point N of East Chugach Island is used, care should be taken to make proper allowance for the currents which 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 ENE (see earlier indexed description). This passage should not be attempted unless the weather is clear enough to use leading marks.

(1103) **Perl Island** is in the middle of the Chugach group. Its NW point is sandy on the W side and has a high cliff on the N side. Several cabins and a gravel airstrip are on the point. **Perl Island Light 1** (59°07'04"N., 151°38'25"W.), 80 feet (24.4 m) above the water, is shown from a skeleton tower with a square green daymark on the extreme NE point of the island.

(1104) A pinnacle rock, covered 5½ fathoms, is about 0.6 mile off the SE side of the island.

(1105) **Perl Rock**, 87 feet high and marked by a light, is a large prominent detached rock about 0.5 mile S of Perl Island. A rock that uncovers is 185 yards W from Perl Rock.

(1106) **Nagahut Rocks**, about 50 feet high, are large prominent bare rocks, close together and a good radar target, about 1.5 miles W of the SW 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.

(1107) **Dora Reef** is a small patch of rocks covered 1¼ fathoms about 1 mile SW of Nagahut Rocks. The reef is steep-to and breaks at low water with moderate seas. This reef is a potential danger for Kenedy Entrance and Chugach Passage.

(1108) 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 E from the SE end of

Elizabeth Island, and a shoal covered 4¼ fathoms is 1 mile W from the W end of Perl Island.

(1109) **Chugach Passage** is between Perl and Elizabeth Islands and the rounded end of the mainland. A lighted buoy marks the NE side of the S turn and SW side of the N turn in the passage channel, respectively.

(1110) The end of the mainland is fringed with reefs, isolated rocks, and extensive kelp beds. In rounding it from the E, the outermost danger is a rock, bare at half tide, 0.4 mile off the S side of the rounding mainland shore.

(1111) Chugach Passage is commonly used by vessels entering Cook Inlet from E. Depths of 5½ to 10 fathoms were found in the shallowest part of the channel between the SE 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 NW of the N end of Perl Island.

(1112) **Elizabeth Island** has two mountain masses, separated by a low valley that extends in a NW direction. The NE point is a sandspit marked at its outer extremity by a buoy. A depth of 1½ fathoms is 0.3 mile SE and a prominent large bare rock is 0.3 mile WSW, respectively, from the buoy. Cape Elizabeth is the W end of the island. **Cape Elizabeth Light** (59°08'47"N., 151°52'36"W.), 48 feet (14.6 m) above the water, is shown from a skeleton tower with a diamond-shaped red and white daymark near the S end of the cape. A submerged rock, dangerous to navigation, is 0.4 mile W of the cape.

Routes, Chugach Passage

(1113) Midchannel courses are clear in the approach to the passage N of East Chugach Island and between that island and Perl Island. When transiting the W end of the Passage, the charted waterfall scar on the mainland can be used as a range, keeping 0.6 mile S of Claim Point, 0.6 mile N of Elizabeth Island, and having due regard for existing conditions of weather and set of current. Local knowledge is desirable.

Currents, Chugach Passage

(1114) E of Elizabeth Island the flood sets N and the ebb S 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 Tables for daily predictions.)

(1115) It is reported that the turn of the current in the main passage S of Elizabeth Island occurs earlier, possibly as much as 1 hour, than in Chugach Passage. In the area S of the Chugach Islands, tidal currents are much stronger near the islands than the deep water farther S.

(1116) Heavy tide rips occur from the NW end of Perl Island to the W end of the passage. The heaviest rips are in the vicinity of Perl Island with an ebb current and E wind or with a flood current and a W wind. Heavy rips also occurs off the SE point of East Chugach Island. Another significant tide rip occurs 0.8 to 1.5 miles N through NW from the NW point of E Chugach Island, especially with ebb currents and N winds.

(1117) **Port Chatham**, indenting the end of Kenai Peninsula N of Elizabeth Island, is a secure harbor for small and medium-sized vessels, and easily entered in the daytime with clear weather.

(1118) 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.

(1119) **Claim Point**, on the W 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 SE side of the point.

(1120) **Chrome Bay** is on the N side of the entrance to Port Chatham, just NE of Claim Point.

(1121) **Kelp Point** is 0.5 mile NE from Claim Point. A bare rock is 250 yards S of Kelp Point, and a dangerous detached reef with rocks bare at low water is about 300 yards E of the bare rock. This reef is covered by kelp, but usually the kelp does not show at high water.

(1122) **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 (12.2 m) above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on the W point of the island.

Routes

(1123) When entering Port Chatham from Cook Inlet it is well to keep 0.5 mile S of Claim Point and Kelp Point. When approaching from Chugach Passage, the white scar on the cliffs E of Kelp Point is a good mark. Keep midchannel between Chatham Island and the N shore, passing about 100 yards S of the daybeacon marking the 1¼-fathom rock N of the light. From there to the anchorage keep in midchannel.

(1124) The only known danger in the channel W and N of Chatham Island is a rock covered 1¼ fathoms, 500 yards N of the light. The rock is marked on its W side by a buoy. There is deep water on either side of the rock. A depth of 4½ fathoms was found 250 yards SW of the light.

(1125) The passage E of Chatham Island is foul and should not be attempted by strangers. Two rocks, one covered 2 fathoms, is 0.4 mile from the E shore and 0.7 mile 165° from Chatham Island Light; and the other, covered

2 fathoms 1 foot, is 0.2 mile from the E shore and 0.3 mile 115° from Chatham Island Light.

(1126) On the E side, 0.6 mile NE from Chatham Island, is a projecting rocky, wooded point, where the port changes direction. The opposite side, NE 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 (274 m) S of the spit. The ruins of a lumber camp are on the spit. At the E end of the harbor are rocks showing but little above high water.

Anchorages

(1127) The best anchorage is in the broad part of the harbor 0.3 mile SE of the spit, in 10 to 13 fathoms, soft bottom. During heavy E to SE gales, some williwaws are felt at the anchorage, but they are not dangerous. This anchorage often has numerous fishing vessels in the summer.

Tides and currents

(1128) The diurnal range of tide is 14.3 feet at Port Chatham. 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.

(1129) The coastline between Port Chatham and Koyuktolik Bay is foul, and thick kelp extends as much as 0.5 mile offshore.

(1130) **Koyuktolik Bay** is about 5 miles WNW of Port Chatham. Its N shore consists of bare rocky cliffs, while the S shores are lower. The S entrance point is a low yellow bluff. Rocks and reefs extend 0.2 mile from the S entrance point. Poor temporary anchorage for a smaller vessels, in 8 to 10 fathoms, hard bottom, can be found 0.5 mile from the head of the bay. In heavy SW through NW 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 S shore near the entrance to a lagoon and by rocks that uncover off the N shore. The lagoon is navigable with local knowledge by skiff at high water.

(1131) **Point Adam**, just W 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 W through NW winds. **Magnet Rock** is about 3.3 miles NNW from Point Adams and about 0.5 mile off **Point Bede**. The rock is 25 feet high, black, prominent, and a good radar target.

(1132) **Flat Island**, 1.4 miles N 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 (21.3 m) above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on the NW 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 marked by kelp are 0.2 mile off the W 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.

Chart 16646

(1133) **Port Graham**, on the E side of Cook Inlet, 4 miles NE 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 S and Dangerous Cape on the N, has extensive outlying reefs, covered at various stages of the tide. The dangers are generally steep-to and marked by kelp.

(1134) **English Bay** is an open bight on the W side of **Russian Point** (59°21.6'N., 151°55.3'W.). **English Bay Reef**, bare at low water, is about 1 mile W 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 SSW of English Bay Reef. **Nanwalek**, a small native settlement, is on the NE side of English Bay. A gravel airstrip is near the village.

(1135) **Dangerous Cape** (59°24.0'N., 151°54.3'W.) is on the N 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 W from the W side of the cape. **Bird Reef**, 250 yards long, is 0.6 mile SSW from Dangerous Cape. The highest rock at the N end of the reef is covered at extreme high tide. The shore reef inside of Bird Reef is composed of rocks which 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 N shore, is a small shoal with 2½ fathoms, marked by a buoy. Vessels should pass S of it, as another shoal makes out 650 yards from the shore.

(1136) **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 E from its E 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 WSW from the W 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 N end of the island.

Routes

(1137) The safest time to enter Port Graham is at low water, and the preferred entrance is N of Passage Island. The chart is the guide. The route S of Passage Island should not be used by strangers. This entrance S of Passage Island is approached through a narrow unmarked channel over a rocky bar which bares in places and extends from N of Russian Point to Passage Island.

Dangers

(1138) Rocks, bare at low water and marked by a daybeacon, are 250 yards W of the point on the N shore E 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.

(1139) The only serious danger E of Passage Island is a narrow, submerged reef with kelp that extends halfway across Port Graham from the N shore 0.6 mile SE of Passage Island, and is marked at the S end by a buoy. Also, about 900 yards NW of a cannery wharf is a shoal that extends about 300 yards offshore and marked at its outer end by a daybeacon, and the cove SE of the wharf is shoal.

Anchorages

(1140) Temporary anchorage for a small vessel can be selected in the bight on the N shore, N of Passage Island, in 7 to 10 fathoms. This anchorage is exposed to a heavy swell in S or W 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 ESE of the cannery wharf. One of the best is N or NE of the wharf, in 10 to 13 fathoms, sticky bottom. Although the Port experiences occasional williwaws in SE weather, they are not dangerous.

Tides and currents

(1141) The diurnal range of tide is about 16.9 feet. 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 N and S of the entrance to Port Graham.

Weather, Port Graham

(1142) As in Kachemak Bay, SW winds predominate in the late spring to early fall, when NE 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 SE winds.

Ice

(1143) 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.

(1144) **Port Graham** has a cannery and pier on the S 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 NW 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.

(1145) **Point Pogibshi** (see also chart 16645) is a prominent flat-topped grassy point about 50 feet high, with rocky sides, on the E side of Cook Inlet 1.5 miles N of Dangerous Cape. At this point the coast changes direction NE for about 5 miles to Seldovia Bay. **Point Pogibshi Light** (59°25'28"N., 151°53'13"W.), 94 feet (28.7 m) above the water, is shown from a skeleton tower with a diamond-shaped red and white daymark on the S side near the end of the point.

(1146) Kelp extends 0.5 mile off the bight 2.7 miles NE of Point Pogibshi.

(1147) **Seldovia Bay**, 7 miles NE 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.

(1148) **Point Naskowhak** (59°27.2'N., 151°44.5'W.), on the W side of the entrance to Seldovia Bay, is the N of two small high rocky wooded knobs which stand on a low grassy spit surrounding a lagoon. A reef with rocks awash extends about 0.1 mile N from the point, and kelp-marked broken ground extends almost 0.5 mile NE. Kelp-marked shoals with a least depth of 2 fathoms extend 700 yards ENE from the point.

(1149) **Gray Cliff,** the E 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 (19.5 m) above the water, is shown from a small house with a red and white diamond-shaped daymark at the S end of the cliff.

(1150) **Seldovia Point**, 1 mile N of Gray Cliff, is a 200-foot-high cliff, wooded on top. A shoal with a least depth of 2¼ fathoms is about 0.4 mile N of the point. Kelp extends 0.6 mile from shore in the bight NE of the point.

(1151) **Red Bluff,** 0.2 mile S of Gray Cliff, is high and reddish in color. Foul ground extends from the cliff to about 0.2 mile W and 0.1 mile SW. A rock that uncovers 4 feet is about 300 yards W ofthe cliff and is marked by a lighted buoy. This rock is steep-to on its W side and the principal danger in the bay.

(1152) **Watch Point**, 0.6 mile S 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 E shore 300 yards N of the point.

(1153) **Seldovia Bay Light 3** (59°26'33"N., 151°43'17"W.), 45 feet (13.7 m) 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 S.

(1154) **Seldovia**, on the E side of Seldovia Bay just S 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.

Channel

(1155) The channel to Seldovia is from 400 yards to 100 yards wide between the shoals and rocks that extend from either side of Seldovia Bay. These obstructions are marked by kelp at slack water in summer and fall, but the kelp tows under during the strength of the tidal currents. In June 2003, the marked channel had a controlling depth of 21.9 feet.

Anchorages

(1156) The best anchorage is in the middle of Seldovia Bay, 0.8 mile S of Seldovia Bay Light 3, in 9 to 10 fathoms, sticky bottom. It is well sheltered, except from strong S winds.

Tides and currents

(1157) The diurnal range of tide is 18 feet at Seldovia. (See the Tide Tables for daily predictions.) The tidal currents have an estimated velocity of 2 to 3 knots.

Wharves

(1158) Seldovia has one active pier and a small-boat harbor. 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.)

(1159) **City Pier:** an L-shaped pier 200 yards S of Watch Point; 210-foot (64 m) face; 23 feet (7.0 m) alongside in 2006; deck height, 15 feet (4.6 m); gasoline, diesel fuel, electricity, and water are available year-round; two 2-ton derricks; receipt and shipment of petroleum products and general cargo; Alaska Marine Highway Ferry Terminal; owned by the State and operated by the State and Seldovia Fuel & Lube, Inc. A 40-foot (12.2 m) fueling float for vessels under 70 feet (21.3 m) is alongside the S face with 25 feet (7.6 m) reported alongside. The back side of the face has 160 feet (49 m) of berthing space, and 20 feet (6.1 m) reported alongside.

(1160) **Seldovia Small-Boat Harbor**, about 0.2 mile S of City Pier, is protected by breakwaters. A light marks the end of the N breakwater. In May 2006, the controlling depth was 12 feet in the entrance channel then 12 feet in the basin with shoaling to 10 feet near the SW corner of the dredged basin. The SE half of the basin is locally maintained. The harbor provides moorage for about 150 vessels; some transient spaces are available. The **harbormaster** assigns berths. The harbormaster's office, at the N end of the small-boat harbor parking lot, monitors VHF-FM channel 16 and can be contacted by calling 907-234-7886. Water and electricity are available at the floats. A 102-foot and a 106-foot grid are in the basin on either side of the approach. A boat lift for boats up to 48 feet, and a launching ramp are also in the basin approach. The basin is owned by the State and operated by the city.

(1161) **Supplies** and **repairs** are limited.

Oil Spill Response Resources

(1162) 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 Captain of the Port, W Alaska, in Anchorage.

Communications

(1163) The Alaska Marine Highway System has scheduled ferry service for passengers and vehicles from Seldovia to Homer, Kodiak, 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.

(1164) **Seldovia Slough**, just S of the small-boat harbor, leads E and N to **Seldovia Lagoon**. It is dry at low water and only navigated by skiffs.

(1165) The remainder of the cove is nearly dry at extreme low water. A grassy head with a few trees forms the SW side of the cove that is joined to the main shore by a low narrow neck.

Chart 16645

(1166) **Kachemak Bay** is a large bay on the E side of Cook Inlet. The entrance is between Seldovia Point (59°28.3'N., 151°42.0'W.) on the S and Anchor Point (59°46.8'N., 151°52.0'W.) on the N. 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 NE of Homer Spit. The fishing vessel and tour boat traffic is mostly a summer activity.

(1167) **Kachemak Bay Research Reserve** includes waters of Kachemak Bay E of a line connecting Anchor Point in the N with Point Pogibshi in the S. Kachemak Bay Research Reserve is a Marine Managed Area. (See **MMA 4-2**, Appendix C, for additional information.)

Route

(1168) From the entrance to Cook Inlet about 4.5 miles S of East Chugack Island Light, set courses to pass about 6 miles S of the W end of Cape Elizabeth, on Elizabeth Island, thence about 2 to 5 miles W 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 S of Homer Spit Light 3 to pick up a pilot, or 1 mile S to proceed to the berths or anchorage at Homer.

Caution

(1169) Vessels transiting to and from Homer to the N 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.

Tides and Currents

(1170) From Dangerous Cape, a flood current sets up Kachemak Bay with a velocity of 1 to 2 knots in a NE direction, and the ebb flows in a SW to W 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 E side of Homer Spit during flood and ebb currents.

Weather, Kachemak Bay and vicinity

(1171) Winds in the Kachemak Bay area are predominantly from the NE from late fall to early spring. During the rest of the year, SW 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 E side of Cook Inlet normally experience some of the heavier winds and seas in the area off Anchor Point.

(1172) **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 SW winds will also hold lingering fog banks against the eastern shore.

(1173) 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.

Ice

(1174) **Ice** forms in the freshwater streams and within areas of relatively little water movement or where a skim of freshwater rides over the saline water. The boat harbor at Homer and the NE side of the Spit will pack with slush and pan ice during the colder periods (especially in NE 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.

(1175) **Nubble Point**, 4.2 miles NE 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 E part of the point is wooded.

(1176) **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 SE winds. The water shoals abruptly to the shore and to the flat which fills the cove formed by Nubble Point; the flat in the cove will be avoided by keeping the E end of the point bearing W of **014**°.

(1177) Two rocks close together are 0.5 mile NE of the N end of Nubble Point and are marked by a buoy in 59°29'31"N., 151°33'09"W., on the NE side. The W rock is covered 2 fathoms and the E 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 SE of the rocks. A least depth of 12 fathoms was found between the rocks and Nubble Point by giving the N end of the point a berth of over 200 yards. A private mooring buoy is 1.3 miles SSW of the buoyed rocks.

(1178) In 1981, the NOAA Ship RAINIER found numerous uncharted rocks and shoals while surveying in the vicinity of the Herring Islands; caution is advised.

(1179) **Jakolof Bay** is entered at the SE 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.

(1180) Jakolof Bay is a long, narrow finger of water about 1.7 miles long and 0.25 mile wide, lying in a general NNW and SSE direction. The entrance to the bay is about 0.125 mile wide and unmarked. A small island which connects to the W 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 S shore.

Currents

(1181) Both ebb and flood currents reportedly run fair with the E 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.

(1182) A small floating pier, maintained by the State, is on the W 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 E of

the floating pier. Two small water taxis, which run to Jakolof Bay from Homer, use this floating pier.

(1183) **Hesketh Island, Yukon Island,** and **Cohen Island** are high and wooded. An islet is on the reef that extends 0.5 mile NW from Hesketh Island. **Sixty Foot Rock Light** (59°33'01"N., 151°28'02"W.), 79 feet (24.1 m) above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on **Sixty-foot Rock** at the N end of a reef that extends 0.5 mile N from Cohen Island. The light shows a higher intensity beam toward Cook Inlet. There is a prominent yellow cliff on the W end of Cohen Island. The passage between Yukon Island and Hesketh Island has a 2-fathom shoal in midchannel at both ends. **Eldred Passage**, E of the islands, is deep near the middle, except at the N end where there is a bar on which the least depths found were 9¾ to 12 fathoms.

(1184) **Tutka Bay** has no desirable anchorages for large vessels. Broken ground, on which some pinnacle rocks have been found, extends across the entrance. Just NW of this island is a half-tide rock that closes the channel behind the island to all but small boats. 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.

(1185) **Tutka Bay Lagoon** is about 4 miles inside the mouth of Tutka Bay on the SW 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 which 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.

(1186) **Sadie Cove**, the inlet in the E side of Eldred Passage, is clear near midchannel. Foul ground extends about 0.2 mile off the N and S entrance points. An overhead power cable with a clearance of 170 feet crosses the mouth of the cove.

(1187) **Lancashire Rocks**, 1.8 miles NE from Cohen Island, are awash. They are 0.5 mile offshore with foul ground inshore from them.

(1188) **Gull Island**, 93 feet high, marked by a light, 5 miles NE from Cohen Island, is among a group of prominent bare rocks that are visible about 10 miles. **China Poot Bay**, S 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 NE side of the bay. It terminates at 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 SW winds.

(1189) **Peterson Bay**, 1.5 miles N of China Poot Bay, provides good protection from E-W winds. A foul area exists around the small islands near the head of the bay. A 5 to 7 fathom channel on the W side of the foul area runs to the head of the bay. A submerged rock covered 8 feet is in the center of the channel abeam of the largest island. Depths at the head of the bay are 6 to 14 fathoms.

Charts 16645, 16646

(1190) **Homer Spit**, on the N 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.

(1191) **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 (10.4 m) above the water and shown from a tower on top of a hotel roof. A private flashing light, visible from seaward and shown from a 35-foot brown tower, is about 0.4 mile **284°** from Homer Spit Light 3. Care must be taken not to confuse this light with the breakwater light, which is not visible over the spit.

(1192) **Coal Bay,** the bight NE of Homer Spit, is shoal but there are no outlying dangers. **Mud Bay** is within Coal Bay.

(1193) **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.

Prominent features

(1194) 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.

Anchorage

(1195) Good anchorage for medium to large vessels can be had 1.0 mile or more NE 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 NNE of Coal Point, in 22 fathoms.

Weather, Homer Vicinity

(1196) 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.

(1197) 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.

(1198) Surface winds at the station are seldom strong even in winter. However, a short distance to the SE, over Kachemak Bay, and to the W over Cook Inlet, wind speeds requiring warnings to small craft are fairly common in winter and summer.

(1199) 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.

Tides

(1200) The diurnal range of tide is 18.1 feet at Homer.

Pilotage, Homer

(1201) Pilotage except for certain exempted vessels, is compulsory for all vessels navigating the waters of the State of Alaska.

(1202) Pilots are available from the Southwest Alaska Pilots office at Homer; call sign, KCE-203, on VHF-FM channels 10 and 16 (24 hours daily); telephone — 907-235-8783, FAX 907-235-6119, cable address SWAPILOT HOMER. A 36-hour notice is required.

(1203) Vessels meet the pilot boat about 1 mile S of Homer Spit Light 3 (59°36'02"N., 151°24'34"W.) in Kachemak Bay, off Homer. The pilot boat can be contacted by calling "KATMAI" or "MARY DELE" on VHF-FM channels 10 and 16, or through the Southwest Alaska Pilots office at Homer, mentioned earlier. The pilot boats are a 55-foot aluminum boat (KATMAI) and a 42-foot trawler, green hull, red and white deckhouse (MARY DELE). Both have the word "Pilot" forward. The pilot boat displays the appropriate day and night signals when on duty. It is a common practice for vessels to shape a course (weather permitting) 0.5 mile S of Homer Spit Light 3 to allow for a starboard turn in picking up or disembarking a pilot starboard-side-to. Vessels picking up a pilot should maintain a speed of about 6 knots and have the pilot ladder 3 feet above the water. 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).

Towage

(1204) Tugs up to 1250 hp. are available in Homer 24 hours a day. Prior arrangements for their use should be made.

Caution

(1205) 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 W from Homer Spit and are marked on the SE 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.

(1206) **Note:** In 1996, the least depths over the SE portion of these shoals were reported to be 2 fathoms less than charted in the area about 1 mile W to NW of Archimandritof Shoals Lighted Buoy 3.

(1207) **Customs** and **Immigration** are handled by Anchorage officials with prior arrangements..

Quarantine

(1208) 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.)

Coast Guard

(1209) Two **Coast Guard** Cutters (a buoy tender and a patrol boat) are stationed in Homer.

Harbor regulations

(1210) 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 (telephone, 907-235-2964), and the small-boat harbor is administered by a harbormaster (telephone, 907-235-3160). Their office is on the SW side of the small-boat harbor. They monitor VHF-FM channels 16 and 10; call sign, WHG-651.

Wharves

(1211) Homer has 2 deep-draft piers, a fish dock, and a small-boat harbor. For a complete description of the port facilities refer to the Port Series No. 39, published and sold by the U.S. Army Corps of Engineers. (See Appendix A for address).

(1212) **Pioneer Dock:** on the N side of Coal Point; U-shaped structure with two trestles, extends 445 feet offshore; outer face, 469 feet, and mooring dolphins provides for ships up to 750 feet, 40 feet reported alongside, deck height 32 feet; NW 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.

(1213) **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.

(1214) **Homer Deep Water Dock:** 200 yards N of Homer Breakwater Light 2 and marked by private lights, extends 532 feet (162 m) offshore; 324-foot (98.7 m) E face, additional 450 feet (137 m) with three mooring dolphins and two mooring buoys; 40 feet (12.2 m) reported alongside; deck height, 28 feet (8.5 m); 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. Starboardside-to is advised for large vessels with certain loading operations.

(1215) **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.

(1216) **City of Homer Fish Dock:** on the SE 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 (3.1 to 6.1 m) 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.

(1217) **Homer Small-Boat Harbor**, protected by a breakwater, is just NW 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 SE end, thence turns NW to separate the basin in half. The basins on either side of the entrance channel are maintained by local interests. In September 2007, the controlling depth in the entrance was 17.3 feet (19.6 feet at midchannel) to the beginning of the piers, thence 12 feet to the end of the project.

(1218) 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 SE side of the entrance and the N 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.

(1219) **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.

Supplies and Repairs

(1220) 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 NW of the Homer Deep Water Dock.

Oil Spill Response Resources

(1221) 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.)

Communications

(1222) 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, 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.

(1223) **Halibut Cove**, on the S shore about 6 miles E 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 (21.3 m) above the water, is shown from a small white house with a red triangular daymark on the NE point of **Ismailof Island** on the S side of the cove. A daybeacon, 0.3 mile S of the light, marks a rock awash. Shoals of 4 and 4¾ fathoms are near the middle of the cove due E 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 E side of this inner lagoon, providing about 1,000 feet of berthing space with 10 to 15 feet reported alongside; enter from the E. Another facility is on the W side of the lagoon from which a mail and passenger boat operates. The W 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.

(1224) **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 NW side of the entrance is not well defined; local knowledge is advised. A public dock is at the S end with 110 feet of berthage and deep water reported alongside. The dock is used by water taxis delivering hikers and local boaters.

(1225) **Bear Cove**, on the S 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.

(1226) The head of Kachemak Bay consists of extensive mudflats. A local power company maintains a barge dock and small-craft float on the SE 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 N 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 N 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.

(1227) 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 N 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.

(1228) **Anchor Point Light** (59°46'09"N., 151°52'01"W.), 41 feet (12.5 m) 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.

Charts 16640, 16661

(1229) 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 N, then continues close to the shore up to Cape Starichkof. The bluff attains an elevation of 270 feet 2.8 miles N of Anchor Point, then gradually descends to the N.

(1230) At **Cape Starichkof** about 7 miles NNE of Anchor Point, the bluff recedes again, is less steep, and is covered with vegetation. N 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 NNE 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.)

(1231) From N 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 N to Kenai are the only prominent and distinctive features between Anchor Point and Kenai.

(1232) **Deep Creek**, 1.8 miles SW 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.

(1233) **Ninilchik**, a fishing settlement at the mouth of Ninilchik River, has a small-boat basin only reachable at high tide.

Tides

(1234) The diurnal range of tide is 19.1 feet at Ninilchik.

(1235) **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 triangular 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 S jetty, warns of the approach to the sill, and another daybeacon on a pole marks the NE 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.

(1236) **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.

(1237) N 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.

(1238) **Clam Gulch**, 14 miles NE of Ninilchik, has a gravel road leading from Sterling Highway to the beach. A lighted parabolic antenna is prominent 1.5 miles S of Clam Gulch.

Charts 16640, 16648

(1239) On the W shore of Cook Inlet, from Cape Douglas (58°51.0'N., 153°15.0'W.) to Chisik Island about 80 miles to the NNE, 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 W shore of the Cook Inlet is reported to have more floating debris and logs in summer and larger ice pans in winter, than the E and more trafficked shore of the Inlet..

(1240) **Sukoi Bay**, on the N 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 S shore.

(1241) The two bluff points 5 and 8 miles NW 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 SE of Shaw Island and a rocky area with a least depth of 3¼ fathoms 2.7 miles SSE of Shaw Island. At the head of the bight is a short valley with a glacier. Just clear of the bluff point on the SE side of the bight is a pinnacle rock as high as the bluff. The bight between this point and the N point of Sukoi Bay appears shoal.

(1242) **Shaw Island**, flat and grass covered, is 10 miles NW from Cape Douglas and 1.8 miles from shore. A depth of 12 fathoms was found midway between it and the shore. Ledges extend N from the island for 0.8 mile.

(1243) **Kamishak Bay**, about 20 miles NW of Cape Douglas, has numerous reefs rising to within a few feet of the surface scattered throughout the area. During strong NW to W winds, (common after mid-August), the bay S 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 E winds a significant swell develops. Because of these hazards, vessels should proceed with caution in the bay.

Currents

(1244) In the S part of the bay, tide rips occur off **Douglas River** with a flood current and strong W winds. In the N part of the bay, the currents follow the coast, flooding NE and ebbing SW at a rate of about 1 knot at strength. The current is more noticeable near the shore. With a strong W wind, tide rips occur about 2 to 4 miles N of Chinitna Point.

(1245) 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 N of Iniskin Bay. The shoreline along the S and W 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.

(1246) The shore throughout the bay is bordered by dangerous reefs, most of which uncover at low water. The S 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 which uncover at low tide. A safe passage to the S 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.

(1247) It is possible to approach the W shore through a break in the reefs. In the waters N 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 S 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 NW of Chenik Head, show slightly on the starboard hand. Avoid **Juma Reef**, it bares at low water and extends NNE from Nordyke Island for at least 1.2 miles. N 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 W part of **McNeil Head** should be dead ahead and the outer tangent of Step Mountain should be dead astern. Anchor 1,100 yards W of Nordyke Island in 5 fathoms, sticky mud bottom. The currents at this anchorage set SSW on the flood and NNE on the ebb.

(1248) **Nordyke Island** is 35 feet high, flat, and grass topped. Two smaller flat grass-topped islands are SW of Nordyke Island. Rock ledges that bare at low water make off from these islets for about 0.5 mile to the S. A series of reefs that bare at low water are like huge stepping stones between Nordyke Island and McNeil Head.

Tide

(1249) The diurnal range of tide at Nordyke Island is 15.2 feet.

(1250) **McNeil Cove** is shoal and filled with sandflats. The S 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 SW part of McNeil Cove is used as a refuge in stormy weather by small fishing craft, which lie in the mud during low water.

(1251) S 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.

(1252) **Chenik Head** is a low flat cape about 50 feet high on the N 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. N of Chenik Head are two small islets that serve as markers for vessels crossing the line of reefs.

(1253) **Amakdedori**, consisting of a few hunting cabins, is 4.3 miles N 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 N of **Amakdedori Creek**.

(1254) N of Amakdedori is an extensive stretch of conspicuous palisades. Above these and near the W end is a dome-shaped peak about 1,996 feet high.

(1255) **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 SE. A submerged ledge extends 0.5 mile offshore from Contact Point.

(1256) The entrance to **Bruin Bay** is N of Contact Point. The bay is separated into an inner and an outer portion by a finger of land running N from a point 1.5 miles W of Contact Point. Two cabins in ruins are on the N 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 N of the S 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 N 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 N 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 W and NE which often cause boats' anchors to drag.

(1257) The shoreline NE of Bruin Bay is rugged. A waterfall 3.4 miles NNE 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 S 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 E weather. The bottom is very broken.

(1258) **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 NW shore of the island. The N 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 E 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 W end of the island is detached from the main part by a lagoon, the entrances to which are partly blocked by boulders.

(1259) The SW bight is much used by fishing craft as an anchorage, with protection from SE through NE 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 E side of the cove; the W 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 W of Augustine Island. A second bank having depths of 2 to 4 fathoms extends for about 1.9 miles off the SW point of the island.

(1260) **Augustine Rocks** are 8.3 miles S 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.

(1261) **Iliamna Bay** is on the N side of Kamishak Bay 13 miles N 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 W 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.

(1262) **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 N of White Gull Island to 1 fathom in the entrance to Cottonwood Bay.

(1263) **Turtle Reef** extends over 0.4 mile E 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 E from **North Head**. The highest points of the reef are two rocks, 5 to 10 feet high. Lying 0.5 mile NE of Black Reef is another reef which covers at half tide; its S end is 0.5 mile from shore. **A.C. Point**, on the E shore of the bay about 2 miles NW from North Head, has been used as a landing place.

Route

(1264) 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 E from the S point at the entrance to Cottonwood Bay.

Anchorage

(1265) 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 N side of White Gull Island in range with the S point at the entrance, and the N point at the entrance bearing **106°**. The anchorage is exposed to E and SE winds and there are heavy williwaws with W winds, but it is regarded as secure during the summer, except during the occasional heavy winds.

Local magnetic disturbance

(1266) Differences of as much as 3° from normal variation have been reported in Iliamna Bay.

Tides and currents

(1267) The diurnal range of tide is 14.5 feet in lower Iliamna Bay. The currents just inside the entrance have an estimated strength of 1 to 2 knots.

Weather, Iliamna Bay

(1268) It is reported that Iliamna Bay does not freeze but that drift ice in large quantities sets in at times from the upper inlet. N gales prevail in winter and heavy williwaws are reported to come from the mountains on the NE shore. The prevailing summer winds are down the bay and are frequently fresh, especially on bright days.

(1269) **Williamsport**, in a cove on the W shore of Iliamna Bay 1 mile from the N end of the bay, is the E 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 12'2" 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 (chart 16013) 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.

(1270) This portage road continues on after Pile Bay to Pedro Bay, on Lake Iliamna.

(1271) 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.

(1272) **Iniskin Bay**, on the N side of Kamishak Bay 3 miles E of Iliamna Bay, is a secure harbor in any weather, although subject to some williwaws from the high sharp bare peaks on the W shore. It is considered the only secure anchorage for medium-sized vessels on the W side of the Cook Inlet, and is used by fishing industry vessels up to 4,000 tons.

(1273) The E shore is generally low and alder covered. The W and upper parts of the bay are filled with boulder-strewn flats, bare at low water, and the E 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.

(1274) Three small islands with outlying reefs are on the E side of the entrance of Iniskin Bay. The N 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 NW. The middle island is about 35 feet high, and from it a reef extends 0.6 mile SW, terminating in **Iniskin Rock.**

(1275) **Iniskin Island**, outermost of the three mentioned above, is 50 feet high on the N side, and from it a reef partly bare at low water extends 0.5 mile SW; lying 1 to 1.3 miles SW 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.

(1276) **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.

Route

(1277) To enter Iniskin Bay, avoid the reefs which rise abruptly from deep water and extend about 1 mile from the shore E of the bay. Pass more than 1 mile S 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 W side of Iniskin Bay are in line, steer this range until near the W shore, avoiding a reef which extends about 0.7 mile S from **Knoll Head**. Follow this shore a distance of 0.3 mile until **Range Peak**, on the N side of **Right Arm**, is in line with Iliamna Volcano, and then steer this range; the chart is the guide.

Anchorage

(1278) **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 SE side about 1 mile NNW of Scott Island or on the NW side 2.5 to 3.5 miles N of Scott Island, in 3 to 6 fathoms. The W side is exposed to swell from strong SE weather, which renders it fair to poor for smaller vessels unless they anchor in the shallower waters on the SE side of the bay.

Currents

(1279) The tidal current averages 1 knot in Iniskin Bay.

Local magnetic disturbance

(1280) Differences of as much as 3° from normal variations have been observed in Iniskin Bay.

(1281) 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 SE of Scott Island, is small and rocky and has a few trees on its W end. **Big Rock**, 9 feet high, is 1 mile E 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.

(1282) 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.

(1283) **Oil Bay** is shallow and open with a sand beach at its head which bares for 0.8 mile from shore. The bottom is rocky and foul for about 1 mile offshore on the W side of the entrance.

(1284) **Dry Bay** is a rocky shoal bight between Oil Bay and Chinitna Point. The bay has a sand beach at its head.

(1285) An 8-fathom shoal, about 2 miles NE 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.

Chart 16640

(1286) **Chinitna Bay** is shoal, and an anchorage in 4 to 5 fathoms in the entrance is exposed to all E 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 W winds. The bay is filled with ice during the winter. Tidal currents average 1 knot in Chinitna Bay.

(1287) **Gull Island**, 100 feet high, rocky and grass covered, is on the S side of the entrance to Chinitna Bay. Reefs extend 0.6 mile NE and SE from the island. A deep channel, 0.3 mile wide, leads into Chinitna Bay between Gull Island and the mainland to the SW.

(1288) From Chinitna Bay to the prominent waterfall 5 miles S 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.

Caution

(1289) An extensive shoal, with rocky, very irregular bottom, at least 3 fathoms and 3.9 miles offshore, extends 6 miles from the W 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 N 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.

(1290) 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.

(1291) **Red Glacier**, 7 miles N of Chinitna Bay, is a prominent landmark which derives its name from the red soil covering the seaward edge.

(1292) **Iliamna Volcano** is a prominent landmark. Steam occasionally issues from fissures just below the summit and from one of the lower peaks on the SE slope.

(1293) **Chisik Island** has a narrow ridge, comparatively smooth on top, that slopes gradually upward from the

SE end of the island to its NW end where it terminates in a conspicuous cliff. **Chisik Island Light** (60°05'45"N., 152°33'42"W.), 215 feet (65.6 m) above the water, is shown from a skeleton tower with a diamond-shaped red and white daymark on the S end of the island; a reef extends 0.3 mile S.

(1294) **Tuxedni Channel**, on the SW side of Chisik Island, is considered a protected anchorage.

(1295) **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 N 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.

(1296) A former cannery on the E side of Snug Harbor, on Chisik Island, has a caretaker on site. A T-head pier has about 10 feet reported alongside.

Route

(1297) To enter Tuxedni Channel give the S 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.

Tides and currents

(1298) The diurnal range of tide is 16.6 feet in Tuxedni Channel. The current floods NW at a velocity of 1.1 knots and ebbs SSE at a velocity of 1.9 knots.

(1299) **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 N of Chisik Island should be avoided, even by small craft.

(1300) In 1978, the NOAA Ship FAIRWEATHER reported the shifting of rocks and the possibility of uncharted rocks in Tuxedni Bay W of longitude 152°40'W. Caution is advised in this area.

Charts 16661, 16662, 16663, 16665, 16660

(1301) From Tuxedni Bay to Harriet Point, the W 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 NE 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 which fringe this shore, and vessels should proceed with caution when inside the 10-fathom curve.

(1302) A shoal (**South Kalgin Bar**), in the center of the Inlet, extends 16 miles S from Kalgin Island and is marked at its S end by a seasonal lighted bell buoy. (See chart 16661.) There are spots bare at low water for nearly 8 miles from the island, and thence S 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.

(1303) **Harriet Point**, on the W 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 E 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 S breezes bad tide rips occur between Harriet Point and Kalgin Island, and extend some distance S. In 1975, the NOAA Ship DAVIDSON observed a dangerously steep, short, and choppy sea condition between Harriet Point and the S 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 NNW 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°23'46"N., 152°14'15"W.) 95 feet (29.0 m) above the water, is shown from a skeleton tower with a diamond-shaped red and white daymark on the end of the point.

(1304) **Redoubt Volcano** is a visually prominent landmark 16 miles inland from Harriet Point. There is a notch on its SE slope just below the summit. Steam occasionally issues from fissures at the summit.

(1305) **Kalgin Island**, in the center of the Inlet, is wooded and fringed with boulders and higher at its N and S ends. **Kalgin Island Light** (60°29'06"N., 151°50'16"W.), 140 feet (42.7 m) above the water, is shown from a skeleton tower with a diamond-shaped red and white daymark on and white daymark on the NE point of the island. **Kalgin Island South Light** (60°20'45"N., 152°05'06"W.), 65 feet (19.8 m) above the water, is shown from a skeleton tower with a diamond-shaped red and white daymark on the S point of the island. The S 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 NE and S points form good radar targets. However, it is reported that the NE point is receding at a rapid rate, so the radar range should be used with caution.

(1306) A passage with general depths of 12 to 15 feet, which is used by fish packers, leads across the N end of the shoal (*South Kalgin Bar*) from 1.5 to 2.3 miles S of Kalgin Island. (See South Kalgin Bar, indexed as such, earlier this chapter.) A range should be picked up in the opening N of Chisik Island to insure 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.

(1307) A sand ridge, which uncovers, is about 2.5 to 3.5 miles W of Kalgin Island. During the early summer months and after significant rainfall, floating debris and logs may be encountered in the channel W 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.

(1308) 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 which 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 NE weather for medium-sized vessels can be found 2 to 5 miles SW of Drift River Terminal in 3 to 5 fathoms, mud bottom.

(1309) About 10 miles N of Harriet Point and 18 miles S 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 fog signal is at the S 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. For a complete description of this facility refer to Port Series No. 39, published and sold by the U.S. Army Corps of Engineers. (See Appendix A for address.)

(1310) The platform is a good radar target.

(1311) **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 W Alaska in Anchorage for more information.

(1312) A prominent wooded butte (**Coach Butte**, see chart 16662) is 4 miles inland and 14 miles W of West Foreland.

(1313) A boulder-strewn shoal with depths of 7 fathoms or less extends N from the NE 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.

(1314) Small vessels anchor off the middle of the N end of Kalgin Island, with good shelter from S gales drawing up the inlet. Fair holding ground is from the middle of the N shore W. 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 N end of the island.

(1315) The highest parts of the offlying shoal between Kalgin Island and West Foreland uncover between 3 and 4 feet. The shoal has been shifting S and extends 5.5 to 10 miles from the N 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.

(1316) **Kustatan River** has its entrance 3.5 miles W of West Foreland. It connects inland with McArthur River, which enters the inlet 12 miles N of West Foreland. Tidal flats with some boulders extend 2.5 miles S of the river.

(1317) **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 N is fringed with boulders and abandoned wellheads which extend below low water. Tide rips with a high, short, choppy sea are significant on flood currents and S to SW winds. (Note: Opposite on the E 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 N 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 N end.

(1318) For a distance of 15 miles NE 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 which crosses the river upstream is sometimes exposed by river runoff — passage is not advised. A good **anchorage** from SW weather for medium-sized vessels can be found 9.5 miles N of West Foreland and 2.5 miles SSE of the McArthur River in 5 fathoms, soft mud bottom, good holding. Care should be taken to stay N of the charted pipeline areas. Trading Bay has 10 charted oil well platforms which are used as navigation points by vessels transiting the Inlet. Helicopter traffic to and from the platforms is often seen.

(1319) **Nikolai Creek** is a narrow slough 19 miles NNE of West Foreland. A marked pipeline which crosses the river upstream is sometimes exposed by river runoff — passage is not advised. About 3 miles E 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 S 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.

(1320) **Granite Point** is a prominent gray bluff 1 mile E of the gulch. Between the point and North Foreland, 5.5 miles to the ENE, 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 E 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).

(1321) **North Foreland**, on the NW 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 N 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 SE 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.

(1322) **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.

(1323) **Tyonek** is a native village near the mouth of **Indian Creek**, 1.5 miles NE of North Foreland. The village has a Bureau of Indian Affairs school. Vessels call at Tyonek, and a landing strip just N of the village is suitable for light planes. Mail is received once a week from Anchorage.

(1324) **Chuitna River**, 3 miles N 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. In 1966, a pipe covered about 2 feet at mean higher high water was reported E of the entrance to the river in about 61°06.2'N.,150°55.0'W.; this pipe is amongst abandoned wellheads and a charted oil platform.

(1325) A prominent bluff 150 feet high is on the S side of **Threemile Creek**. Bluffs continue N 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.

(1326) 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, 3.5 miles off the shore E nearly to Little Susitna River, and then meets the shore at Point MacKenzie.

(1327) **Beluga River** is 11.5 miles N 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.

(1328) 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.

(1329) **Theodore River** is 3.5 miles NE of Beluga River. Three or 4 miles up, the two rivers are within 1 mile of each other and there is an easy portage between them.

(1330) **Susitna River** is on the N side of Cook Inlet 22 miles NE of North Foreland. **Mount Susitna**, a prominent landmark along the upper part of the inlet, is about 6 miles W of the river at a point 13 miles above the mouth.

(1331) 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.

(1332) 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.

(1333) **Alexander** is a small settlement on the W side of Susitna River 10 miles above the mouth. Susitna is on the E 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.

(1334) **Susitna Flats** lies between Susitna River and Little Susitna River and to the E of the latter. **Susitna Flats Light** (61°15'10"N., 150°29'17"W.), 19 feet (5.8 m) above the water, is shown from a skeleton tower and is equipped with a racon.

(1335) **Little Susitna River**, 9 miles W of Point MacKenzie, is said to be navigable for landing craft and skiffs at high water for about 8 miles.

(1336) **Caution:** the depths offshore and in the approach to Little Susitna are subject to drastic and continual change.

(1337) **Cape Kasilof** (60°22.0'N., 151°22.0'W.) is on the E side of Cook Inlet opposite Kalgin Island. The high bluffs characteristic of much of the E shore are absent between 3 to 4 miles S of the cape up to Kenai to the N. Cape Kasilof is a "Securite" Broadcast reporting point used by large vessels. (See "Securite" Broadcasts, indexed as such, earlier this chapter for more.)

(1338) Five miles SW from Cape Kasilof and 2.2 miles from shore are **The Sisters**, three prominent rocks, the highest of which is 5 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 S from the cape, and is strewn with boulders 15 to 50 feet high and a submerged wellhead.

(1339) **Kasilof River** empties into the E side of Cook Inlet 2.5 miles NE of Cape Kasilof. **Kasilof** is a small rural fishing community on the N side of Kasilof River, about 5 miles above the mouth. **Cohoe** is another small rural fishing community on the S side of the river mouth. Both communities are connected by the Sterling Highway with Anchorage, Homer, and other points along the W side of Kenai Peninsula.

(1340) The entrance channel is marked by a light and buoys. A lighted buoy, about 2.4 miles W of the light, marks the approach to the entrance channel; the light, 9 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 S from the channel. Entrance should not be attempted without local knowledge.

(1341) Kasilof River is narrow and has a strong ebb current which 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.

(1342) A seafood dock with a 78-foot face and a launching ramp are on the N 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.

(1343) **Karluk Reef**, 4 miles N of Cape Kasilof and 3.5 miles from the E shore, is covered 1 foot at low water. There are other shoals and submerged rocks between the reef and the shore.

(1344) **Salmo Rock**, 9.5 miles N of Cape Kasilof, 2.5 miles SW 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.

(1345) **Kenai**, 11 miles N of Cape Kasilof and on the N 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.

Prominent features

(1346) Three towers with red flashing lights are prominent at night S and E of town.

(1347) The entrance channel to the **Kenai River** is marked by a light and a lighted seasonal buoy.

Caution

(1348) 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 **162.245**, chapter 2, for navigation regulations for the Kenai River.)

(1349) From June to October, about 120 private mooring buoys are placed on the sides of the river channel from about 300 yards W of Pacific Star Seafoods Wharf to 200 yards S of the Wards Cove Packing Co. Dock.

Tides and currents

(1350) The diurnal range of tide is 19.8 feet at the Kenai City Dock. The currents in the river mouth attain velocities of 5 knots or more. With a strong SW wind and flood current, a significant SW 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.

Weather, Kenai

(1351) Prevailing winds from late spring to early fall are from the SE and SW, (the strongest being from late summer to early fall); NE 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).

Ice

(1352) 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.

Pilotage, Kenai.

(1353) 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.)

Customs

(1354) Kenai is handled by Anchorage officials with prior arrangements.

Quarantine

(1355) 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.

(1356) A **Coast Guard** Marine Safety Detachment is in Kenai.

Wharves

(1357) Six wharves for barges and fishing vessels are along the Kenai River. 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.)

(1358) **Pacific Star Seafoods Wharf:** N 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.

(1359) **Salamatof Seafoods, Kenai Dock:** NE side of Kenai River, about 1.1 miles above the mouth; 310-foot (94 m) face; dries at low water; deck height, 28 feet (8.5 m); five forklifts; water and electricity; highway connections; receipt of seafood, fueling vessels; owned and operated by Salamatof Seafoods Inc.

(1360) **Snug Harbor Seafoods, Kenai Dock:** NE side of Kenai River, about 1.2 miles above the mouth; 60-foot face; 12 to 15 feet (3.7 to 4.6 m) 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.

(1361) **Ocean Beauty Seafoods, Kenai Dock:** NE side of Kenai River, about 1.25 miles above the mouth; 78-foot (23.8 m) steel float; 1 foot (0.3 m) reported alongside; three 2-ton forklifts; water and electricity; highway connections; receipt of seafood; owned and operated by Ocean Beauty Seafoods, Inc.

(1362) **Kenai City Dock:** E side of Kenai River, about 1.6 miles above the mouth; 170-foot face; 4 feet (1.2 m) 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 N side.

(1363) **Inlet Fish Piers, Kenai Piers:** W side of Kenai River, about 2.8 miles above the mouth; lower and upper piers with 50 and 45-foot (15.2 and 13.7 m) 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.

Supplies and repairs

(1364) 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.

Communications

(1365) 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.

(1366) 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.

(1367) Oil rig support boats often anchor 3.5 miles SSE of the Nikiski piers, 0.5 mile offshore on the charted 3-fathom shoal. However, it only affords protection from NE winds and boulders are common to the area.

(1368) **Nikiski**, 8.5 miles NNW of Kenai, is a mostly rural area with three deep-draft piers and 2 shallow-draft wharves. Except for the facility just NE of the West Forelands, all facilities are used in connection with the petroleum industry.

Prominent features

(1369) 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. (A new USCG range is under construction; September 1996.)

Caution

(1370) 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. Set-nets 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 LNG loading operations while material is being transferred.

Tides and currents

(1371) The diurnal range of tide at Nikiski is 20.5 feet. (See Tide Tables for daily predictions.) Nikiski has a PORTS site which 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 Tidal Current Tables for daily predictions.) With a strong SW wind and flood current, a significant SW 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.

Ice

(1372) 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 W Alaska in Anchorage for more information.

Pilotage, Nikiski.

(1373) 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.)

Customs

(1374) Nikiski is handled by Anchorage officials with prior arrangements.

Quarantine

(1375) A U.S. Public Health Service Contract Physician is located at a medical center in Nikiski. (See Appendix A for additional information.)

Wharves

(1376) 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.

(1377) **Agrium U.S., Nikiski Wharf:** a T-head pier 3 miles S of East Foreland Light; 210-foot (64 m) face, 1,135 feet (346 m) of berthing space with dolphins; 45 feet (13.7 m) reported alongside; deck height, 38 feet (11.6 m); 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.

(1378) **Phillips Petroleum Co., Kenai LNG Dock:** a T-head pier 800 yards N 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.

(1379) **Kenai Pipe Line Co., Nikiski Wharf:** a T-head pier 1,500 yards N 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.

(1380) **APC Natchiq, Nikiski Rig Tenders Dock**, a wharf 2,000 yards N 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.

Oil Spill Response Resources

(1381) 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.

Communications

(1382) 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.

(1383) **East Foreland**, 60 miles N 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.

(1384) **East Foreland Light** (60°43'10"N., 151°24'27"W.), 294 feet (89.7 m) 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.

(1385) **Nikiski Bay** is the bight between Arness Terminal and Boulder Point, 2.4 miles to the NE. 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 E and S winds, but is open to N 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 NW of the anchorage.

(1386) **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 N of East Foreland. A lighted buoy is NE of the shoal.

(1387) **Caution:** A 2 to 3-knot set into Trading Bay is reported to exist on an ebb current by S bound vessels when abreast of the N end of Middle Ground Shoal.

(1388) **Route Note:** The main deep-draft channel presently proceeds up the W side of the Inlet to the E of Phillips-A Platform and W and N of Beluga Shoal, N of Fire Island Shoal, and S of Susitna Flats. See Routes on the Port of Anchorage for more.

Oil Production Platforms, Middle Ground Shoal

(1389) Oil drilling and production operations continue in Cook Inlet extending as far N 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, fog signals, and retro-reflective material.

(1390) 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 fog signals used to mark the various structures are operated as private aids to navigation. (see **67.01 through 67.10**, chapter 2, for regulations.)

(1391) 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.

(1392) 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.

(1393) There are about 15 Oil Production Platforms which extend from East and West Forelands to above North Forelands. They form good radar targets, well-lit, and used along with significant land features and aids to navigation to fix vessel's positions.

(1394) 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 which show above high water.

(1395) A yellowish bluff is 4 miles E of Boulder Point. **Gray Cliff** is 10 miles NE of Boulder Point.

(1396) Rocks awash are about 4.2 miles W and 4 miles NNW, 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.

(1397) **Moose Point**, low and wooded with a grassy flat at its end, is not prominent; it is marked by a light. 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. A 2¼-fathom spot in about 60º59'42"N., 150º53'27"W., is about 6.5 miles NW from Moose Point Light. Shoaling may have taken place between it and the SE shore. This 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.)

(1398) **Beluga Shoal**, covered 4 1/3 fathoms, is in the middle of Cook Inlet about midway between North Foreland and Fire Island and about 8 miles N of Moose Point. The present main channel passes W and N of Beluga Shoal and S of Susitna Flats.

Caution

(1399) 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.

(1400) About 6 miles NE of Moose Point is a reddish bluff, on the N side of which is a deep canyon, showing from SW.

(1401) **Point Possession**, 36 miles NE of East Foreland, is on the S side of Cook Inlet and on the SW 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.)

(1402) **Possession**, a former village occupied only during the summer, is on the W side of the point where the bluff is low and a valley leads inland. About 1 mile S of the village the bluff is 140 feet high, and 1.5 miles inside Turnagain Arm, it rises to 284 feet.

(1403) A reef extends about 1 mile off the NW side of Point Possession. There are depths of 1¾ fathoms on its NE edge; the N edge drops off abruptly to depths of 12 to 20 fathoms about 1 mile N. 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.

(1404) Temporary anchorage for a small vessel can be had 0.9 mile from shore and 2 miles SW of Possession in 4 fathoms, sandy bottom. It is sheltered from easterly and southeasterly winds, but considerable sea makes around Point Possession at times from the violent northeasterly winds that blow at intervals out of Turnagain Arm.

(1405) Shoals with a least depth of 7 feet (2.1 m) are between Point Possession and Fire Island, in the entrance to Turnagain Arm. The entrance is subject to drastic and continual change. Fire Island Shoal, marked by a seasonal lighted bell buoy, is about 6.3 miles NNE of Point Possession; see Fire Island Shoal, indexed as such, later this chapter under Shelter Bay. A submarine pipeline extends from the mainland shore close E of Burnt Island in a 024°30' direction across the arm to the opposite shore.

(1406) **Point Campbell**, on the NE side of the entrance to Turnagain Arm, is 2.5 miles E of Fire Island. The area between is a mudflat that bares at low water.

(1407) **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.

Tides and currents

(1408) 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.

(1409) Turnagain Arm is noted for the violent winds which 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 W 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.

Charts 16665, 16663, 16660

(1410) **Fire Island** is about 6 miles NNE of Point Possession. A tug channel, closed to deep-draft traffic, proceeds up Cook Inlet W of Fire Island and E of Fire Island shoal. In 2004, the channel had shoaled to 16 feet (4.9 m). Fire Island is wooded and has elevations of more than 250 feet in its central part. Near the SW end are high sandhills, with bare summits. The shores are mostly high bluffs except at West Point and **North Point**, the NE extremity. A gravel airstrip is on the E side of the North Point.

(1411) **Note:** Due to the narrow width of the channel between Fire Island and Fire Island Shoal, the Coast Guard recommends that all inbound and outbound traffic broadcast a voice security call on VHF-FM channel 16 (156.80 MHz), and establish voice communications with opposing traffic on VHF-FM channel 13 (156.65 MHz), prior to transiting the area.

(1412) **West Point**, the SW extremity of Fire Island, is marked by **West Point Light** (61°07'34"N., 150°16'56"W.), 30 feet (9.1 m) above the water, shown from a skeleton tower with a red triangular daymark. Race Point, the NW extremity of Fire Island, is marked by **Race Point Light** (61°10'03"N., 150°13'30"W.), 170 feet (51.8 m) above the water and shown from a skeleton tower with a red and white diamond-shaped daymark.

(1413) **Shelter Bay**, on the W 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.

(1414) In 2001, **Fire Island Shoal**,had shifted ESE to the position of West Point Shoal, 1.5 mile WNW of West Point. The shoal, about 2.4 miles long, had rapidly shifted ESE and extended to Shelter Bay. In 2003, the shoal closed the Race Point Range to all but tug and landing craft traffic. The shoal is marked to the NW by seasonal Lighted Bell Buoy 6 in 61°09'00"N., 150°20'01"W. and is subject to drastic and continual change.

(1415) **Point Woronzof**, 3.5 miles NE of Point Campbell, is on the S side of the entrance to **Knik Arm**. A **242°** lighted range (Fire Island Range) NE of Race Point Light, and a **081°** 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.)

(1416) **Point MacKenzie** is on the N side of the entrance to Knik Arm about 2.2 miles NNE of Point Woronzof. **Point MacKenzie Light** (61°14'18"N., 149°59'14"W.), 80 feet (24.4 m) above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on the point.

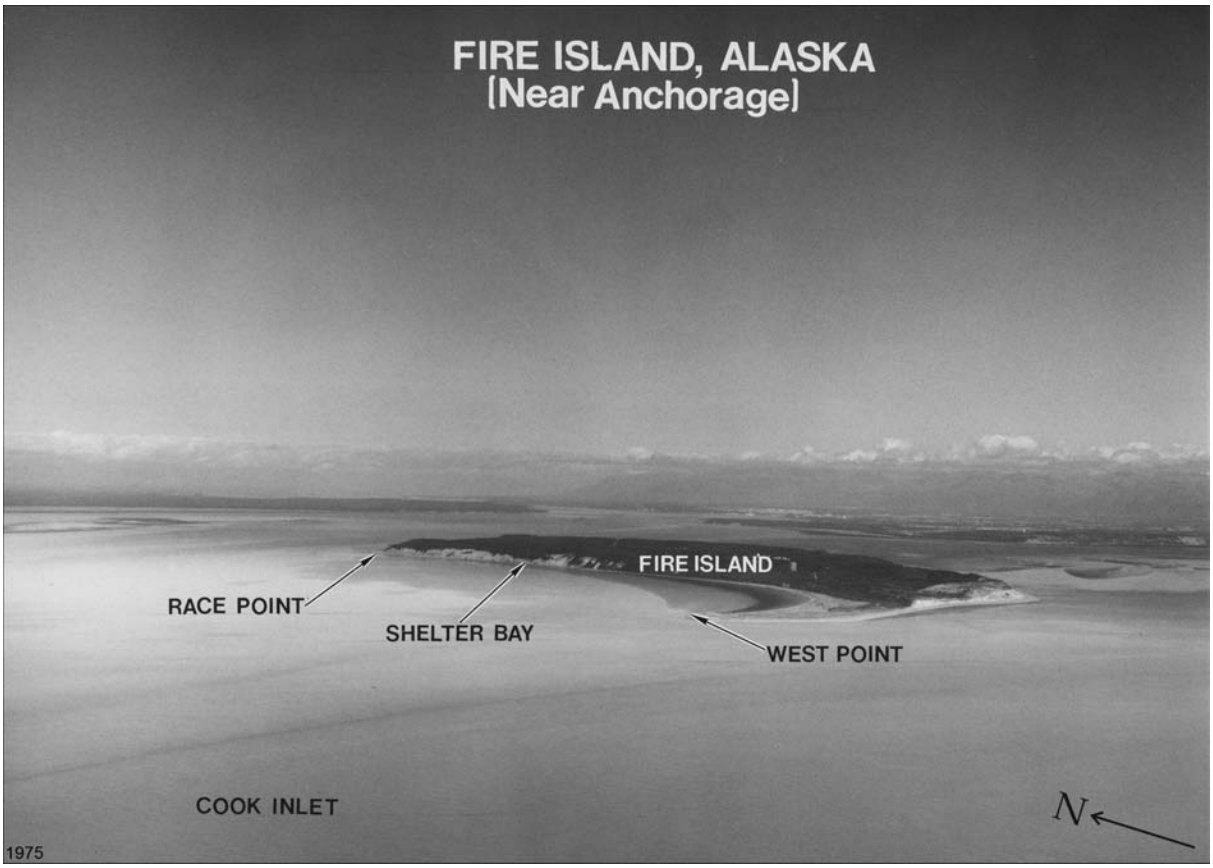
(1417) **Anchorage**, on the SE side of Knik Arm, 175 miles from the entrance to Cook Inlet, and 1,428 miles from Seattle, is Alaska's major seaport and largest city, with slightly over half the state's population. The main industries are government, tourism, oil production, and transportation.

Prominent features

(1418) When approaching Anchorage, 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, the ARC and B of A buildings and Hilton Hotel downtown, and water tanks in the vicinity of Ship Creek are among the conspicuous landmarks. The N tank near Ship Creek is painted in red and white checkers. The ARC building also forms a natural range with Point Woronzof for an long-distance extension of the Point Woronzof range.

Routes

(1419) From the entrance point to Cook Inlet, 4½ miles S of East Chugach Island Light, set courses to pass 6 miles S of the W end of Cape Elizabeth Island, 2 to 5 miles W of Point Adam and Flat Island, thence 6 to 7



miles W of Anchor Point Light, 5 to 5½ miles E of Kalgin Island Light, 4 miles E 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 SE 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 E shore from East Foreland to Moose Point, thence transit up between Beluga and Fire Island Shoals to the intersection of the Point Woronzof Range.

(1420) **Mariners are cautioned to favor the S 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 SE side to keep SE of Knik Arm Shoal.**

Channels

(1421) The main channel presently proceeds up the W side of the upper Inlet to the E of Phillips-A Platform and W and N of Beluga Shoal, S of Susitna Flats, N 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. The chart is the best guide.

Anchorages

(1422) A temporary anchorage for deep-draft vessels is about 1 mile W to SW 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 SW 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.

Dangers

(1423) In addition to the dangers in Cook Inlet previously described, **North Point Shoal**, about 2.5 miles NNE of

North Point on Fire Island, changes radically from year to year and bares several feet at low water. **Knik Arm Shoal**, with a least depth of 19 feet (5.8 m) and marked by a seasonal buoy, is about 2 miles W of Point Woronzof. **Woronzof Shoal**, a long shoal that bares is about 0.4 to 2.6 miles SW of Point Woronzof and is subject to drastic and continual change. The flats off Anchorage and rocky flats S of Cairn Point should be avoided. The area eastward of Point MacKenzie is also subject to drastic and continual change. In July 2005, shoaling extended 1.7 miles eastward of Point MacKenzie Light and across the Fire Island Range with a least depth of 12 feet in 61°14'26"N., 149°56'23"W.

Tides and currents

(1424) The diurnal range of tide at Anchorage is 28.8 feet and the observed extreme low water is 6.5 feet below mean lower low water. (See Tide Tables for daily predictions.) Anchorage has a PORTS site which 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 NE at a velocity of 1.5 knots and ebbs SW at a velocity of 2.5 knots. One mile off the town, the current averages 2.9 knots. Strong currents which 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 E side of Knik Arm during the latter half of an ebb current inside the bight, bordered on the S 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 W shore, strong in midchannel, and, like all of the upper Inlet, are congested with ice packs in the winter.

Weather, Anchorage Vicinity

(1425) The **Alaska Range** lies in a 650-mile-long arc from SW, through NW, to NE of Anchorage, approximately 180 miles distant. Anchored at its SW end by Ilama Lake, it includes **Mount McKinley**, and terminates at its SE 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, which 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.

(1426) 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.

(1427) 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 which surround the area on three sides; while considerable floating ice is prevalent, the high tides maintain some open water throughout the winter. 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. 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 vigorous storm centers moving north across south-central Alaska. Normally, the depth of snowfall on the ground does not exceed 15 inches (381 mm). Strong, gusty, north winds which 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.

(1428) 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.

(1429) 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.

(1430) 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 which 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.

(1431) 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 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).

(1432) (See page 517 for **Anchorage climatological table.**)

Ice

(1433) 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 Captain of the Port, 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.

Pilotage, Anchorage

(1434) 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.)

Towage

(1435) Tugs including a 3,500 hp tractor tug, are available at Anchorage 24 hours a day. Prior arrangements for their use should be made.

Quarantine, customs, immigration, and agricultural quarantine

(1436) (See chapter 3, Vessel Arrival Inspections, and Appendix A for addresses.)

Quarantine

(1437) A U.S. Public Health Service Contract Physician is at a hospital in Anchorage. (See Appendix A for additional information.)

Customs

(1438) Anchorage is a **customs port of entry**.

Coast Guard

(1439) A **Sector Office** is in Anchorage. (See Appendix A for address.)

Harbor regulations

(1440) 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.

Wharves

(1441) 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. 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.) All

depths alongside are reported. Vessels normally moor starboardside-to in the winter ice.

(1442) **Port of Anchorage, General Cargo Terminals No. 1, No. 2, and No. 3:** (61°14'23"N., 149°53'13"W.); 2,110-foot face (643 m); 2,800 feet (853 m) of total berthing space; dredged annually to 35 feet (10.7 m) alongside; deck height, varies from 27 to 40 feet (8.2 to 12.2 m); a 40- and two 30-ton container cranes; a 300-ton mobile crane; 31-ton forklifts; 27,000 square feet of heated, covered storage, and 54 acres of open storage; water, electricity, and telephone service; highway and rail connections; receipt of general, containerized and RO/RO cargo; mooring cruise ships; and receipt of bulk cement at No. 1; owned by Municipality of Anchorage and operated by Port of Anchorage and Alaska Basic Industries, CSX Lines of Alaska, and Totem Ocean Trailer Express, Inc.

(1443) **Port of Anchorage Petroleum Terminal No. 1:** offshore wharf just S of and contiguous with General Cargo Terminal No. 1; 612 feet (186 m) of berthing space with dolphins; dredged annually to 35 feet (10.7 m) alongside; deck height, 40 feet (12.2 m); water, electricity; highway and rail connections; receipt and shipment of petroleum products, bunkering vessels, owned by Municipality of Anchorage and operated by Port of Anchorage and various oil companies.

(1444) **Port of Anchorage Petroleum Terminal No. 2:** offshore wharf just S of Petroleum Terminal No.1; 184-foot (56 m) face; 655 feet (200 m) of berthing space with dolphins; dredged annually to 35 feet (10.7 m) alongside; deck height, 41 feet (12.5 m); water, electricity; highway and rail connections; receipt and shipment of petroleum products, bunkering vessels; owned by Municipality of Anchorage and operated by Port of Anchorage and various oil companies.

(1445) **Anderson Terminal:** 0.45 mile S of the Port Anchorage facilities; 376-foot (114 m) outer face; bares on an 11-foot tide; cranes to 300 tons are available; 15,000 square feet of covered storage, and 22 acres of open storage; highway and rail connections; receipt and shipment of general cargo and heavy lift equipment by barge; owned by Alaska Railroad Co and

(1446) **Anchorage Dock:** just S of Anderson Terminal and on the N side of Ship Creek; 60-foot (18.3 m) face; 400 feet (121.9 m) of berthing space with dolphins; bares on a half tide; deck height, 50 feet (15.2 m); a 230- and a 150-ton crane; forklifts to 45-tons; highway connections; receipt and shipment of containerized general cargo by barge; owned by Swan Bay Holdings and operated by Northland Services, Inc.

(1447) **Port MacKenzie Dock:** (61°16'05"N., 149°55'01"W.), on the W shore of Knik Arm, 1.3 mile WNW of Cairn Point; 500-foot (152 m) face; 20 feet (6.1 m) alongside;

deck height, 36 feet (11 m); 1200-foot (366 m) deep-draft dock, 60 feet (18.3 m) alongside; filter rock ramp; 8,940 acres of open storage; water, electricity; highway connections; receipt of bulk commodities, containerized cargo, iron and steel materials, petroleum products, vehicles and heavy equipment, and modular buildings. Owned and operated by the Matanuska-Susitna Burough.

(1448) **Knik Dock Co., Pt. Mackenzie Wharf:** (61°17'31"N., 149°54'58"W.), on the W shore of Knik Arm, 2.4 miles NNW of Cairn Point; 330-foot face; bares on a 4-foot tide; deck height, 35 feet; 25-ton mobile crane and 15-ton forklift; 2,400 square feet of covered storage, and 30 acres of open storage; water, electricity; highway connections; receipt and shipment of break-bulk general cargo and heavy lift equipment by barge; owned and operated by Cook Inlet Tug and Barge Co., Inc.

Supplies and repairs

(1449) Gasoline, diesel fuel, and water are available at the Port Anchorage Petroleum Terminal. Marine supplies and emergency ship machinery repairs can be obtained in town. Engine and hull repairs are available for small boats.

Oil Spill Response Resources

(1450) Limited resources are available in Anchorage, with additional resources available from Nikiski and Homer. For further information, contact Coast Guard Captain of the Port Western Alaska, in Anchorage.

Communications

(1451) 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 which 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.

(1452) The International Airport, 4 miles SW of Anchorage, is the hub of trans-Pacific air service; flights are offered to all parts of the world.

(1453) Landline telephone, cellular telephone, and cable communications are available. The Port of Anchorage guards VHF-FM channel 16; call sign, WHJ-82.

(1454) A small-craft ramp and 300-foot float are about 200 yards SW 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.

(1455) **Ship Creek**, on the NE 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.

(1456) 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 W shore of Knik Arm, then winds E and N; it is narrow and intricate, navigable only on the tide, and then only with knowledge of conditions.

(1457) **Knik** is a village on the NW side of Knik Arm, about 15 miles above the entrance, and accessible by highway from Anchorage. The channel to Knik is close along the W Shore. **Eklutna**, also accessible by highway from Anchorage, is on the S bank at the entrance to Knik River.