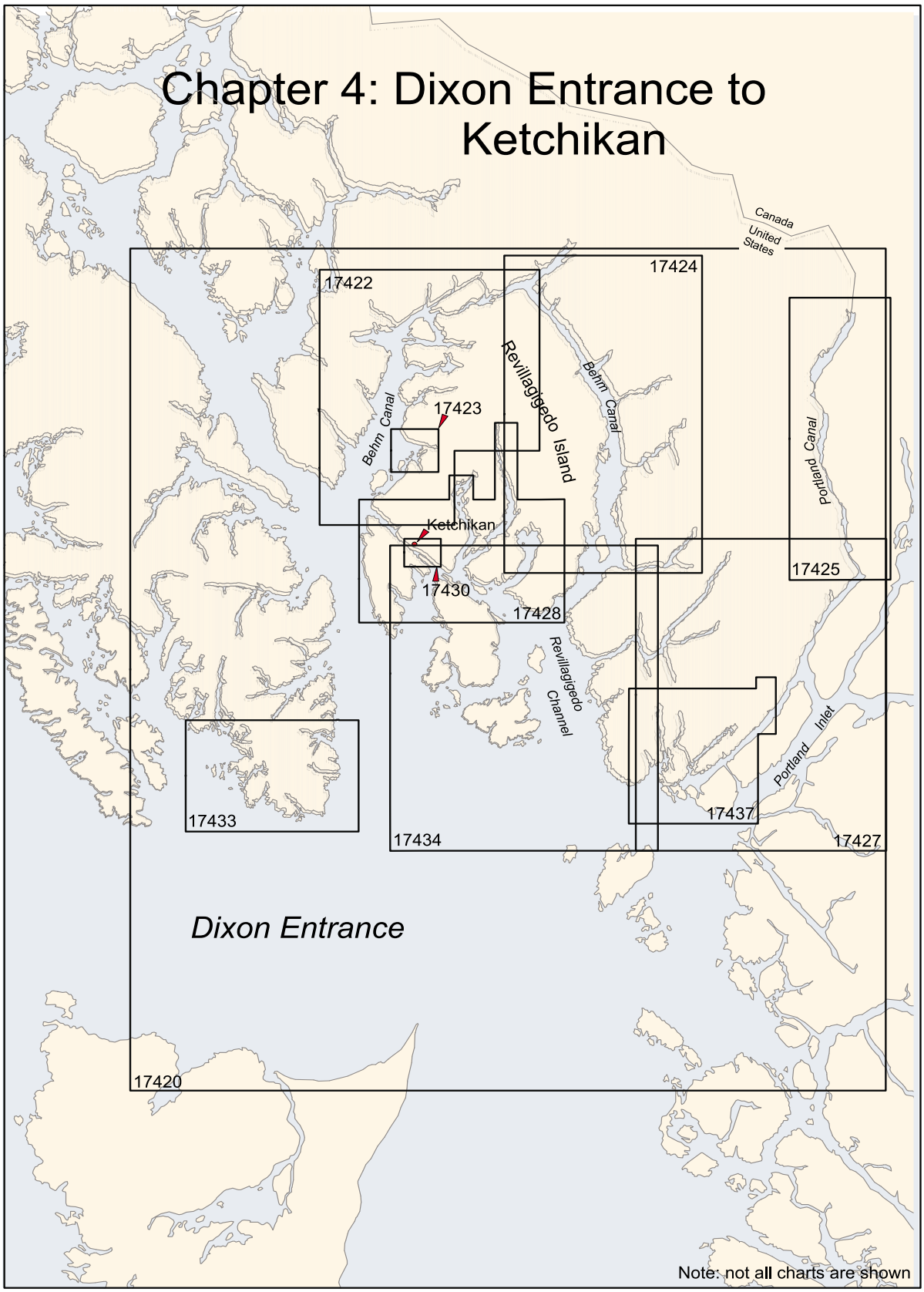
Chapter 4: Dixon Entrance to Ketchikan
Canada
United States
17422
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Behm Canal
Revillagigedo Island
Behm Canal
Portland Canal
Ketchikan
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Revillagigedo Channel
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Note: not all charts are shown

Dixon Entrance to Ketchikan

(1) This chapter describes the waters of Dixon Entrance, Pearse and Portland Canals, Revillagigedo Channel, Tongass Narrows, Carroll and George Inlets, Behm Canal, Ward Cove, and the city and harbor of Ketchikan.

Weather

(2) Dixon Entrance is exposed to the rigors of the nearby Pacific. Gales blow frequently from October through April, mainly out of the SE, up the Hecate Strait. Sometimes N gales draw down Portland Inlet across the NE end of Chatham Sound, making the crossing from Dundas Island to Cape Fox hazardous. Strong SW winds create a heavy beam sea on this same crossing. Swells approach Dixon Entrance mostly from the W and SW, particularly in winter. They move through passages, break on shoals or against shorelines, and are heavy at times. In Caamano Passage, the W coast of Dundas Island experiences almost continuous heavy swell. Parry Passage, as well as the W and N coasts of Langara Island, is subject to prevailing ocean swell.

(3) Uncertain currents and a number of hazards make navigation in Dixon Entrance treacherous when visibility is poor. Advection fog plagues these waters from July through September, when visibility less than 0.5 mile (0.8 km) occurs up to 5 percent of the time, and is often cyclical over a period of several days. At Langara Island, fog is reported 4 to 9 days each month from May through September.

Charts 16016, 17400

(4) **Dixon Entrance**, the S approach from the Pacific Ocean to the inner channels of southeastern Alaska and the N seaward approach to those of British Columbia, is entered between Queen Charlotte Islands on the S and Dall and Prince of Wales Islands on the N. It extends in a general E direction from Cape Muzon and Langara Island to Dundas Island, a distance of about 75 miles, with an average width of more than 30 miles; it then contracts to a width of about 8 miles between Cape Fox and Dundas Island, and continues with this width to the mouth of Portland Inlet, a distance of 17 miles.

(5) **The International Boundary Line between the United States and Canada runs through Dixon Entrance, Tongass Passage, Pearse Canal, and Portland Canal.**

(6) **Bowie Seamount** (chart 531) is a sharp pinnacle with a depth of 15 fathoms (27 m) in 53°19'N., 135°40'W.

(7) **Learmonth Bank** is in the fairway of the W entrance of Dixon Entrance between 8 and 18 miles N of Langara Island and inside the 100-fathom curve. The bank is about 12 miles long, NW and SE, and about 5 miles wide. The least depth is about 19 fathoms (34.7 m), over a bottom of sand, rock, and gravel.

Currents

(8) In **Dixon Entrance**, the flood current runs E around Langara Island and sets along the N shore of Graham Island. In the area about midway between Rose Spit and Dundas Island it divides: one part sets N past Dundas Island and the other S into Hecate Strait.

(9) The turn of the current in the vicinity of Rose Spit coincides approximately with the times of high and low water. At times the streams run as high as 4 knots in the vicinity of Rose Spit, and cause heavy overfalls that have the appearance of shallow water in depths of 10 fathoms (18.3 m) or more. This area should be navigated with great care. Give Rose Spit a wide berth.

(10) At Cape Muzon the flood current sets around the cape NE and the ebb SW, with a velocity of about 2.4 knots at strength.

(11) At Nunez Rocks and Cape Chacon the currents are irregular and affected by storms. The flood generally sets E or NE. From the cape to Nichols Bay there is apparently an eddy with a W set close to the shores. Between the cape and the rock off the cape, the current apparently always runs W, although not strong during the last half of the flood. N of Cape Chacon an eddy runs to the S, close to the shore. Off the cape a current of 2 to 3 knots has been experienced.

(12) On the ebb the general direction of the current is to the W. From Cape Chacon it runs in the direction of Nunez Rocks, probably forced to the S by the current from Nichols Bay; the latter sets E as far as the cape and then turns S. The current from the S entrance of Nichols Bay runs SE until it meets the main current when it turns W around Nunez Point. W of Nunez

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Rocks the ebb current is W, but is affected by currents from inlets; there are small eddies along shore.

(13) Between Cape Chacon and Zayas Island on the S, and Duke Island and Cape Fox on the N, the tidal currents are much confused. In bad weather the heavy and confused sea sometimes looks like breakers.

(14) Between Dundas Island and Cape Fox the flood current sets E with an average velocity at strength of 2 knots and the ebb current sets W with an average velocity at strength of 3 knots.

(15) (See the Tidal Current Tables for daily predictions.)

(16) Additional information on currents in these waters is given in the Canadian Sailing Directions British Columbia (North), Volume II.

Routes

(17) Because of the numerous dangers and uncertain currents, navigation of Dixon Entrance at night or in thick or foggy weather is somewhat risky. In approaching from S, the light, fog signal, and radiobeacon on Langara Island is a sufficient guide to the entrance. In approaching from W or NW, Forrester Island is a good landmark. The light on Cape Muzon and the light on Cape Chacon are good guides when in their vicinity, but the unmarked Nunez Rocks, about 3.2 miles SW from Cape Chacon, should be kept in mind. The light on Barren Island is also a good guide when going to the E part of Dixon Entrance; it is advisable to set a course SE of the island in passing.

(18) The high rugged coastline and the isolated islands are very good radar targets.

Charts 17400, 17420

(19) **Graham Island** forms the S side of Dixon Entrance for 50 miles from Langara Island to Hecate Strait. Its NW end is mountainous with **Pivot Mountain**, 1,922 feet (586 m) high, the most conspicuous. This mountain, about 2.5 miles back from the W shore, is round, somewhat detached from the others, and can be seen for about 50 miles in clear weather. **Tow Hill**, 500 feet (152 m) high, is a conspicuous landmark on the NE end of the island, rising above the low and featureless land in its vicinity. It is on the coast and is fronted by a perpendicular cliff nearly 400 feet (122 m) high, composed of columnar volcanic rocks facing the sea and sloping gradually to the S.

(20) **Langara Island**, on the S side of the W end of Dixon Entrance, is a small irregularly shaped, densely wooded island, close off **Cape Knox**, the northwesternmost point of Graham Island. Near the middle of the island is a succession of rounded hills of almost uniform height that extend in an E direction.

(21) **Langara Point Light** (54°15.4'N., 133°03.5'W.), 160 feet (49 m) above the water, is shown from a white hexagonal tower on the NW end of Langara Island. A fog signal, pointing NNW, and a radiobeacon are at the light. A white dwelling is about 135 yards (123 m) E of the light.

(22) **Forrester Island**, about 14.5 miles off the Dall Island shore, is a prominent landmark for the approach to Dixon Entrance from NW. The island is wooded and mountainous; the highest peak is near the center of the island.

(23) **Cape Muzon**, the S extremity of Dall Island, forms the NW headland of Dixon Entrance. It is heavily wooded and rises to a rounded peak 2 miles NW of the extremity of the cape. Off the E end of the cape is a group of small islands and rocks. A breaker is 0.3 mile off the S shore of the cape. Vessels should give the cape a berth of at least 1 mile. A bank with a reported least depth of 14 fathoms is 2 miles SW of Cape Muzon Light.

(24) **Cape Muzon Light** (54°39.8'N., 132°41.5'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 S extremity of the cape.

Local magnetic disturbance

(25) Differences of as much as 4° from normal variation have been observed at Cape Muzon.

Chart 17433

(26) **Point Marsh** (54°43.2'N., 132°19.1'W.), about 13 miles E of Cape Muzon, is a group of rocky islets, all of which are comparatively low and wooded, lying close to the main shore of Prince of Wales Island. Between 1 and 2 miles back of the point, the ground rises evenly and several irregular knobs show along the slope. About 2.5 miles NE of the point is a prominent, almost bare hill, with rounded top. **Point Marsh Light** (54°42.7'N., 132°17.7'W.), 74 feet (23 m) above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on a small islet about 1 mile SE of Point Marsh.

(27) **Minnie Bay,** a small bight in the main shore back of Point Marsh, is much used by local fishermen and affords excellent anchorage for small craft. Enter the bay W of the small charted islets inside the entrance and run fairly close-to in order to avoid a reef extending 30 feet (9.1 m) out from the W shore opposite the southernmost islet. Heavy kelp covers much of the shoreline during the summer, but the center of the bay is clear.

(28) **Brownson Bay**, about 1.5 miles NE of Point Marsh Light, is narrow, and its entrance is somewhat obstructed by islets and rocks. It affords indifferent

anchorage in about 11 fathoms (20.1 m), 0.2 mile S of the rock awash near the head of the bay. A private mooring buoy is 200 yards (183 m) E of the rock awash. In entering, favor the W side of the bay, taking care to avoid a rock awash that is about 0.6 mile NE of the islets off the W point at the entrance.

(29) In 1968, it was reported that the depths in Brownson Bay were considerably less than the charted depths; caution is advised.

(30) **Little Brownson Bay**, on the E side of the entrance to Brownson Bay, affords anchorage for small craft. The bay is entered from the S, but local knowledge is required; the N passage can only be used by very small boats. Williwaws sweep across the bay during SE gales.

(31) **Surf Point**, about 4.6 miles ESE of Point Marsh Light and 2.5 miles W of Nunez Point, rises rapidly to a knob, and then to higher ground to the N. **Brown Bear** Rock is a prominent rock close to the point. A submerged rock, cleared to 6 fathoms (11.0 m), is about 0.4 mile S of the point, with deep water inshore. Tide rips, hazardous to small craft, are in the vicinity.

(32) An inlet, about 1.2 miles E from Surf Point, is too deep for anchorage and is open and exposed. Foul ground extends about 0.2 mile off the point on the E side of the inlet.

(33) **Bert Millar Cutoff** is the passage to Nichols Bay W of Bean Island. It forms a bight at each end, narrowing at the center to a channel about 30 yards (27 m) long and 10 yards (9.1 m) wide. A depth of about 1¾ fathoms (3.2 m) is in the narrow part of the channel, and submerged rocks are in the bight at the N end. At times the current through the channel is very swift.

(34) **Bean Island** is wooded and has a number of rounded, steep-sided, rocky knobs. From W it shows as a rounded hill which stands well above the general level of the island. Off the SE point of the island is a small wooded island from which submerged rocks extend.

(35) **Nunez Point**, about 2.7 miles W of Cape Chacon, is the SE extremity of Bean Island. It has several rocky ridges, with bare bluffs 150 to 200 feet (46 to 61 m) high on the seaward face.

(36) **Nichols Bay** is about 2.5 miles W of Cape Chacon. Three islands divide the entrance into two channels. From the SE end of the S island, irregular bottom with 2- and 2½-fathom (3.7 and 4.5 m) spots extend across the entrance of the S channel to a 4¾-fathom (8.7 m) spot about 0.6 mile to the NE of Nunez Point. During severe S gales seas pile up heavily at the entrance and are reported to break entirely across it at times. A daybeacon is on the E side of the entrance of the N channel.

(37) The bay has three anchorages, one in each of the three bights on the SW shore. In entering the first bight keep well off the NW end of the N island to avoid rocks. Anchor in 16 fathoms (29.0 m), mud bottom, 250 yards (229 m) offshore. The second anchorage is to the NW of the peninsula, in depths of 15 fathoms (27 m), 300 yards (274 m) offshore. The third anchorage is about 0.7 mile to the NW of the second anchorage and about 0.6 mile from the head of the bay, in depths of about 13 fathoms (24 m), soft mud bottom, 350 yards (320 m) offshore.

(38) **Nichols Lake**, a large freshwater lake, empties into the head of the bay through a stream. Small boats anchor off the flats at the mouth of this stream.

Routes

(39) When about 1 mile from the entrance, bring the bay wide open and head for the center of the N channel. Stand in between the kelp patches. Favor the N point at the entrance, and then follow midchannel courses. The narrowest part of the channel, about 75 yards (69 m) wide, is 1 mile inside the entrance, where the least depth is 7 fathoms (12.8 m).

(40) The S channel, used by small craft, leads to the S of the islands. Fishing craft anchor in the lee of the 20-foot (16.1 m) rock about 270 yards (247 m) off the NE shore of Bean Island, and in the channel between the islands.

(41) **Cape Chacon**, the SE point of Prince of Wales Island, is about 23 miles E of Cape Muzon. **Cape Chacon Light** (54°41.4'N., 132°01.0'W.), 50 feet (15 m) above the water, is shown from a spindle with a red and white diamond-shaped daymark on the S extremity of the cape.

(42) From the NE and SW quadrants, the cape is easily recognized by three hills; the outer appears as a perfect cone; the second is slightly higher and somewhat rounded; the third has a flat top. The land to the NW is high and broken.

(43) A rock, awash at extreme low water and usually showing as a breaker, is 260 yards (238 m) SE from the cape. The pass between the rock and the cape has depths of 5 fathoms (9.1 m) and is used by small craft. For a distance of about 0.5 mile from the cape, tide rips are likely to be severe for small craft.

(44) **Nunez Rocks**, about 1.4 miles S of Nunez Point, are bare at half tide and usually show as a breaker. Shoal water extends 550 yards (503 m) SE to a ¾-fathom (1.4 m) spot that frequently shows as a separate breaker. A ¾-fathom (1.4 m) spot is about 400 yards (366 m) NE of the rocks. The channel between Nunez Rocks and Nunez Point is clear. The rocks when passed to the S should be given a berth of 0.8 mile.

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Chart 17434

(45) **Duke Island**, on the N side of Dixon Entrance between Clarence Strait and Revillagigedo Channel, is low and heavily wooded, and shows numerous round-topped hills. **Mount Lazaro** at its S end is a broad-topped mountain and the only part of the island visible for over 25 miles. The S and SW sides of the island should be avoided, as rocks and reefs extend about 7 miles offshore. Dangers are marked by kelp during the summer, but it is probable that this safeguard is lacking during the fall and winter. The farthest outlying dangers are Hassler Reef, West Rock, Club Rocks, Yellow Rocks, Barren Island, and a reported rocky shoal, covered 3 fathoms (5.5 m) with breakers in its immediate vicinity, about 4 miles W of West Rock.

(46) **Judd Harbor**, on the S shore of Duke Island, is N of the E end of **Kelp Island.** It offers excellent shelter with swinging room for vessels up to 175 feet (53 m) long (short scope). When entering the harbor do not rely on the compass, because there is local magnetic attraction.

(47) The best entrance is N of East Island. When abreast of the NE point of Kelp Island, steer midchannel toward the prominent point marking the W side of the entrance to Judd Harbor. When about to round into the bay give the point to the E a fair berth because of a submerged rock 130 yards (119 m) off that point. Anchor in the center of the bay in 4 fathoms (7.3 m), sticky mud bottom. This anchorage is used extensively by fishing vessels during the fishing season and may be congested during that period.

(48) Anchorage on the N side of Kelp Island, while good, is not recommended for use except for those with local knowledge, because the E entrance is shallow and the W entrance has numerous reefs. Currents through this passage are very strong at times.

(49) **Kelp Island Anchorage**, a bight in the E end of Kelp Island, offers fair shelter for small boats. Anchorage is in 2 to 7 fathoms (3.6 to 12.8 m), rock and sand bottom. Piles have been driven along the S shore.

Local magnetic disturbance

(50) Extreme magnetic disturbances, with differences of as much as 50° have been observed SE of Duke Island. The magnetic compass should not be relied upon within the area outlined in magenta on the charts.

(51) **East Island**, marked by a light on its E side, is a small island, 2.5 miles S of **Duke Point**, the easternmost point of Duke Island. Round East Island with great care because of the outlying rocks to the W, the magnetic disturbance, and the uncertainty of the tidal currents.

(52) **Hassler Reef** is an extensive shoal area with depths of 3¼ to 10 fathoms (5.9 to 18.3 m) about 7.8 miles W of Mount Lazaro. The reef is covered by heavy kelp during the summer and has deep water close-to. Very irregular bottom extends 3 miles to the S of Hassler Reef, and passage over that section is not recommended.

(53) A rocky shoal, covered 3 fathoms (5.5 m) with breakers in its immediate vicinity, is reported about 2.5 miles SSW of Hassler Reef and about 4 miles W of West Rock.

(54) **West Rock**, 12 feet (3.7 m) high, is 6.3 miles SW of Mount Lazaro. A rock with 2 fathoms (3.6 m) over it and marked by kelp is about 0.6 mile S of West Rock.

(55) **Club Rocks**, two in number, bare, and surrounded by reefs and kelp, are about 4.4 miles S of Mount Lazaro; the N rock is 40 feet (12.2 m) high, and the S rock is 35 feet (10.7 m) high. **Yellow Rocks**, two in number, yellowish in color, and surrounded by kelp, are about 7.3 miles SE of Mount Lazaro. The larger rock is 25 feet (7.6 m) high and shows some vegetation.

Caution

(56) Vessels without local knowledge should not go inside the line of Hassler Reef, West Rock, and Club Rocks. These waters should be navigated with great caution, and every appearance of kelp should be avoided. It is quite possible that isolated pinnacle rocks may exist that show no kelp. There is deep water close to Yellow Rock and Barren Island.

(57) **Barren Island** is a bare rock 30 feet (9.1 m) high, about 8.5 miles S of Mount Lazaro. There are other small rocks and some kelp near it, but there is deep water within about 0.2 mile in all directions. **Barren Island Light** (54°44.6'N., 131°21.0'W.), 85 feet (26 m) above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on the summit of the island.

(58) **West Devil Rock** is a dangerous ledge in the NE part of Dixon Entrance, about 15.5 miles SSW of Mount Lazaro. The highest part of the rock bares 11 feet (3.4 m), and foul ground, on which the sea breaks, extends about 0.3 mile S, SW, and N of it. A 2½-fathom (4.6 m) shoal, on which the sea breaks almost continuously in moderate weather, is 0.6 mile 333° from the rock. A submerged rock is close SE of the 2½-fathom (4.6 m) shoal. A 6½-fathom (11.9 m) and a 6-fathom (11.0 m) shoal are 0.9 mile 015°, and 2.3 miles 141° from West Devil Rock, respectively.

(59) **East Devil Rock** bares 2 feet (0.6 m) and is about 3.3 miles N of Zayas Island. The channel between this rock and **Zayas Island Reef** is apparently clear, but the N coast of Zayas Island should not be approached closer than 1 mile.

Chart 17420

(60) **Celestial Reef** (54°31'N., 131°28'W.), about 10 miles SSE of West Devil Rock, is about 1 mile long and has three heads with less than 1 fathom (1.8 m) over them near the S end. The depth over the remainder of the shoal is about 10 fathoms (18.3 m). A rock, covered 1½ fathoms (2.7 m), is 0.7 mile NE of the reef. Two 10-fathom (18 m) shoals are about 0.5 miles N and 3 miles NNW of the reef, respectively. An 8-fathom (14.6 m) shoal is about 2 miles S of the center of the reef.

(61) **Zayas Island**, in the NE part of Dixon Entrance and about 11.5 miles SE of Barren Island, is wooded, flat-topped, and high near the S end. A rock, with 4 feet (1.2 m) over it, is about 0.7 mile N of **Aranzazu Point**, the NW extremity of Zayas Island. Foul ground marked by kelp extends along the N shore of the island with several 5-fathom (9.1 m) spots about 1 mile N of the island. A light marks the southernmost point of the island.

(62) **McCullock Rock**, a pinnacle rock with 9 feet (2.7 m) over it, is about 4 miles W of Jacinto Point, the SW extremity of Zayas Island. A 3-fathom (5.5 m) shoal and a 5-fathom (9.1 m) shoal are about 0.4 mile ESE and about 1.3 miles NNE of the rock, respectively.

(63) **Dundas Islands**, in the E part of Dixon Entrance, consist of **Dundas Island**, **Baron Island**, **Dunira Island**, **Melville Island**, and numerous small islets and rocks. Dundas, the northwesternmost and largest island, has a number of conspicuous mountains, of which **Mount Henry**, towards the S end of the island, is the highest. Two conspicuous hills are in the NW part of the island. **Slab Hill**, flat-topped with a knob, is conspicuous near the NE end of the island.

(64) The coasts of the four large islands of the group are much indented by small creeks and bays.

Caution

(65) Recent surveys indicate less water than charted in the vicinity of Dundas Islands. Mariners are advised to navigate with caution in the vicinity of these islands as many rocks awash and submerged, and some marked by kelp, have been reported in this area.

(66) **Holliday Island Light** (54°37.4'N., 130°45.5'W.), 21 feet (6.4 m) above the water, is shown from a white slatted daymark on a concrete base on the N end of **Holliday Island**, which is 0.3 mile off the NE end of Dundas Island.

Chart 17437

(67) **Cape Fox**, on the N side of Dixon Entrance, forms the W side of Nakat Bay and the E point of the entrance to Revillagigedo Channel. The cape is mountainous and wooded, with wooded islets close off its S shore. The cape terminates in remarkable high white cliffs, with a conspicuous saddle-shaped mountain, **Harry Saddle**, about 2 miles back. A small-boat channel between Fox Island and the cape is narrow and crooked, and should not be attempted without local knowledge. The channel has many piles and is used as a log storage area. A rock awash is about 500 yards (458 m) ENE from the E tip of **Fox Island**, a small island about 0.2 mile off Cape Fox.

(68) Tree Point Light, described later in this chapter, is on the NE side of the lower end of Revillagigedo Channel, about 3.7 miles NW of Cape Fox. (See chart 17420.)

(69) **Lord Islands**, about 2.5 miles SE from Cape Fox, are in two groups, separated about 0.7 mile, and have a number of islands in each group, with a clear channel between the groups. The larger islands are wooded and 100 to 200 feet (31 to 61 m) high. Several bold and bare rocks are close to the Lord Islands. Submerged rocks and kelp fringe these islands, and shoal water extends about 0.5 mile N and NW of the N group. The recommended channel into Nakat Bay is to the W of the islands and **Thistle Rock**, favoring the Cape Fox shore.

(70) **Lord Rock**, about 10 feet (3.0 m) high, is about 0.7 mile SW from the S group of the Lord Islands. **Lord Rock Light** (54°43.5'N., 130°49.2'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 highest part of the rock.

(71) **Nakat Bay**, making N between Cape Fox and Tongass Island, is the entrance to Nakat Inlet and the W approach to Port Tongass. The bay does not afford anchorage.

(72) **Boat Rock**, 5 feet (1.5 m) high, is close to the W shore at the entrance to Nakat Bay. **Boat Rock Light** (54°46.8'N., 130°48.0'W.), 46 feet (14 m) above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on the SW end of the rock.

(73) **Craig Rock**, near the middle of the bay and about 0.7 mile from the W point of Tongass Island, is awash at extreme low water, with deep water all around. It breaks in a heavy sea and is not marked by kelp.

(74) **Harry Bay**, on the NW side of Nakat Bay, is deep and exposed to the SE. **Slim Island** is close to the W shore at the, entrance. A boat passage is between the island and the mainland, but the island shore must be kept close aboard, because the W half of the passage is foul. A shoal with 6¾ fathoms (12.3 m) over it is 0.4 mile 116°from the S end of Slim Island. **Ledge Point** on the E side of the entrance to the bay should be passed at a distance of 0.5 mile to clear the rocks off the point.

(75) **Nakat Inlet** extends in a N direction for about 8 miles. The shores are steep and heavily wooded to the water's edge. The main inlet is deep and affords no

anchorage except near its head. The group of small, wooded islands near the head of the inlet provides shelter for small craft. Anchorage may be had in 8 to 13 fathoms (14.6 to 24 m). The inlet is clear of obstructions except near its head or close inshore.

Local magnetic disturbance

(76) Differences of as much as 5° from the normal variation have been observed in the W shore of Nakat Inlet about 1.25 miles N of Surprise Point.

(77) **Nakat Harbor** makes off from the SE part of Nakat Inlet and is separated from it by a chain of wooded islands. An abandoned cannery dock, in ruins, is on the E shore of the harbor E of Observation Rock. In the S part of the harbor, about halfway up the arm, off a small bight having a gravel beach, anchorage and shelter for vessels of moderate size may be found in 19 fathoms (35 m). The N arm of Nakat Harbor also has anchorage, but poor shelter. A reef with two pinnacles that bare 3 feet (0.9 m) is 200 yards (183 m) from the W shore about 0.3 mile N from **Simonton Point**. **Observation Rock**, in the middle of Nakat Harbor, is about 6 feet (1.8 m) high, with submerged rocks that extend about 250 yards (229 m) SE and NW from it. A deep channel is between the rocks and the shore, but the shore must be given a berth of over 100 yards (91 m).

(78) The best channel for entering Nakat Harbor is SE of the southeasternmost islet of the chain separating it from Nakat Inlet.

(79) Excellent anchorage may be had in 18 fathoms, mud bottom, in the SW arm of Nakat Harbor, about 0.6 mile SE of **Surprise Point**. Passage to the head of this arm is obstructed by a rock baring 3 feet (0.9 m) in the middle of the constricted part of the arm. Small vessels should favor the W shore to avoid the rock and the extensive flats along the E shore. At high water the SW arm is connected with the small bight, about 0.7 mile N of the daybeacon on Tongass Reef, by a narrow passage that is obstructed by trees and is only navigable by small boats.

(80) **Tongass Reef**, on the NE side of the bay, about 0.5 mile N of Tongass Island, is awash at high water. **Tongass Reef Daybeacon** (54°47.2'N., 130°44.7'W.), on a skeleton tower with a red and white diamond-shaped daymark on the N side of the reef, marks the N entrance to Port Tongass. **Passage Rock** and **Track Rock**, between Tongass Reef and the N point of Tongass Island, cover at high water.

(81) **Port Tongass** is a small harbor formed by the passage between Tongass Island and the mainland. **Tongass Island** is low and, except on the NE side, has ledges and submerged rocks that extend well out on all sides. A launch passage is immediately N of Tongass Island, but is tortuous and obstructed and should be used only with local knowledge. Port Tongass is sometimes used as an anchorage, but the bottom is hard, and with wind and changing tidal currents a vessel may drag her anchor and foul.

(82) The anchorage is 200 yards (183 m) from the NE shore of the harbor, E of **Fort Point** in about 20 fathoms (36 m), hard bottom. The flood current sets NW through the anchorage at about 1 knot. The anchorage may be entered by three channels. The SE and SW entrances are described under Sitklan Passage.

(83) The N entrance between Tongass Reef and the mainland is the one recommended and is the best entrance for vessels approaching from W.

(84) **Sitklan Passage**, except for its W entrance between Tongass and Kanagunut Islands, is a deep narrow passage with steep wooded shores that extend ENE between the mainland and the NW shores of Kanagunut Island and **Sitklan Island** from Nakat Bay to Tongass Passage. It forms the SE and SW approaches to Port Tongass. The E entrance of the passage from Tongass Passage is N of **Point Mansfield**. This channel, with depths of 16 to 42 fathoms (29 to 77 m), is fairly straight and about 300 yards (274 m) wide. **Dark Point**, the turning point from Sitklan Passage into Port Tongass, has a bare rock about 5 feet (1.5 m) high close-to.

(85) The W entrance, on the S side of Tongass Island, is obstructed by rocks and kelp, but is much used by small vessels with local knowledge. Strangers should use this entrance only with small craft at high water. All dangers in the passage are marked by kelp. A circular shoal with a least depth of 2¼ fathoms (4.1 m) is about 0.6 mile NW of **Tingberg Island** in the W entrance. When rounding **Katakwa Point**, the SE extremity of Tongass Island, care should be exercised to favor the E shore of Port Tongass, which is steep-to and clear of dangers.

(86) **Lincoln Channel** is the narrow passage between Kanagunut and Sitklan Islands. It is very narrow at the N entrance with a controlling depth of 9 feet (2.7 m) in midchannel. In the S part of the channel, about 0.2 mile N of the island in the bight, is a rock in midchannel with ¾ fathom (1.4 m) over it. A shoal with a depth of 1 fathom (1.8 m) is about 0.5 mile N from **Garnet Point**, the S extremity of Kanagunut Island.

(87) **Kanagunut Island**, low and heavily wooded, is fringed along its SW shore by rocky ledges that extend 200 to 700 yards (183 to 640 m) from the island.

(88) **Tongass Passage**, between Sitklan and Wales Islands, is a deep passage with steep shores that extends NW from Dixon Entrance. It bends to the NE off the entrance to Sitklan Passage, separates Wales Island from the mainland, and forms the W entrance to Pearse Canal. Tongass Passage is entered between **Haystack**

Island, a steep wooded islet, and **Island Point**, the SE extremity of Sitklan Island. Rocks awash are about 300 yards (274 m) W of Haystack Island. From **Bartlett Point**, the W extremity of Wales Island, to **Phipp Point**, on the N shore of Wales Island about 1 mile NE of Bartlett Point, a midchannel course will lead through deep water.

(89) **Fillmore Inlet** joins Pearse Canal on the Alaska side at the SW end of Fillmore Island, and separates that island from the mainland; it extends NE and is comparatively free to navigation, but there are numerous rocks and reefs close inshore. The narrow entrance beyond the group of islets at the head of this inlet leads into two consecutive basins, each of considerable size. The inlet has no value as an anchorage.

(90) **Willard Inlet** is a narrow inlet that extends in a NW direction from the NW side of Fillmore Inlet, about 1.5 miles N of **Male Point,** the SW extremity of Fillmore Island. It is very narrow at the entrance, and the currents have great velocity, forming swirls that extend well out from the mouth. The times of high and low water inside the inlet are about 1 hour later than at other places in the vicinity, and the rise and fall about 2 feet (0.6 m) less. This inlet can only be entered at slack water and has no value as an anchorage.

(91) **Edward Passage** separates Fillmore Island from the mainland N and connects Fillmore Inlet with Pearse Canal. The passage is narrow, foul, and only navigable by small craft with local knowledge.

(92) **Pearse Canal** is about 25 miles long (see chart 17420) from Tongass Passage to its junction with Portland Canal off Tree Point, the N extremity of Pearse Island. The British Columbia shore is formed by **Wales Island** and **Pearse Island,** and the Alaska shore by Fillmore Island and the mainland.

(93) The W entrance to Pearse Canal is to the S of a group of heavily wooded islets about 0.8 mile SW of Male Point. **Pearse Canal Island Light** (54°47.1'N., 130°36.5'W.), 18 feet (5.5 m) above the water, is shown from a square skeleton tower with a white square daymark on the S point of the 150-foot (45 m) island in the entrance to Pearse Canal. A rock with 1¾ fathoms (3.2 m) over it is 0.1 mile N of the light. To enter from the W, pass in midchannel between this rock and the southernmost of the islets S of Male Point. A rocky shoal, covered 3½ fathoms (6.4 m), is about 250 yards (229 m) ESE of the light.

(94) (See Tidal Current Tables for daily predictions in Pearse Canal.)

(95) **Safa Islands**, mostly wooded, are on the S side of the channel off the entrance to Wales Harbor.

(96) **Fillmore Island** forms the NW shore of Pearse Canal and is separated from the mainland by Fillmore Inlet and Edward Passage. Several wooded islets are off its S shore. Passage behind the islets is not recommended except for small craft with local knowledge.

(97) **Regina Cove** indents the S shore of Fillmore Island about 2 miles from Male Point. Anchorage is available in the center of the bay in 14 fathoms (26 m), mud bottom. A small shoal of 1¾ fathoms (3.2 m), with deep water surrounding it, is near midchannel about 0.2 mile off the entrance to the cove.

(98) **Wales Harbour**, on the British Columbia side of Pearse Canal, about 1.5 miles from Tongass Passage, affords good anchorage in 14 to 18 fathoms (26 to 33 m), soft bottom; its entrance is somewhat obstructed by islets and rocks, and only vessels with local knowledge should attempt to enter it. The usual anchorage is N of the larger island near the head of the harbor. In entering, follow the SW shore at a distance of about 200 yards (183 m) until past the shoal in the entrance to the harbor.

(99) Three arms are at the head of the harbor, the middle and largest opens out into a basin. An island with an islet close SE of it nearly closes the entrances to the W and middle arms; the channel for entering them is W of the islands, but the chart is the best guide for navigating these waters.

(100) **Wales Passage**, between Pearse Island and Wales Island on the British Columbia side of Pearse Canal, is free from midchannel dangers.

(101) **Winter Inlet**, the entrance to which is about 1.3 miles NE of the N entrance to Wales Passage, indents the NW shore of Pearse Island. It affords secure anchorage for small craft; the holding ground is good and there is ample swinging room in the wider part. The N shore is bold, except where small sandspits make out at the mouths of streams. In entering, favor slightly the S shore until past the first spit on the N side, and then keep the N shore close aboard when passing the bight on the S side to avoid a reef that extends about 75 yards (69 m) off a small wooded islet. Ice forms in the harbor during winter, making it unsafe for small-craft shelter.

Charts 17437, 17427

(102) **Hidden Inlet**, a narrow arm, extends N into the mainland from Pearse Canal, about 8 miles S of its junction with Portland Canal. **Hidden Point** is on the NE side of the entrance to the inlet. The entrance is less than 150 yards (137 m) wide, and the tidal currents through it set with a velocity of 8 to 10 knots, forming swirls that extend well into Pearse Canal. The main body of the inlet is about 4 miles long, varying in depth from 30 to 73 fathoms (55 to 134 m), but there is only 2½ fathoms (4.6 m) at the entrance. It can be entered only at slack water, and is of no value as an anchorage.

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(103) A rock with 2 fathoms (3.6 m) over it is about 0.4 mile S of Hidden Point. **Yelnu Islets** are two wooded prominent islets on the W side of the Pearse Canal about 0.8 mile S of Hidden Point.

Charts 17427, 17425

(104) **Portland Canal** extends N from its junction with Pearse Canal and **Portland Inlet** at **Tree Point** for about 57 miles to the towns of Hyder, Alaska, and Stewart, B.C. The channel, clear and deep, has no dangers except for a rock awash, about 0.2 mile off the W (Alaska) shore, 2.3 miles above **River Point** (55°34.2'N., 130°08.2'W.). It is reported that in the winter there are strong N blows in the canal and small boats often ice up.

(105) **Reef Island** is close off the W shore, abreast **Spit Point**, at the entrance to Portland Canal. **Reef Island Light** (55°04.7'N., 130°12.2'W.), 19 feet (5.8 m) above the water, is shown from a spindle with a red and white diamond-shaped daymark on the S end of the island.

(106) **Harrison Point**, high and bold, is 2.5 miles N of Reef Island. **Dickens Point**, on the E shore, is about 4.5 miles N of Spit Point. A black rock, 8 feet (2.4 m) high, is close S of Dickens Point, and a drying ledge extends a short distance from it.

(107) **Sandfly Bay**, on the W shore abreast Dickens Point, 14.5 miles above Hidden Inlet, has no value as an anchorage. **Stopford Point**, bold and conspicuous, is on the E shore about 3 miles above Dickens Point.

(108) **Halibut Bay**, free of hidden dangers, is on the W shore of Portland Canal, about 4 miles above Sandfly Bay. Its shores are generally bold, but on each side near the entrance are sandy beaches with shoals that extend 80 yards (73 m) offshore, and low grassy land running 100 yards (91 m) back. Near the head of the bay extensive flats, which bare, make out from the W shore almost all the way across leaving a narrow channel close to the E side, through which 5 feet (1.5 m) can be carried to a narrow basin 2 to 4 fathoms (3.6 to 7.3 m) deep and suitable only for small craft.

(109) Halibut Bay affords anchorage for vessels in the middle of the bay in 10 fathoms (18.3 m), about 0.2 mile above **Astronomical Point**, the NE point at the entrance, and abreast a rocky point at the N end of the sand beach on the W side, where the anchorage is 450 yards (411 m) wide; also 700 yards (640 m) farther up abreast the N end of the sand beach on the E side, in 10 fathoms (18.3 m), where the anchorage is 300 yards (274 m) wide.

(110) **Logan Point**, on the E shore, is 4.3 miles NE of Stopford Point.

(111) **Camp Point** on the W shore about 4.5 miles NE of the entrance to Halibut Bay is wooded and precipitous.

(112) **Hattie Island**, in midchannel about 6 miles above Halibut Bay, is about 700 yards (640 m) long and has some stunted brush growing on it. **Hattie Island Light** (55°17.2'N., 129°58.4' W.), 21 feet (6.4 m) above the water, is shown from a pole with a slatted orange circular daymark on the W side of the island. **Belle Bay**, the bight E of Hattie Island, does not afford anchorage.

(113) **Car Point** is on the E shore about 3.5 miles NW of Belle Bay. About midway between Car Point and Belle Bay are three conspicuous landslides.

Chart 17425

(114) **Breezy Point** (55°21.5'N., 130°02.3'W.), about 5 miles N of Camp Point on the W shore, is conspicuous. **Bluff Point**, on the E shore, about 1.5 miles NE of Breezy Point, terminates in a high, bold cliff.

(115) **Tombstone Bay**, on the W side of Portland Canal about 7.5 miles above Hattie Island, affords a temporary anchorage for small craft in 8 fathoms (14.6 m) near the head of the N bight.

(116) **Maple Bay**, on the E (British Columbia) side of Portland Canal, 8 miles above Hattie Island, affords fair anchorage for small craft, 300 yards (274 m) from the S side, in 7 to 8 fathoms (12.8 to 14.6 m). In 1977, a rock awash was reported about 150 yards (137 m) offshore on the S side of the bay near the entrance.

(117) **Turn Point**, on the W side of Portland Canal, about 9.5 miles above Hattie Island, is 0.5 mile wide.

(118) **Green Islets**, two small wooded islets on the E side, about 21.5 miles above Hattie Island, are connected with the shore by a short spit that bares.

(119) **Fords Cove**, on the E shore just N of Green Islets, is a bight in the shore affording fair shelter from S winds but none from N winds. A rocky ledge, which partly bares, extends N about 75 yards (69 m) from Green Islets. The S part of the cove is shoal for about 175 yards (160 m) offshore. A fair anchorage with sufficient swinging room may be found in 13 fathoms (24 m), 0.2 mile from Green Islets and the same distance from the E shore. Small craft can anchor closer inshore.

(120) **Cliff Point**, on the W shore, is about 3.3 miles above Green Islets. **Verdure Point**, about 4.5 miles N of Cliff Point, is conspicuous when the maple trees bloom.

(121) **Lion Point**, on the E shore about 3 miles below the head of the canal, is low and wooded, and has a grassy flat in front. The bight in the shore just S of Lion Point is filled by a flat that bares. The **Marmot River** flows through a valley that trends to the E.

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(122) There is a government landing float at **Marmot Bay**, 0.5 mile northeastward of Lion Point, with a depth of 18 feet (5.5 m) alongside at the southern end and 9 feet (2.7 m) at the northern end.

(123) The Bear and Salmon Rivers, which flow into the head of Portland Canal, are separated by the **Reverdy Mountains** (see chart 17420), a high ridge of bare mountains, of which **Mount Dolly**, the southernmost peak, 5,475 feet (1669 m) high, is conspicuous to the mariner. Throughout the year, the discoloration of the water caused by the discharge from the Bear and Salmon Rivers extends as far S as **Glacier Point** (55°49.2'N., 130°06.7'W.).

(124) **Salmon River** empties on the W shore about 2 miles below Bear River. Extensive flats make out in a fan shape from the mouth of Salmon River, the N part extends about halfway across the canal; these flats are covered at high water and are steep-to. The E edge of the flats is marked by buoys and a light. **Stewart Light** (55°54.7'N., 129°59.4'W.), 12 feet (3.7 m) above the water, is shown from a square skeleton tower on the E side of the canal opposite **Eagle Point**, the N entrance point of Salmon River. It is reported that in the winter the mouth of the Salmon River freezes with 3 to 8 inches (76 to 203 mm) of ice.

(125) **Bear River** flows through an extensive wooded flat at the head of Portland Canal. The channels are subject to change during freshets. The flats at the mouth uncover for 800 yards (732 m) and are steep-to; it is reported that they are slowly extending.

(126) **Hyder**, on the Alaska side of the boundary, is a community occupying the flats off the mouth of the Salmon River and extends up the valley. A 1,252-foot-long (382 m) trestle with a small dock at its outer end extends SE over the mudflats from Eagle Point, which separates Portland Canal and the entrance to Salmon River. A 150-foot-long (45 m) small-craft float with a seaplane float at its outer end extends SW from the dock; the community operates the floats. A small-boat harbor with a seaplane float and a launching ramp is just NE of the trestle. A buoy marks the entrance to the harbor. In June 1976, depths of 14 to 20 feet (4.3 to 6.1 m) were reported along the NW and SE sides of the 150-foot (45 m) small-craft float. A yacht club on the W side of the canal between Hyder and Stewart has several floats and finger piers.

(127) Limited marine supplies, gasoline, diesel fuel, aviation gasoline, water, provisions, and minor small-craft repairs can be obtained in Stewart.

(128) Hyder, and Stewart, B.C., about 2 miles to the N, are connected by a shore road that leads about 370 miles (595 km) farther N to a junction with the Yukon Province Highway 1 (ALCAN Highway). Seaplane service to Ketchikan is available, as well as telephone and radiotelephone communications with other cities in Alaska and British Columbia.

(129) **Stewart** is a settlement on the British Columbia side at the head of Portland Canal. Mining is the principal industry.

(130) Anchorage may be had in 25 to 30 fathoms (46 to 55 m) near the head of the canal, about 550 yards (503 m) off the E shore and about 450 yards (411 m) S of the flat fronting the mouth of Bear River, with the light marking the edge of the flat E of Eagle Point, bearing 229°. The holding ground is good, soft mud, but the anchorage is unprotected, being exposed to N and S winds that draw through the canal. Vessels should use caution in this area because the flat uncovers only at low water and is very steep-to.

(131) Numerous piles, the remains of the approaches to two former wharves, are on the mudflats at the head of the canal.

(132) The waters of Portland Canal in the vicinity of Stewart are a **seaplane operating area**.

Currents

(133) In Pearse Canal the current has a maximum velocity of 2.8 knots, diminishing toward the head of Portland Canal. (See Tidal Currents Tables for daily predictions of places in Pearse and Portland Canals.)

(134) Stewart has a small hospital with a resident doctor and nurse in attendance; X-ray facilities are available.

Supplies

(135) Provisions in limited quantities can be obtained. Gasoline, diesel fuel, stove oil, and aviation gasoline can be procured by tank truck by prior arrangement with two local oil companies; water is also available.

Communications

(136) Radiotelephone and telephone services are available. A vessel makes regular calls, and an airline and ferries maintain regular service to and from Prince Rupert, with connections to other coastal points.

Chart 17420

(137) **Revillagigedo Channel** and **Tongass Narrows** (chart 17428) are connecting bodies of water that have a combined length of about 53 miles from their junction with Dixon Entrance at Tree Point Light to their junction with Clarence Strait at Guard Islands Light. On their S side they connect with Clarence Strait through Felice Strait and Nichols Passage. **Revillagigedo Island**, separated from the mainland by Behm Canal, forms the greater part of the N shore of the passages.

(138) Revillagigedo Channel extends in a general NW direction from Dixon Entrance for about 40 miles to Tongass Narrows, the latter being a continuation of the channel, for 13 miles to Guard Islands. The dangers are shown on the charts. From its entrance to Bold Island, Revillagigedo Channel is broad and comparatively free of dangers; the rocks nearest the tracks of vessels show out of water and are readily distinguishable. Above Bold Island, the channel is narrow in places, but the principal dangers are marked by buoys and lights. No difficulty should be experienced in passing through in clear weather.

Tides and currents

(139) The mean range of tide in Revillagigedo Channel is about 13 feet (4.0 m) and the diurnal range is about 15 feet (4.6 m). E of Duke Island the average velocity of the tidal current at strength of flood or ebb is about 0.5 knot. A set across the channel is sometimes experienced in the vicinity of Twin Islands. Observations taken in midchannel between Bold Island and Reef Point indicate that the current at that location sets NW most of the time with a velocity up to 1 knot. The current in the channel is usually too weak to be predicted.

(140) The tidal current in Tongass Narrows is weak; however, currents of 2.5 and 3.0 knots have been reported in the vicinity of Idaho Rock. There is evidence of a weak NW nontidal drift. Currents of an appreciable velocity are due to winds.

(141) (See the Tidal Current Tables and Tide Tables for daily predictions in Revillagigedo Channel and Tongass Narrows.)

Weather

(142) Because of its orientation, Revillagigedo Channel is susceptible to the strong SE winds that blow from October through April. At the S entrance to the channel, advection fog is a problem, particularly from July through September. Throughout most of the channel and in Tongass Narrows, visibility is worst during the winter. At Ketchikan visibility drops below 1 mile on up to 8 days each winter month, and 3 to 6 days of fog occur from July through September. The waters around Mary Island are consistently the most foggy. April, May, and June are the most fog-free months in the channel.

Chart 17434

(143) **Boat Harbor**, about 2.7 miles NW of **Cape Fox** (54°46.2'N., 130°50.0'W.), is a small cove forming a poor shelter for boats. It is badly exposed to SW. Two small wooded islets are at the entrance, and the best passage for small boats is between these islets. Near the middle of the N entrance is a rock that bares 5 feet (1.5 m).

(144) **Tree Point Light** (54°48.2'N., 130°56.0'W.), 86 feet (26 m) above the water, is shown from a 66-foot (20 m) white square tower on a building on Tree Point, 4 miles NW of Cape Fox.

(145) **Tree Point**, low and timbered, has a rocky and steep-to shore. The shoreline from Cape Fox to Tree Point is very irregular and studded with many wooded islets and bare rocks. Because of the irregular bottom and inshore dangers this section of the coast should be given a berth of not less than 0.5 mile. The small bight at Tree Point affords no shelter from S seas. **Humpy Point** is 1 mile N of Tree Point.

(146) **Foggy Point**, about 7.5 miles N of Tree Point, is a low, rocky, wooded peninsula marked by a light.

(147) The coast from Tree Point to Foggy Point is clear of dangers except close inshore. A rock awash is about 0.6 mile N of Foggy Point. Other kelp-marked rocks are SE of this rock.

Local magnetic disturbance

(148) Extreme magnetic disturbances exist SE of Duke Island. The magnetic compass should not be relied upon within the area outlined in magenta on the charts.

(149) **De Long Islands** are a group of several low, wooded islets 2 to 3 miles NNW of Foggy Point. The bottom between them and the mainland is exceedingly foul. Foul ground extends 0.7 miles SSE of these islands.

(150) **Kirk Point**, about 4.5 miles NNW of Foggy Point, is a low, wooded peninsula. A kelp-marked reef, bare at low water, is about 550 yards (503 m) W of the point. Heavy tide rips have been experienced during a SW blow in the vicinity of Kirk Point.

(151) **Foggy Bay** is a wide indentation in the shore between Foggy Point and Kirk Point. It is almost divided into two parts by the De Long Islands and the foul ground that extends inshore from them. The NW part of the bay is foul and seldom used.

(152) The S part of the bay is used considerably by fishing boats and affords safe anchorage for small craft in its SE and E ends. Large vessels can obtain temporary shelter from S storms in the SE part of the bay, but the water is deep and the bottom lumpy. Great caution must be exercised in entering in order to clear the dangers which extend 0.6 mile N from Foggy Point, and also to give sufficient clearance to the submerged rocks and reefs that extend 0.7 mile SE from the De Long Islands. As practically all the dangers are covered at high tide, it is recommended that this bay be entered at low tide when the reefs are visible. Water may be obtained

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from a pipeline at the head of the bight in the SE corner of the bay.

(153) Excellent anchorage for small craft can be had in the E head of Foggy Bay behind a large wooded island close to shore, about 1 mile SE of the entrance to Very Inlet. Use the N entrance as the S opening bares at half tide.

(154) **Very Inlet**, a narrow arm that extends NE, has its entrance on the E side of Foggy Bay 2.2 miles N of Foggy Point. About 1.5 miles inside the entrance, a branch extends in a SE direction. This branch is very narrow for about 1 mile and then expands into a basin that has considerable foul ground and a number of small islets. The ebb current flows over the rapids in the narrowest part of the branch for about 2 hours after low water. The passage has been made by a small vessel drawing 8 feet (2.4 m), but it should only be attempted at high-water slack. In entering, pass E of the ledge just within the opening.

(155) At the head of Very Inlet is a small basin much used by fishing boats. A branch, which can only be entered safely at high-water slack, extends in a SE direction from the head of Very Inlet. The entrance is very narrow and, in the narrows, bares at low water.

(156) The entrance to Very Inlet is between a reef awash at high water and a low wooded island. It is usually discernible during the ebb by a strong current running out of the inlet. Favor the island shore in entering and keep in midchannel as far as the entrance to the first arm. Then pass midway between a large, wooded, round islet and a small, grass-covered one, W of it. Just before entering the narrows, favor the N shore slightly, then keep in midchannel. Tide rips have been experienced about 0.5 mile SW from the entrance to Very Inlet.

(157) **House Rock**, a small bare rock, is 0.3 mile 330°from Kirk Point.

(158) **Black Rock Light** (55°01.4'N., 131°03.6'W.), 55 feet (17 m) above the water, is shown from a cylindrical house, on a pyramidal skeleton tower with a red and white diamond-shaped daymark on the highest part of the rock, which is surrounded by kelp.

(159) **Snail Rock**, grass-topped and 28 feet (8.5 m) high, is about 0.6 mile NNE of Black Rock.

(160) Between Black and Snail Rocks are numerous rocks, submerged and awash, and the area should be avoided. A kelp patch having a least depth of 1½ fathoms (2.7 m) is 0.5 mile 106° from Snail Rock.

(161) **White Reef** is an extensive white, shell-covered reef, mostly covered at high water, about 2 to 3 miles NNE of Black Rock in the entrance to Boca de Quadra. A rock, 5 feet (1.5 m) high, is near the N end of the reef.

(162) **Kah Shakes Cove**, a bight about 2 miles SE of the entrance to Boca de Quadra, is a good anchorage for small craft. A submerged rock is 175 yards (160 m) from the E shore E of the center of the cove. Care must be exercised in entering the bight leading to Kah Shakes Cove. Numerous islets and rocks are on the S side of the entrance. Local knowledge is essential for entering and anchoring in the cove. About 12 feet (3.7 m) can be carried through the entrance channel between the rocky islets. The cove has excellent holding ground in sticky mud.

(163) **Bullhead (Bull Head) Cove**, about 0.5 mile N of Kah Shakes Cove, affords anchorage, but requires local knowledge to enter. There is good holding ground in sand and mud; mooring piles have been driven in the cove. In 1976, it was reported that the mooring piles were no longer visible. The inner part of the cove is almost all bare.

(164) Vessels too large to enter either Kah Shakes Cove or Bullhead Cove can find fair protection in the bight between the coves. The outer part of this bight is rough in heavy S weather; vessels should anchor as near the head as their drafts permit. The bottom is sandy.

(165) **Kah Shakes Point**, on the S side of the entrance to Boca de Quadra, is the termination of a low, broad, wooded peninsula that extends NE for about 1.5 miles, where the ground rises abruptly to the W point of a distinctive ridge running parallel to Boca de Quadra. The ridge has five distinct small peaks when viewed from the S along the coast; from other directions it shows from one to four tops. **South Quadra Mountain** is the highest point on the ridge.

(166) **Ray Anchorage**, a bight in the E side of Duke Island, affords shelter from S winds, but the bottom is hard and the anchorage is open NE. Anchor about midway between the rocky patch in the entrance to Morse Cove and the point about 0.6 mile E, with the rocks bearing 277° in 10 to 22 fathoms (18 to 40 m), rocky and hard sandy bottom. Deeper water is nearer the rocks.

(167) **Morse Cove**, entered at the SW end of Ray Anchorage, is a landlocked harbor with varying depths and mud bottom. The entrance is very narrow and has a rock that bares 10 feet (3.0 m) in the narrowest part, on the SE side of midchannel. The channel on the NW side of the rock is about 75 feet (23 m) wide. Small craft with local knowledge can enter, preferably at low water. The entrance channel from Ray Anchorage is on the SE side of the rocky patch in its entrance. Rocks awash are between the rocky patch and the W shore.

(168) **Reef Harbor** is the indentation between **Duck Islands**, the reefs on the E, and the shore of Duke Island, S of **Grave Point**, the N extremity of the island. It has depths of 24 to 26 fathoms (44 to 48 m), mud bottom, but the swinging room is scant for the scope of chain required by this depth. Small craft may secure some

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protection from S weather by anchoring as close as size permits in the lee of **Flag Point**. Very small craft may use the wide part of the passage between the two largest of the Duck Island group, but this anchorage is not secure in S weather.

(169) **Little Rock** and **Whale Rock** are the extremities of a chain of rocks about 1 mile long, 2 miles NE of Grave Point. **Bird Island**, about 1.5 miles WNW of Whale Rock, is about 20 feet (6.1 m) high and bare.

(170) **Cat Island**, **Fripo Island**, and **Lane Island**, between Duke Island and Mary Island, are low and densely wooded. The islands are surrounded by ledges that extend from 100 to 200 yards (91 to 183 m) offshore. Small craft sometimes anchor off the middle of the W side of Cat Island, but there is little shelter.

(171) **Danger Passage**, between Cat and Mary Islands, is about 350 yards (320 m) wide between the 3-fathom (5.5 m) curves and suitable only for small craft. It is reported that the shoals in the passage are marked by kelp in the summer and fall.

(172) **Mary Island Light** (55°05.9'N., 131°11.0'W.), 76 feet (23 m) above the water, is shown from a white square tower on a white building on the NE side of **Mary Island.** The island is comparatively low and densely wooded near the shores.

(173) **Mary Island Anchorage** is a bight in the N end of Mary Island between **Point Winslow** and **Giant Point**. It is a contracted anchorage with fair shelter from SE and SW winds, but more room and better protection can be had in Custom House Cove. (See Felice Strait.) Ledges covered with kelp extend about 150 yards (137 m) N of Point Winslow and Giant Point, and the entire S side of the anchorage is shoal for 150 yards (137 m) beyond the projection of the shore. The approach is clear. Anchor in 12 to 15 fathoms (22 to 27 m), hard sandy bottom.

(174) **Twin Islands**, two in number and low and wooded, are 1.8 miles N of Mary Island. The NW and larger island is marked by a light on its NE side. Deep water is close-to in all directions, except for a submerged rock that is 250 yards (229 m) N of the larger island.

(175) **Boca de Quadra** has its entrance on the E side of Revillagigedo Channel between Kah Shakes Point and **Quadra Point**, about 6 miles E of Mary Island Light. It extends NE to the flat that extends 0.8 mile from its head. (See chart 17427.) The sides are steep-to and densely wooded, and there are no outlying dangers.

Tides and currents

(176) The mean range of tide in Boca de Quadra is 12.7 feet (3.9 m), and the diurnal range is 15 feet (4.6 m). Tidal currents have an estimated maximum velocity of about 1.5 knots at the entrance to Boca de Quadra, diminishing toward the head.

(177) The preferred entrance is between Slate Islands and White Reef, following midchannel courses, passing on either side of Kite Island, but preferably N of it.

(178) **Orca Point** is on the E side of the inlet about 6 miles from the entrance.

(179) **Weasel Cove** indents the N shore about 7 miles from Kah Shakes Point, and affords anchorage in 17 to 19 fathoms (31 to 35 m), mud bottom, about 0.5 mile above the E point at the entrance. The entrance and anchorage are clear, but vessels must keep clear of the flat that extends 700 yards (640 m) from its head.

(180) **Badger Bay**, separated from Weasel Cove by a promontory, has 14 to 30 fathoms (26 to 55 m) throughout its length, and there is a small flat at its head.

(181) **Kestrel Island**, a small rocky islet close to the E shore, is about 1.5 miles SE of Orca Point. **Kite Island**, low and wooded, is in the middle of the inlet about 2.5 miles SE of Orca Point.

(182) **Vixen Bay**, entered SW of Kite Island, affords anchorage at the head about 2 miles above the entrance. In entering, the main channel is W of **Gannet Island**. **Raven Island** is close to the E shore, 1.3 miles from Gannet Island. Rocks, visible and submerged at various stages of the tide, are S of and near Raven Island.

(183) The anchorage is between the rocks off Raven Island and Gosling Island, which is at the head of the bay. A ledge extends 175 yards (160 m) NW from the N end of Gosling Island. Local knowledge is essential in anchoring near the head of the bay.

(184) Anchorage for deep-draft vessels can be found about 0.3 mile S to SW of Kite Island in 20 to 30 fathoms (36 to 55 m), hard bottom.

Chart 17427

(185) **Mink Bay** (55°05.5'N., 130°43.4'W.) enters the S side of Boca de Quadra about 2 miles E of Kite Island, and has depths of 16 to 60 fathoms (29 to 110 m) to near its head. **Cygnet Island**, low and wooded, is on the W side of the entrance. The narrow passage on the W side of the island is frequently used by small craft. A submerged rock is near midpassage about 100 yards (91 m) S of the island. **Grouse Rock**, which bares, is about 0.2 mile S from Cygnet Island; deeper water surrounds the rock. A mooring buoy is about 200 yards (183 m) S of Cygnet Island. Anchorage may be found between Grouse Rock and Cygnet Island in 5¾ to 7 fathoms (10.5 to 12.8 m), off the old cannery site. It is reported that the ruins of the old cannery dock are no longer visible at the S end of the anchorage.

(186) **Humpback Creek** enters from E about 0.8 mile from the head of Mink Bay and carries a flat halfway

across the channel. A privately maintained mooring buoy is close N of the flat on the E side of the bay. Above the flat is a secure anchorage, 0.3 mile wide, in 10 to 15 fathoms (18 to 27 m). A flat extends 700 yards (640 m) from the head of the bay. Local knowledge is necessary to use this anchorage.

(187) **Hugh Smith Lake** empties through **Sockeye Creek** (chart 17420) into the inlet about 0.3 mile N of the entrance to Mink Bay. A cabin is on the N bank at the head of Sockeye Creek. A trail leads from the inlet along Sockeye Creek to Hugh Smith Lake.

(188) **Marten Arm**, entered about 1.5 miles N of the entrance to Mink Bay, has depths of 23 to 107 fathoms (42 to 196 m) until near the flat that extends 0.7 mile from the head. The arm is clear but has no anchorage. Above **Bactrian Point**, the main NE arm of Boca de Quadra is too deep for anchorage.

Chart 17434

(189) **Slate Islands**, on the NW side of the entrance to Boca de Quadra, are a group of four low, wooded islands with numerous intervening rocks. The three N islands are almost connected at low water. **Slate Islands Light** (55°05.3'N., 131°03.2'W.), 33 feet (10.1 m) above the water, is shown from a spindle with a red triangular daymark on the S end of the southernmost island of the group.

(190) The coast from Slate Islands extends N for about 6 miles to Point Sykes. The shore is fringed by a number of islets and rocks. A cove, about 1.2 miles S of Point Sykes, offers some protection to small craft in moderate weather, but is not sufficiently sheltered for use in heavy weather. The best anchorage is in the lee of the point on the S side of the cove in 8 to 10 fathoms (14.6 to 18.3 m), rock and sand bottom.

Chart 17428

(191) **Lucky Cove** (55°12.7'N., 131°15.9'W.) is a small indentation in the SW shore of Revillagigedo Island midway between Point Alava and Cone Island.

(192) **Hog Rocks**, the easternmost of a chain of islands, rocks, and reefs that extend SE about 4 miles from the shore of Annette Island, are two principal groups of rocks about 1 mile apart, showing about 6 feet (1.8 m) at high water. **Hog Rocks Light** (55°10.7'N., 131°17.0'W.), 23 feet (7.0 m) above the water, is shown from a truncated concrete pyramid with a red and white diamond-shaped daymark on the SE rock of the group. A ledge with 7½ feet (2.3 m) near its end extends 0.3 mile SE from the light. Good water is between the two groups of rocks, and between the inner group and **Walker Island**. By avoiding the rocks shown on the chart, small craft can pass between Walker Island and L**ewis Island**, or between Lewis Island and Ham Island.

(193) **Ham Island**, 2 miles W of Hog Rocks Light 13, is low and densely wooded. A deep channel is along the entire NE side of the island at an average distance from shore of 225 yards (206 m).

(194) **Cascade Inlet** is a deep and narrow body of water between Ham and Annette Islands. A narrow, crooked boat passage connects the inlet at its head with Revillagigedo Channel; small craft can find fair anchorage in midchannel in the broadest part of this passage close to the W end of Ham Island.

(195) **Hassler Harbor**, a bight on the N side of Annette Island, S of Bold Island, affords excellent shelter with good holding ground for small craft in SE gales. A small grass-topped rock, 10 feet (3.0 m) high, is 0.2 mile W of **Pow Island**, which is in the bight. An **explosives anchorage** is in Hassler Harbor. (See **110.232**, chapter 2, for limits and regulations.)

(196) **Bold Island**, about 5.5 miles NW of Hog Rocks Light 13, is in midchannel off the NE shore of Annette Island, between **Reef Point** and **Harbor Point**. It is wooded and has several knolls somewhat above the general level of the island. The S shore of Bold Island is steep-to and has no off-lying rocks. Shelter for small craft may be found in the cove on the NE side of the island. Small boats sometimes moor to the dolphin near the head of this cove.

(197) **Angle Point Light** (55°14.3'N., 131°25.6'W.), 24 feet (7.3 m) above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on the SW side of Bold Island.

(198) The passage N of Bold Island is seldom used by large vessels. **Mastic Rock**, marked by a daybeacon, bares 2 feet (0.6 m) and is near the E end of this passage.

(199) The passage N of Round Island is much used by local fishermen. Numerous shoals are in this area, and passage should not be attempted without local knowledge.

(200) **Round Island**, about 150 feet (46 m) high and wooded, is about 0.5 mile NE of the E end of Bold Island, with two wooded islets between.

(201) **Thorne Arm** has its entrance E of Bold Island and W of Cone Island. Its general direction is NNE, curving gradually to N. The arm is free from outlying dangers. **Cone Island**, dome-shaped and wooded, is off **Cone Point**. **Washington Monument Rock**, 0.5 mile SW of Cone Island, is covered 2 fathoms (3.6 m) and surrounded by much deeper water. A number of small wooded islands are off the W shore of Thorne Arm near the head. At the head of Thorne Arm in the cove E of **Mop Point** is a somewhat constricted anchorage in 18

to 20 fathoms (33 to 36 m), hard bottom. Anchorage can also be selected in the bight on the W side at the head between **Snipe Island** and Mop Point in 25 to 30 fathoms (46 to 55 m), soft bottom. Small craft may find shelter in the small cove NW of Snipe Island, between it and the adjoining small island. A midchannel course leads safely through the arm and to the anchorages. Private mooring buoys are 2.2 and 2.5 miles NE of Snipe Island.

(202) **Moth Bay** is a narrow indentation on the W side of Thorne Arm just inside the entrance. In the middle of the entrance to the bay is a small wooded islet and about 325 yards (297 m) NW from its northernmost extremity is a smaller islet with a rock about 50 yards (46 m) to the SSW. The preferred channel leads E of the islets. Vessels up to 100 feet (31 m) long can anchor in 20 to 24 fathoms (37 to 44 m), rocky bottom, about 0.4 mile above the smaller islet. Swinging room is limited, and in SE weather vessels subject to yawing will find this anchorage uncomfortable. Small craft can find anchorage near the head of the bay in 12 fathoms (22.0 m), soft bottom.

(203) **Coho Cove**, about 1.2 miles W of Moth Bay and opposite the E end of Bold Island, affords fair anchorage for small craft, although the depths are great. The best channel for entering is on the E side of the islet in the entrance.

(204) **Spire Island** is small, wooded, and about 150 feet (46 m) high; there is a small islet to the E close-to. **Spire Island Reef Light SI** (55°16.1'N., 131°30.0'W.), 30 feet (9.1 m) above the water, is shown from a square, truncated concrete pyramid with a green square daymark near the NE end of the reef that extends about 500 yards (457 m) NE of Spire Island. The reef is covered 2 feet (0.6 m) at its N end. A 1½-fathom (2.7 m) rock is 0.3 mile WNW of the light. Foul ground, with a dangerous rock awash at its end, extends W about 500 yards (457 m) from the W end of the island.

(205) **Carroll Inlet** has its entrance about 1.5 miles N of Spire Island Reef Light between **Mountain Point** and **Carroll Point**. The inlet extends N about 23 miles. **California Head** separates it from George Inlet.

(206) **Mountain Point Light** (55°17.6'N., 131°32.9'W.), 29 feet (8.8 m) above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on the SW tangent of Mountain Point.

(207) **Mountain Point** is an unincorporated settlement on the point. A launching ramp is on the point about 500 yards (457 m) E of the light. **Herring Cove** is an unincorporated settlement on the shores of **Herring Bay**, which indents the W shore of George Inlet about 2 miles N of Mountain Point. In the small cove 0.5 mile S of Herring Bay, locally known as **Hole-in-the-Wall**, the city of Ketchikan maintains 493 feet (150 m) of small-craft floats and a boat launching ramp. In June 1976, depths up to 20 feet (6.1 m) were reported alongside the floats. Local regulations limit the maximum size of vessels using the floats to 65 feet (19.8 m). Marine supplies are not available in the cove, however, gasoline, diesel fuel, provisions, and repairs can be obtained in Ketchikan.

(208) The cove does not afford adequate protection during severe weather, and boats should exercise caution when mooring overnight or for extended periods.

(209) **Cutter Rocks**, two in number, close together and uncovering 11 feet (3.4 m), are on the W side of the entrance to Carroll Inlet about 0.6 mile ESE from Mountain Point; they are marked by a light. A clear passage is between Cutter Rocks and Mountain Point.

(210) **California Cove**, on the W side of Carroll Inlet and immediately E of California Head, is a small open bight exposed to the S. The cove is deep except along the W shore. Two small wooded islets and a rock awash are close to the W shore.

(211) **Gnat Cove** is on the E side of Carroll Inlet about 6.5 miles above California Head and abreast **Hume Island**. A fair anchorage can be had off the entrance to the cove in 17 to 18 fathoms (31 to 33 m), soft bottom. Foul ground extends 250 yards (229 m) from the outer of two points at the S side of the entrance to the cove. Small craft can find good moorage inside the cove by rafting up to the anchored log booms of a log storage area on the NE side of Gnat Cove. Care should be taken, however, to avoid the mudflats that extend from the S shore and the rock ledges that extend into the SW bight of the cove.

(212) In the main inlet between Gnat Cove and **Island Point**, a distance of 4 miles, there are depths of about 11 to 67 fathoms (20 to 123 m), and anchorage in suitable depth can be selected with the aid of a chart. At its head the inlet narrows to 0.2 mile, with depths of 27 to 34 fathoms (49 to 62 m), shoaling abruptly to the flat that extends about 0.7 mile from the head.

(213) A midchannel course carries safely to the flat at the head of the inlet, and also into Gnat Cove. The only places requiring more than usual caution are the shoal opposite Spit Point about 1.2 miles below Gnat Cove, and the area about 2.5 miles above Gnat Cove, abreast of **Shoal Cove**, where there is a wooded islet 95 feet (29 m) high in the middle of the inlet, with a spur that extends 300 yards (274 m) from its NE side, and a flat that extends 0.2 mile toward the islet from the mouth of a stream on the E side, E of the islet. The S and W sides of the islet have a clear channel.

(214) In 1976, a logging camp was operating in the small cove 1.7 miles N of Shoal Cove; rafting grounds extend from the S side of the cove. The logging camp maintains a float landing in the cove for small craft, tugs,

and float planes. Water and gasoline are available in an emergency. Radiotelephone communications are available at the camp. A 40-foot (12.2 m) Coast Guard pier is at the S end of the camp.

(215) **George Inlet**, joining Carroll Inlet from W at California Head, extends N about 12 miles and has deep water throughout. A former cannery and wharf are on the W side of George Inlet, about 3.5 miles above California Head. In 1976, the wharf was in adequate condition and the cannery buildings were being used for storage. The stub pilings of a former wharf remain close N of the present wharf; caution is advised in this area.

(216) **Mahoney Bight**, on the W shore of the inlet, 6 miles N of California Head, is good shelter for small craft except during SE weather. Its entrance is clear of dangers, with 10 fathoms (18.3 m) leading into the inner bight, which has depths from 5 to 11 fathoms (9.1 to 20.1 m), hard bottom.

(217) Midchannel courses lead safely through George Inlet passing W of Coon Island and Bull Island, two wooded islands off the E shore of the inlet about 8.2 and 9.7 miles, respectively, above California Head. **Coon Island** is identified by a large white quartz outcrop showing on its S shoreline. A privately maintained mooring buoy is on the W side of George Inlet about 1 mile NW of Coon Island. The small cove close N of the mooring buoy is foul.

(218) **Coon Cove**, in the E shore of the inlet opposite the S end of Coon Island, offers good anchorage in 13 fathoms (24 m), mud bottom, S of the small tree-covered islet off the N shore, and is the best shelter in the inlet in SE weather. It is entered on a midchannel course S of Coon Island.

(219) The upper part of Coon Cove is a tidal flat. The S extremity of the flat is marked by prominent pilings. Small craft may find more convenient anchorage in 7 to 9 fathoms (12.8 to 16.4 m), soft bottom, just S of the pilings.

(220) **Leask Cove**, on the W shore near the head of the inlet, affords fair anchorage in depths of 10 to 15 fathoms (18 to 27 m), sand and gravel bottom, off the N shore of the cove. A prominent offshore rock, bare at all stages of the tide, is on the E side of the entrance. A shoal with a least depth of 2 fathoms (3.6 m) is 400 yards (366 m) NE of the W side of the entrance.

(221) **Bat Cove**, just E of Leask Cove, affords excellent shelter for small craft, with anchorage at the head in 10 to 11 fathoms (18.3 to 20.1 m), mud bottom. The prominent offshore rock mentioned in the Leask Cove reference marks the W side of the entrance to Bat Cove. Hold close to the rock when entering the cove to avoid a rock ledge, bare at low water, that extends one-third of the way across the entrance from **Bat Point** on the E side.

(222) **Tsa Cove**, on the E shore of the inlet NE of Bull Island, is difficult to enter but affords good shelter and anchorage in 10 to 14 fathoms (18 to 26 m), mud and shell bottom. Small boats with local knowledge enter between Bull Island on the SW and Granite Island on the NE, holding close to the Granite Island shoreline to avoid shoals that extend from the numerous rock islets off the NE end of Bull Island.

(223) Small boats with local knowledge pass into **Salt Lagoon** (chart 17420) at the head of the inlet, but only at or near high water slack. The entrance is very narrow, with dangerous rapids at most stages of the tide.

Chart 17428

(224) **Tongass Narrows**, a continuation of Revillagigedo Channel, extends NW to Guard Islands in Clarence Strait. The principal dangers are marked by buoys or lights, so that no difficulty should be experienced in passing through in clear weather.

(225) The narrows is divided at its lower end by Pennock Island; the channel NE of the island is called **East Channel** locally, and the channel SW of the island, **West Channel**. Both channels are good for vessels of any draft. A lighted buoy marks the edge of a shoal making out from the SW side of West Channel. An isolated 9½-fathom (17 m) pinnacle rock is about 0.5 mile SSE from the southernmost extremity of Pennock Island.

(226) (See **162.240**, chapter 2, for regulations governing navigation in Tongass Narrows.)

Chart 17430

(227) **Potter Rock**, about 0.7 mile ESE of the E end of Pennock Island, is small, has 2½ fathoms (4.6 m) over it, and is marked by a lighted bell buoy on its S side. A 7¼-fathom (13.3 m) shoal is about 0.2 mile SSE from the rock.

(228) **Pennock Island**, which divides Tongass Narrows at its lower end, is generally wooded. Several rock patches are 250 to 400 yards (288 to 366 m) from shore around the SE end of the island. Other than the dangers previously mentioned, the S shore of the island is steep-to, and the channel is clear if the island side is favored in the narrowest part of the channel. A lighted buoy is about 400 yards (366 m) S of the southernmost extremity of the island.

(229) **Tongass Narrows West Channel Light 4** (55°19.1'N., 131°38.6'W.), 18 feet (5.5 m) above the water, is shown from a skeleton tower with a red triangular daymark on the W side of Pennock Island.

(230) **Radenbough Cove**, on the NE side of and about 0.5 mile S of the N end of Pennock Island, is S and directly

across the channel from Thomas Basin. Grids for vessels up to 30 feet (9.1 m) long are available in the cove.

(231) **Whisky Cove**, on the E side of Pennock Island about 0.45 mile S of Radenbough Cove, is SW and directly across the channel from the Coast Guard Base.

(232) **Pennock Reef**, 0.25 mile W of the N extremity of Pennock Island, is small and bares at low water; a lighted buoy marks the NW end of the reef. A shoal covered 2 fathoms (3.6 m) is about 300 yards (274 m) SE of the reef.

(233) Foul ground extends about 200 yards (183 m) N and about 400 yards (366 m) NW, respectively, of the N and NW extremities of Pennock Island.

(234) **California Rock** is about in midchannel in the passage NE of Pennock Island and 0.5 mile NW from its SE end. The rock is small in extent, has 1½ fathoms (2.7 m) over it, and is marked by a lighted buoy. A channel is on either side of the rock, but large vessels usually pass on the N side between it and Idaho Rock.

(235) **Idaho Rock**, covered 2 fathoms (3.6 m) and marked by a lighted buoy, is 250 yards (229 m) NNE of California Rock near the N side of the passage.

(236) **Saxman** is a small settlement in the bight indenting the SW shore of Revillagigedo Island N of Idaho Rock and about 2 miles SE of Ketchikan. The center of the settlement has a prominent group of totem poles.

(237) A privately dredged basin protected on the S side by a breakwater is about 0.3 mile SE of Saxman; a row of breasting dolphins is on the N side of the basin. A private light marks the W end of the breakwater. In June 1976, the basin had a reported depth of 10 feet (3.0 m). The basin is the site of a privately operated barge and rail terminal. A loading ramp with an adjustable bridge at the head of the basin is used for handling containers to and from barges; two 25-ton forklifts are available. The terminal has four acres of open storage and 32,000 square feet of covered storage, and is accessible from Ketchikan by highway.

(238) **Ketchikan** (55°20.5'N., 131°38.7'W.), on the SW side of Revillagigedo Island and on the E side of Tongass Narrows, is one of the most important cities in Alaska. It is 659 miles from Seattle via the Inside Passage; 79 miles from the sea at Dixon Entrance via Nichols Passage; 89 miles from Wrangell, and 220 miles from Juneau.

(239) Ketchikan has oil terminals, a cannery, and cold storage plants, and is the distributing point and center of the commercial, logging, and fishing industries of this part of southeastern Alaska. There are also two cruise ship piers in Ketchikan.

(240) The deepest draft of commercial vessels calling at Ketchikan was 34 feet (10.4 m) in 1976. Commodities handled at the port include petroleum and petroleum products, fish and fish products, logs and lumber products, wood pulp, chemicals, provisions, and general cargo.

Prominent features

(241) The buildings of **Ketchikan Coast Guard Base** at the S end of the waterfront, the 410-foot (125 m) tower, NW of Bar Point, the aerobeacon and gray-green gravel slopes of the airport, WNW of Bar Point, and a high yellow hotel and green condominium, close N and NE of Bar Point, respectively, are prominent.

Channels

(242) A Federal project provides for two small-craft basins at Ketchikan: Thomas Basin at Ketchikan Creek, with a project depth of 10 feet (3.0 m), and Bar Point Basin off Bar Point, with a project depth of 15 feet (4.6 m) in the NW section and 10 feet (3.0 m) in the SE section.

(243) **Thomas Basin**, the small-craft harbor off Ketchikan Creek, is protected on its W side by a log boom, and on the S side by a stone breakwater. The harbor is entered from the S through a 75-foot (23 m) opening between the W log boom and the breakwater on the S; a light marks the entrance. In April 2001, the basin had a controlling depth of 10 feet (3.0 m) except for shoaling along the edges. The city-operated floats in the basin have water and metered electricity; 80-foot and 65-foot grids are available. Fuel can be obtained at the facilities just N of the Coast Guard base. The U.S. Fish and Wildlife Service maintains a float for its own use on the N side of the basin behind the Federal Building.

(244) The basin is controlled by a **harbormaster**, who maintains an office at Bar Point Basin. Local regulations limit the maximum size of vessels using the basin to 80 feet (24.4 m) in length and 9 feet (2.7 m) in draft. A 3-knot and "no wake" **speed limit** is enforced in the basin.

(245) **Bar Point Basin**, locally called **Bar Harbor**, is a small-craft harbor off Bar Point about 1.35 miles NW of Thomas Basin. The harbor is protected on its W side by a detached floating breakwater, on its S side by a detached floating breakwater and a detached stone breakwater, and on its SE side by another stone breakwater. The harbor has three entrances which are marked by lights and daybeacons. The SE entrance is between the stone breakwater and the detached stone breakwater. The SW entrance is between the two detached floating breakwaters, and the NW entrance is N of the northernmost detached floating breakwater. In April 2001, the basin had a controlling depth of 9.2 feet (2.7 m) with lesser depths along the edges. The city-operated floats in the basin have water and metered electricity. Fuel can be obtained at the oil facilities just N of the Coast

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Guard base. A surfaced launching ramp and float are at the N end of the basin.

(246) The basin is under the control of a **harbormaster**, who maintains an office at the NE corner of the basin. Local regulations limit the maximum size of vessels using the basin to a length of 80 feet (24.4 m). A 3-knot and "no wake" **speed limit** is enforced in the basin.

(247) **Anchorage** off Ketchikan is limited by the cable and pipeline areas that extends NW through Tongass Narrows. Scan the chart carefully for limits of cable and pipeline areas before attempting to anchor. The anchorage is secure for all but the heaviest winter gales; the confined channel admits no sea, and the tidal currents do not exceed 1.5 to 2 knots.

(248) (See **162.240**, chapter 2, for regulations governing navigation in Tongass Narrows.)

(249) The harbor area along the Ketchikan waterfront between Thomas Basin and Bar Point is a safety zone. (See **165.1 through 165.7, 165.20 through 165.23, and 165.1705**, chapter 2, for limits and regulations.

Tides and currents

(250) At Ketchikan the mean range of tide is 13 feet (4.0), and the diurnal range 15.4 feet (4.7 m). There is usually a direct current or eddy setting W along the face of the wharves. (See the Tide and Tidal Current Tables for daily predictions at Ketchikan.) For this reason all large vessels make a port landing, those from the S frequently using West Channel, which is marked by a light and buoys, and making the necessary turn around the W end of Pennock Island.

Weather

(251) This port has about 244 cloudy days a year, and rain falls on the average of about 236 days annually. October is the wettest month; it holds the 24-hour rainfall record of more than 7 inches (178 mm). The marine nature of the climate is evident by the fact that the minimum temperature falls below freezing on about 76 days a year. Moscow, at approximately the same latitude, records minimum temperatures below freezing on about 170 days annually. Winds are prevalent from the SE, and gales are infrequent in this sheltered port. Calm conditions are frequent. (See page T-2 for **Ketchikan climatological table**.)

Pilotage, Ketchikan

(252) Pilotage, except for certain exempted vessels, is compulsory for all vessels navigating the inside waters of the State of Alaska. (See Pilotage, Alaska, indexed as such, chapter 3, for details.)

(253) Vessels en route Ketchikan via Clarence Strait, from the S, meet the pilot boat about 1 mile NW of Guard Islands Light (55°26.8'N., 131°52.9'W.); via Clarence Strait from the N, about 1 mile E of Point McCartey Light (55°06.8'N., 131°42.4'W.).

(254) The pilot boat, a tugboat, can be contacted by calling "KETCHIKAN PILOT BOAT" on VHF-FM channels 16, 13, or 12.

Towage

(255) Tugs up to 1,800 hp operating out of Ketchikan and engaged principally in the towing of barges and log rafts are available for assistance in docking and undocking. They are equipped with VHF-FM channels 16, 13, and 12. Arrangements for tugs should be made well in advance through ships' agents.

Quarantine, customs, immigration, and agricultural quarantine

(256) (See chapter 3, Vessel Arrival Inspections, and appendix for addresses.)

(257) **Quarantine** is enforced in accordance with regulations of the U.S. Public Health Service. (See Public Health Service, chapter 1.) Contract hospital space is available in a private hospital in an emergency.

(258) Ketchikan is a customs port of entry.

Coast Guard

(259) Captain of the port and marine inspection functions at Ketchikan are handled by the Coast Guard Marine Safety Detachment at the K**etchikan Coast Guard Base** at the SE end of the waterfront. (See appendix for addresses.)

Harbor Regulations

(260) Local regulations require that vessels limit their speed to 5 knots when passing the waterfront area. Harbor regulations are enforced by the **harbormaster**, who maintains an office at Bar Point Basin. A copy of the regulations pertaining to speed and other matters may be obtained from the harbormasters office. The harbormaster can be contacted on VHF-FM channels 16 and 73, or by telephone (907) 228-5632.

Wharves

(261) The Port of Ketchikan has about 3 miles of developed waterfront on the E side of Tongass Narrows. All the wharves are privately owned. The alongside depths for the facilities described are reported; for information on the latest depths contact the operator. For a complete description of the port facilities refer to Port Series No. 38, published and sold by the U.S. Army Corps of Engineers. (See appendix for address.)

(262) Harbor Enterprises, d.b.a. Petro Marine Services, Ketchikan Wharf (55°20'01"N., 131°37'33"W.): 75 yards (69 m) NW of Ketchikan Coast Guard Base; 283-foot (862 m) face; depth alongside, 40 feet (12.2 m); deck

height, 22 feet (6.7 m); marked at each end by a private light; receipt of petroleum products; pipelines to storage tanks; 7 metered hoses for fueling small craft; owned and operated by Harbor Enterprises, d.b.a. Petro Marine Services.

(263) Harbor Enterprises, d.b.a. Petro Marine Services fuel float: adjacent to the SE of main wharf; 160-foot (49 m) face; depth alongside, 40 feet (12.2 m); 20 metered hoses for fueling purposes; owned and operated by Harbor Enterprises, d.b.a. Petro Marine Services.

(264) Union Oil Co. Wharf: 100 yards (91 m) NW of Standard Oil Co. Wharf; 115-foot face (35.1 m); depth alongside, 65 feet (19.8 m); deck height, 22½ feet (6.9 m); receipt of petroleum products; pipelines to storage tanks; 2 metered fuel hoses for fueling small craft; owned and operated by Union Oil Company of California.

(265) Union Oil Co. fuel floats: adjacent to the NW of main wharf; two floats each having an 86-foot (26.2 m) face; depths along the inner sides are 15 feet (4.6 m), and along the outer sides, 50 feet (15.2); each float has eight metered hoses for fueling small craft; owned and operated by Union Oil Company of California.

(266) Kanaway Seafoods Wharf (55°20'11"N., 131°37'50"W.): 650 yard (594 m) NW of Coast Guard Base; 462-foot (140 m) face, E side 80 feet (24.4 m) long, W side 124 feet (37.8 m) long; depth alongside, 26-30 feet (7.9-9.1 m); deck height, 22 feet (6.7 m); total berthing space, 422 feet (129 m); receipt of seafood, and icing fishing vessels; owned and operated by Kanaway Seafoods Co.

(267) Anderes Oil Co., Ketchikan Wharf (55°20'13"N., 131°37'57"W.): 700 yards (640 m) NW of Coast Guard Base; 50-foot (15.2 m) face with 110-foot (33.5 m) barge moored along face; depth alongside, 30 feet (9.1 m); deck height, 22 feet (6.2 m); pipelines to storage tanks; 17 metered hoses on barge for fueling small craft; owned and operated by Anderes Oil Co., Inc.

(268) Trident Seafoods Ketchikan Wharf (55°20'17"N., 131°38'06"W.): 200 yards (183 m) SE of Thomas Basin; 170-foot (51.8 m) face; depth alongside, 30 feet (9.1 m); deck height, 22 feet (6.7 m); receipt of salmon; owned and operated by Trident Seafoods Corp.

(269) City of Ketchikan, Berths 1A and 1B Wharf (55°20'25"N., 131°38' 47"W.): 1,455-foot (443 m) face; depths alongside, 30 to 40 feet (9.1 to 12.2); deck height, 22 feet (6.7 m); general cargo, ferries, and cruise vessels; owned by City of Ketchikan and operated by the Port of Ketchikan.

(270) Port of Ketchikan, Berth 2 Wharf: foot of Grant Street extended; 595-foot (181 m) face; depths alongside 40 feet (12.2 m); deck height, 24 feet (7.3 m); owned by City of Ketchikan and operated by the Port of Ketchikan.

(271) Five Star Seafoods Floats (55°20'39"N., 131°39'07"W.): 0.5 mile NW of Thomas Basin; 400 feet (121.9 m) of anchored floats; depth alongside, 30 feet (9.1 m); loading of supplies to vessels; owned and operated by Five Star Seafoods Co.

(272) Talbot's Building Supply Wharf (55°20'43"N., 131°39'23"W.): 0.7 mile NW of Thomas Basin; 356-foot (109 m) face; depth alongside, 35 feet (10.7 m); deck height, 24 feet (7.3 m), receipt and shipment of building supplies and general cargo; owned and operated by Talbot's Inc.

(273) E. C. Phillips & Son Pier (55°20'52"N., 131°39'56"W.): 500 yards (152 m) E of Bar Point; 232-foot (70 m) face; 272 feet (83 m) E and W side; depths alongside, 30 feet (9.1 m); deck height, 24 feet (7.3 m); receipt of fish, W side also used to ice fishing vessels; owned and operated by E. C. Philips and Son, Inc.

(274) Boyer Alaska Barge Line Terminal Fuel Dock and Barge Ramp (55°21'15"N., 131°41'18"W.): 500 yards (457 m) SE of Sunny Point; 12-foot (3.7 m) face; depth alongside, 15 feet (4.6 m); deck height, 18 feet (5.5 m); receipt and shipment of general cargo and logging supplies; receipt of petroleum products; owned and operated by Boyer Alaska Barge Line, Inc.

(275) State of Alaska, Ketchikan Ferry Terminal Main Berth (55°21'15"N., 131°41'34"W.): 275 yards (251 m) SE of Sunny Point; 150-foot (45 m) face; depth alongside, 35 feet (10.7 m); passengers and vehicles; owned and operated by the State of Alaska.

(276) Ketchikan Transportation Company Pier (55°21'32"N., 131°41'54"W.): 450 yards (411 m) NW of Sunny Point; 70-foot (21.3 m) face; depth alongside, 10 feet (3.0 m); 4,000 square feet of covered storage; forklifts with a capacity up to 4 tons; receipt and shipment of general cargo; operated by Ketchikan Transportation Company.

Supplies

(277) Provisions, and marine and fishing supplies are available in Ketchikan. The three oil company terminals near the SE end of the waterfront have fueling floats for small craft in addition to wharf space for fueling larger vessels. Gasoline, diesel fuel, diesel oil, distillates, and lubricating oil and greases can be obtained at these terminals. Only diesel oil is available in Ketchikan for large vessels. Most of the wharves can provide water; ice for fishing vessels can be obtained at the cold storage company wharves.

Repairs

(278) The Ketchikan Shipyard Facility is located in the Tongass Narrows adjacent to and NW of the Ketchikan Ferry Terminal. The facility has a floating drydock, over

1,000 feet (305 m) of deep water moorage, a fabrication shop, pierside utilities, and ship support services. The floating drydock has a clear breadth between fenders of 107 feet (32.6 m), a depth over blocks of 19 feet (5.8 m), fully immersed, and a capacity of 9,600 tons. The facility is the largest shipyard in Alaska and serves primarily larger vessels. Several machine shops and repair firms along the waterfront can provide hull, engine, electrical, and electronic repairs. The largest shaft that can be produced by local machine shops is 30 inches (762 mm) by 16 feet (4.9 m). Divers for underwater repairs and salvage work are available in Ketchikan. Engine spare parts are stocked by several of the local repair firms. Spare parts not available locally can be ordered by air freight.

Small-craft facilities

(279) The city of Ketchikan maintains several small-craft facilities in addition to Thomas Basin and Bar Point Basin, which were previously described in this chapter.

(280) Ryus Float: 525 yards (480 m) NW of the entrance to Thomas Basin and immediately N of Ketchikan City Dock No. 1; 125 feet (38.1 m) of berthing space; 60 feet (18.3 m) alongside; limited to craft up to 80 feet (24.4 m) long; 4-hour limit alongside for loading and unloading, and no vessels are permitted to tie-up when a cruise vessel is docked at Ketchikan City Dock No. 1.

(281) Hanson Float: 290-foot (88.4 m) concrete float on W end of City Dock No. 2, limited to craft up to 100 feet (30.5 m) with a reported depth alongside of 20 feet (6.1 m) in 1994.

(282) City Float: 875 yards (800 m) NW of the entrance to Thomas Basin; consists of a main NE-SW pier with two spur floats that extend NW from it; 1,680 feet (512 m) of berthing space with depths of 20 to 60 feet (6.1 to 18.3 m) alongside; limited to craft up to 80 feet (24.4 m) long or as otherwise posted; water and metered electricity available.

(283) Small-craft grids are available in Thomas Basin and Bar Harbor; city-operated boat launching ramps are at the N end of Bar Point Basin, 12.7 miles N of the town at Knudson Cove, 5 miles SE of the town at Mountain Point, and 6.9 miles E of the town at Hole-in-the Wall.

Communications

(284) Ketchikan has regular passenger, express, and freight service to Puget Sound ports, British Columbia, and other Alaska ports and towns by water and air. The Alaska State Ferry System has daily ferry service during the summer to Prince Rupert, B.C., Sitka, Wrangell, Petersburg, Juneau, Haines, and Skagway, and weekly service to Seattle. This schedule is less frequent during the winter. The Inter-Island Ferry Authority offers daily round trips to Hollis year round. For more information, see http://www.interislandferry.com/. In addition to the scheduled airlines, other air services operate from Ketchikan on a charter basis.

(285) A highway parallels the Revillagigedo shore of Tongass Narrows. It extends from Herring Bay to Settler's Cove, about 3.3 miles NE of Knudson Cove, in Clover Passage.

(286) Telephone and radiotelephone communications are available with the other States and parts of Alaska.

(287) **East Clump** is a wooded point on the S shore of Tongass Narrows opposite Bar Point. **East Clump Light 7** (55°20'42"N., 131°41'18"W.), 15 feet (4.6 m) above the water, is shown from a square frame structure with a square green daymark on the E extremity of the islet.

(288) Ketchikan International Airport is on the S side of the narrows opposite Charcoal Point. A hexagon-shaped seaplane float is moored about 140 yards (128 m) N of the terminal building.

Chart 17428

(289) From East Clump NW for a distance of 2.5 miles to Lewis Reef, shoals extend 50 to 200 yards (46 to 183 m) from the S shore of Tongass Narrows, but the channel is well marked by buoys.

(290) **Lewis Reef** extends from the S shore at **Lewis Point** about one-third the distance across Tongass Narrows and is bare at half tide. **Lewis Reef Light 11** (55°22.5'N., 131°44.3'W.), 15 feet (4.6 m) above the water, is shown from a concrete pyramid with a square green daymark on the SE edge of the reef.

(291) **Peninsula Point**, about 0.4 mile N of Lewis Reef Light 11, is the outer end of a neck of land built out from the N shore. The point is hard-topped and serves as a seaplane launching ramp. A reef, marked at the N end by a buoy, extends about 200 yards (183 m) NNW from the point; a ½-fathom (0.9 m) depth is about 350 yards (320 m) SE of the point.

Measured nautical mile

(292) **A 135°–315° measured nautical mile**, about 0.8 mile NW of Lewis Reef Light 11, is along the Gravina Island shore opposite Ward Cove. In 1976, the SE marker was in poor condition.

(293) **Ward Cove**, entered about 0.7 mile N of Peninsula Point, is on the N side of Tongass Narrows about 5 miles NW of Ketchikan. The cove is about 0.3 mile wide at the entrance, wider inside, and has steep shores. Smoke from the pulpmill on the N side of the cove is prominent from the entrance; at times it extends from Peninsula Point to Rosa Reef. **Bolles Ledge,** near the head

and about 250 yards (229 m) off the E shore, is covered by a least depth of 1½ fathoms (2.7 m). A long log boom extends from the NE end of the pulpmill to the ledge. **East Island** is a wooded islet off the NW side of the entrance. At times, the N side of the entrance and the entire cove may become constricted by logs that are normally stored along both sides of the cove. Floating logs and deadheads also may be encountered in the cove and off the entrance; caution is advised. A midchannel course leads safely into the cove, and there are no known dangers other than those mentioned.

(294) **Note:** In August-September 1983, hydrographic surveys revealed general shoaling throughout Ward Cove with depths 1 to 3 fathoms (1.8 to 5.5 m) less than charted.

(295) Anchorage may be had in 15 to 20 fathoms (27 to 36 m) 0.1 mile NE of East Island. Small craft often tie up to the anchored log booms in the cove.

(296) A cannery is on the SE shore 0.7 mile from the head of the cove. The wharf has a 150-foot (45 m) face with a depth of 40 feet (12.2 m) alongside; deck height is 25 feet (7.6 m). Water and electricity for fishing vessels may be obtained. The cannery is owned and operated by Ward Cove Packing Co. Fuel and marine supplies are available in Ketchikan.

(297) The Ketchikan Pulp Company Wharf, on the NW side of the cove, has an 800-foot (244 m) face, with depths of 20 to 40 feet (6.1 to 12.2 m) alongside. The NE end of the wharf had shoaled to less than 6 feet (1.8 m) in 1983; vessels should not moor at the NE one-third of the wharf. Deck height is 24 feet (7.3 m). The wharf is used for receipt of wood chips, caustic soda, and fuel oil for plant consumption, and shipment of wood pulp and general cargo. The company is owned and operated by Louisiana-Pacific Corp., Ketchikan Division.

(298) The Ketchikan Pulp Company Cant Barge Ramp, on the NE side of the cove and 800 feet (244 m) E of the NE end of the pulp company wharf, has a 240-foot (73.2 m) face and four steel pile dolphins and a conveyor belt ramp with a usable berthing length of 390 feet (119 m). The wharf has a 20-foot (6.1 m) depth alongside. The company is owned and operated by Louisiana-Pacific Corp., Ketchikan Division. Barges are loaded by carts.

(299) A car float, used to load and unload railroad cars from barges is immediately SW of the pulp company wharf. The float has a 100-foot (30.5 m) face with 300 feet (91 m) total berthing space; depth alongside, 20 feet (6.1 m). The float and wharf are connected by three sets of railroad tracks. Waterborne commerce with Prince Rupert is carried on.

(300) **Ward Cove** is an unincorporated settlement on the highway near the NW corner of Ward Cove.

(301) W of Ward Cove and near the N side of Tongass Narrows is a group of small islands, partially wooded, and rocks awash which are mostly surrounded by ledges. These small islands protect **Refuge Cove** from any swells that might be running in Tongass Narrows. The S side of the cove is clear. **Refuge Cove**, an unincorporated settlement, is at the head of the cove. A marina in the cove has floats with a total berthing capacity of 3,500 feet (1067 m) in length, and a reported depth of 40 feet (12.2 m) alongside. The entrance to the cove is marked by a light and daybeacons. Water, electricity, gasoline, some marine supplies, storage, and a launching ramp are available. A 9-ton forklift that can handle craft up to 30 feet (9.1 m) is available. Some hull and engine repairs can be made. Several private small-craft floats are at the head of the cove; depths of 10 feet (3.0 m) are reported alongside. Water is available on the floats.

(302) **Channel Island**, about midchannel in Tongass Narrows and W of the entrance to Ward Cove, is wooded, and has a good passage on either side, but that on the S side is generally used. A ledge extends 75 yards (69 m) NE from the island. **Channel Island Light 14** (55°23'06"N., 131°45'54"W.), 24 feet (7.3 m) above the water, is shown from a skeleton tower on a concrete base with a triangular red daymark at the W end of the island.

(303) **Ohio Rock,** with 3½ fathoms over it and marked by a lighted buoy, is 0.3 mile NW of Channel Island.

(304) **Mud Bay**, on the N side of the narrows about 1.5 miles NW of Ward Cove, is shallow, with bare flats that extend 100 yards (91 m) or more offshore.

(305) Several totem poles and a replica of an old Indian meetinghouse are on the E point of **Totem Bigh**t, the first bight NW of Mud Bay.

(306) **Rosa Reef** makes off about 0.2 mile from Rock Point on the S shore 1.8 miles NW of Channel Island, and is covered at highest tides. **Rosa Reef Light 15** (55°24.8'N.,131°48.2'W.), 24 feet (7.3 m) above the water is shown from a caisson with a square green daymark at the E end of the reef. The bight S of Rosa Reef forms an indifferent anchorage, but is seldom used. The W part of the bight is shoal for over 0.2 mile offshore.

(307) **Pond Reef** is about 0.2 mile from the N shore near the W end of Tongass Narrows. It is bare at half tide and usually surrounded by kelp during the summer, and is marked by a light on the SW side.

(308) **Vallenar Point**, the NW extremity of Gravina Island, is low and wooded, and rises in a long easy slope to the high land of the island. A rocky patch, marked by a buoy, is 700 yards (640 m) NE of the point. Close NW of the point are two wooded islets, and W of them are rocks awash at highest tides; there is no safe passage inside these rocks. The northernmost rock, **Vallenar Rock**, marked by a light, has deep water close to NW.

Small boats with local knowledge often use the passage between Vallenar Point and the small islands close-to. It has a least found depth of 1 fathom (1.8 m) in the middle of the passage. It is necessary to pass between the two shoals NE of Vallenar Point, which can usually be identified by being awash or by the surrounding kelp.

(309) **Guard Islands**, two in number, wooded, and close together, about 1.5 miles NW of Vallenar Point, guard the W entrance to Tongass Narrows. **Guard Islands Light** (55°26.8'N., 131°52.9'W.), 74 feet (23 m) above the water, is shown from a white square tower on a rectangular building on the N island of the group.

(310) About 0.3 mile SE of Guard Islands is a large kelp patch marking a reef covered 4 feet (1.2 m). Passage can be made on either side of the reef, but I**nside Passage**, between the reef and Vallenar Rock and 0.6 mile wide, is preferred. An 8¾-fathom patch is near the middle of Inside Passage about 0.7 mile SE from Guard Islands Light.

(311) **Point Higgins**, low and wooded, is on the N shore opposite Vallenar Point. The radio towers of the Coast Guard radio station on the hills back of Point Higgins are useful landmarks, but they are not very prominent.

Charts 17434, 17424, 17422, 17420, 17423

(312) **Behm Canal** borders the E, N, and W sides of Revillagigedo Island; its E entrance, between **Point Sykes** and **Point Alava**, is about 5.7 miles NNE of Mary Island Light. The W entrance of the canal between Point Higgins and Caamano Point is about 2 miles N of Guard Islands Light; the distance from the E entrance to the W entrance through Revillagigedo Channel and Tongass Narrows is about 30 miles; the length of the canal from entrance to entrance is about 100 miles. The main channel of the canal is exceptionally free from dangers, with no submerged rocks or ledges that cannot be easily avoided by a stranger in clear weather. It was reported that in the winter there are strong N blows and that small boats often ice up in Behm Canal.

(313) Naval **restricted** areas are in Behm Canal along the W side of Revillagigedo Island. (See **334.1275**, chapter 2, for limits and regulations.)

Currents

(314) The flood current enters Behm Canal at each end and meets somewhere in the vicinity of Burroughs Bay. In general the currents are not very strong, ordinarily from 1 to 1.4 knots. Tide rips generally occur on the ebb at the mouths of the various tributaries. During the ebb a strong W set is noticed in Behm Canal at the entrance to Naha Bay. (See the Tidal Current Tables for daily predictions in Behm Canal.) In the early summer, milky colored water extends from Burroughs Bay to the W end of Gedney Island and up into Yes Bay. This is the result of the glacial silt carried down by the rivers emptying into Burroughs Bay.

(315) The cove E of **Roe Point**, on the E shore, is a fair anchorage for small craft in 5 to 10 fathoms (9.1 to 18.3 m), soft bottom.

Chart 17434

(316) **Alava Bay**, on the W shore of Behm Canal, about 2.8 miles NE of **Point Alava** (55°11.6'N., 131°11.1'W.), is partly open to S weather. Depths in the main part of the W bight are 16 to 28 fathoms (29.2 to 51 m), but fair shelter for small vessels can be found close inshore in 6 to 10 fathoms (11.0 to 18.3 m), soft bottom. Some swell but very little wind comes into the head of this arm. A privately maintained mooring buoy is in the W bight. The entrance to the W bight is constricted by a 1½-fathom (2.7 m) shoal in midchannel. The shoal is marked by thick kelp in the summer. The E bight is clear, but too deep to afford anchorage.

(317) **Narrow Pass** is W of **Rudyerd Island**, on the W side of Behm Canal 8 miles above Point Alava. The NE and SW shores of Rudyerd Island are very foul and should be given a wide berth. Small craft can find some shelter from SE blows in the two narrow bights at the N end of the island. Such craft have tied to the steep W shore of the W bight. The head of the W bight is shallow and rocky; in 1957 an anchored 50-foot (15.2 m) cruiser grounded on a falling tide 100 yards (91 m) from the S shore.

Chart 17424

(318) **Smeaton Bay** enters Behm Canal from E 10 miles above Point Sykes (chart 17434) and E of the S end of Smeaton Island. On the S side of the entrance to the bay, between **Carp Island** and **Short Point**, a vessel can lie in summer in 19 fathoms (35 m), hard bottom, protected from the summer winds. Small vessels may find shelter close to Short Point in 5 to 10 fathoms (9.1 to 18.3 m). Numerous shoals and rocks are close to Carp Island; foul ground extends about 0.3 mile from the NW side of the island. Another deep-draft anchorage may be found on the S side of the bay near the entrance to a small inlet 0.6 mile E of Short Point in 20 to 30 fathoms (36 to 55 m), hard bottom.

(319) Seven miles from the entrance, the bay divides into **Wilson Armand Bakewell Arm**. A mining camp is on the S shore of Wilson Arm about 3.5 miles from the

entrance. A floating pier is at the camp, and a private mooring buoy is NE of the camp.

(320) **Princess Bay**, to the W of Smeaton Island, is open and exposed to the S. Deep water extends close to the shores, and depths in the bay are too great for anchorage. **Short Pass**, between the N end of Smeaton Island and **Wasp Point**, has a depth of 11 fathoms (28 m).

(321) A private mooring buoy is about 0.8 mile NNW of Wasp Point. Small craft can find anchorage in the small bight in the W shore about 1 mile N of **Sharp Point** (55°20.7'N., 131°01.4'W.) in 15 to 20 fathoms (27 to 36 m), hard bottom. This anchorage affords good protection from S and SE winds. Anchorage for small craft can be had in the bight to W of Sharp Point, depths ranging from 5 to 20 fathoms (9.1 to 36 m), hard bottom. In entering favor the W shore. Very small craft can find a land-locked anchorage in the bight on the W shore, about 1.5 miles SW of Sharp Point in 2 fathoms (3.6 m), soft bottom. This bight and the entrance are foul. Enter only on a rising tide with local knowledge, and use extreme caution.

(322) **Wasp Cove** is on the W shore of Behm Canal, about 3 miles N of Smeaton Island. It affords anchorage for small craft in 5 to 7 fathoms (9.1 to 13 m), soft bottom, free from obstructions.

(323) **Shoalwater Pass** is a narrow body of water that separates **Winstanley Island** from the mainland. The pass is divided into two separate anchorages, the N one being the better of the two, with depths of 5 to 33 fathoms (9.1 to 60 m), mud bottom. The S anchorage has depths of 12 to 27 fathoms (22 to 49 m), mud bottom. Small craft can pass through the narrows between the anchorages at high water. **Candle Island** is on the W side of the S entrance to the pass. A submerged rock with 3 feet (0.9 m) over it is near the middle of the S entrance about 0.9 mile N of Candle Island. The bar at the N entrance has a depth of 9 feet (2.7 m) and should not be crossed at low water except by small craft. A privately maintained mooring buoy is about 0.3 mile SW of the bar at the N entrance to the N anchorage.

(324) **Entrance Island**, which is fairly bold, may be passed on either hand in approaching the N entrance to Shoalwater Pass. Pass in midchannel between the highwater islet at the N end of Winstanley Island and **Slag Point**; then favor the mainland shore and proceed with caution until up with the wooded island on the Winstanley side of the channel. Leave this island to the W and select an anchorage S of it.

(325) **Checats Cove**, on the E side of Behm Canal, is entered about 1.7 miles NNE of Winstanley Island between **Edith Point** on the N and **Checats Point** on the S. The cove affords anchorage for small vessels, protected from S winds, in about 8 to 10 fathoms (14.6 to 18.3), mud bottom, about 100 to 200 yards (91 to 183 m) N of Checats Point. Strangers should select an anchorage at low water, as the flats extend for some distance and are then plainly visible.

(326) **New Eddystone Rock** (55°30.2'N., 130°56.2'W.), 20 miles above Point Sykes, is a remarkable shaft of rock, 230 feet (70 m) high, rising from a sand shoal in the middle of the canal, with deep water surrounding it. It may be passed on either hand, keeping it at a distance of 0.5 mile to avoid the sand shoal. At the E extremity of the shoal is a small pinnacle rock that uncovers about 4 feet (1.2 m).

(327) **New Eddystone Islands** are a group of islets and rocks, some of which cover; they extend for about 1.2 miles offshore NE of New Eddystone Rock. Small craft with local knowledge pass among these islands, but strangers should keep to W of them.

(328) **Ella Creek**, W of New Eddystone Rock, empties into the small bight behind **Ella Point** on the W shore of Behm Canal. A mooring buoy is about 0.15 mile NW of Ella Point.

(329) **Rudyerd Bay**, about 11 miles long, enters Behm Canal from E between **Point Eva** and **Point Louise**, about 23 miles above Point Sykes and 3.5 miles NE of New Eddystone Rock. The bay and approaches are free from outlying dangers.

(330) Two arms enter the bay from S; the lower, named **Punchbowl Cove** because of its precipitous sides, is 2.2 miles, and the upper arm about 7 miles, from the entrance. Temporary anchorage may be found close to the S shore near the head of Punchbowl Cove in 25 fathoms (46 m). A privately maintained mooring buoy is on the S side of the cove, about 0.3 mile from the head.

(331) An anchorage in 20 fathoms (36 m), hard bottom, is near the head of the upper arm and opposite a prominent landslide. Small craft can find temporary anchorage near the edge of the flats at the head of the bay and the head of the upper arm. Temporary anchorage may be had about 0.5 mile E of Point Louise and about 400 yards (366 m) N of a small, but prominent landslide, in 18 to 20 fathoms (33 to 36 m), hard bottom. The bottom is very irregular.

(332) **Sargent Bay**, on the W shore of Behm Canal opposite Rudyerd Bay, is open and exposed to S. Depths throughout the bay are too great for anchorage. **Cactus Point** is the NE point and **Tramp Point**, the S point at the entrance. A small-boat passage is on the W side of the group of islands N of Tramp Point. The passage is clear, but favor the islands to clear the foul ground along the W shore.

(333) The channel on the W side of **Manzanita Island** (55°34.7'N., 130°55.9'W.) is clear, with a controlling depth of only 6 feet (1.8 m). This channel is used to a large extent by small fishing vessels. Midchannel courses are good.

Ver. 1.0 This information is not certified for navigation purposes. For test purposes only.

(334) **Manzanita Bay**, on the W side of Behm Canal, W of **Wart Point** (55°35.3'N., 130°56.5'W.), affords good anchorage in 20 fathoms (36 m), soft bottom. The head of the bay is filled with a flat that bares, and several rocks that bare are along the edge of the flat. The anchorage is in the SE bight of the bay. In entering, favor the E shore to avoid the rocks and flat previously mentioned. The Forest Service maintains a float in the small bight on the W side of Wart Point. Depths at the outer end of the float are reported to be 8 fathoms (14.6 m). The Forest Service also maintains a mooring dolphin off the mouth of **Grace Creek**, 4.7 miles N of Wart Point.

(335) **Snip Islands** are off the W shore of Behm Canal, 1.3 miles N of Grace Creek. Good anchorage for small craft can be had in the passage W of the islands in about 15 fathoms (27 m), sandy bottom. The entrance is from N. The S entrance is obstructed by a bar that bares.

(336) **Walker Cove** enters Behm Canal from E about 10 miles above Rudyerd Bay entrance and abreast Snip Islands. The cove has great depths throughout except at the entrance. The shores of Walker Cove are very abrupt and in some places almost perpendicular. A summer anchorage can be made in midchannel on the inside of the bar at the entrance between **Hut Point** and **Ledge Point** in 10 to 20 fathoms (18.3 to 36 m). The bar has depths of 4 to 10 fathoms (7.3 to 18.3 m). Rocks and ledges off the entrance points are the only dangers in the cove. Foul grounds extend about 0.25 mile WNW of Ledge Point and about 0.2 mile SW of Hut Point; caution is advised in the narrow entrance channel. U.S. Forest Service mooring buoy is near the head of a bight on the S side of the cove about 5 miles ENE of the entrance.

(337) **Channel Islands** are two wooded islands about 0.6 mile off the E shore of Behm Canal, about midway between Walker Cove and Chickamin River. The islands may be passed on either side, but care should be taken to avoid the reef, awash at high water, that extends about 0.2 miles SE of the islands.

(338) **Chickamin River** enters Behm Canal from E, between **Fish Point** and **Trap Point**, about 5 miles above the entrance to Walker Cove. Large flats occupy almost the whole of the bay at the mouth of the river and extend almost to the two points at the entrance from Behm Canal. Small craft can find temporary anchorage near the edge of the flat.

(339) **Portage Cove** on the W side of the canal opposite the entrance to Chickamin River bares. Depths of 3 to 8 fathoms (5.5 to 14.6 m) can be found at the entrance, but these drop off quickly to deep water.

(340) **Saks Cove** on the NE shore of Behm Canal 10 miles above the mouth of Chickamin River, affords anchorage near the N end. There are no dangers, except the small flat at the NE corner of the cove and a reef that uncovers 4 feet (1.2 m) about 75 yards (69 m) SE of **Fire Point**, the W point at the entrance.

(341) **Fitzgibbon Cove** is on the NE shores of Behm Canal, about 2.6 miles N of Saks Cove and about 1.5 miles SE of the entrance to Burroughs Bay. The entrance between **Dew Point** and **Hose Point** is clear. **Center Islets**, wooded, are near midchannel, 0.4 mile inside the entrance. **Gibbs Rock**, bare and 15 feet (4.6 m) high, is on the E side of the cove, 0.3 mile above Center Islets. A submerged rock with 6 feet (1.8 m) over it is 110 yards (101 m) 300° from Gibbs Rock. The cove affords good anchorage about 0.2 mile above Gibbs Rock in 11 to 13 fathoms (20 to 24 m), mud bottom.

(342) **Burroughs Bay**, clear, enters Behm Canal from the NE. **Unuk River** enters the head of the bay from N and **Klahini River** from NE; Unuk River is said to be navigable a considerable distance for skiffs. The head of the bay and the mouths of both rivers are filled with flats. There is no secure anchorage. Temporary anchorage for moderate-sized craft can be selected on the E side just S of the flat of the Klahini River in about 30 fathoms (55 m). Small craft can anchor near the edges of the flats. The depths at the head of the bay are gradually shoaling. The U.S. Forest Service maintains a mooring buoy here.

Chart 17422

(343) **Anchor Pass** is a narrow strait about 6 miles W of the entrance to Burroughs Bay, which separates the NE end of Bell Island from the mainland. Protected anchorage can be found about 0.4 mile inside the S entrance in 30 to 32 fathoms (55 to 58 m) of water, mud bottom. The pass has good anchorage for small craft in the small cove just S of the restricted N entrance in 3 to 5 fathoms (5.5 to 9.1 m), soft bottom. The N entrance to Anchor Pass is shallow and rocky. The least depth of the shoalest reef, in the middle of the pass at its N end, is 1½ feet (.5 m). A privately maintained mooring buoy is on the E side of the pass about 0.8 mile NNW of **Point Lees**, the E point at the entrance to Anchor Pass.

(344) The estimated tidal current has a velocity of 2 to 3 knots at the N end of the pass and flows N from about 2 hours after low water until 2 hours before the next low water. From 2 hours before to 2 hours after low water the current flows S with a velocity of about 1 knot.

(345) **Behm Narrows** separates **Bell Island** from Revillagigedo Island. The shores of the narrows are generally steep and heavily wooded. **Snipe Point Light** (55°55.5'N., 131°36.9'W.), 18 feet (5.5 m) above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on the SW end of Bell Island; it marks the W entrance to Behm Narrows and the S

entrance to Bell Arm. Anchorage can be had in the bight on the N side of the narrows about 1.6 miles E of Snipe Point Light and about 0.5 mile S of Bell Island Hot Springs. The bight affords anchorage in about 14 fathoms (26 m), mud bottom. Care should be taken to avoid the rocks and ledge on the N side of this bight. In 1978, it was reported that foul ground with rocks was in the vicinity of the S point of the bight.

(346) **Bell Island Hot Springs** is a private seasonal fishing and health resort at the head of the cove at the SW end of Bell Island about 1.5 miles E of Snipe Point Light.

(347) **Bell Arm**, which separates the NW shore of Bell Island from the mainland, extends NE from Behm Canal and at its head is joined by Anchor Pass; it has good anchorage in the expansion at its head in 16 fathoms (29.0 m), soft bottom. Snipe Point Light on **Snipe Point**, marks the S entrance to Bell Arm. **Short Bay** and **Bailey Bay** are two small, narrow bays entering the NW side of Bell Arm. Short Bay, the E one, has good anchorage in 17 to 20 fathoms (31 to 36 m); a flat extends about 300 yards (274 m) from its head. A private mooring buoy is near the flat. In April 1984, the buoy was reported to be submerged at high water. A red float was attached to the buoy to mark its position; caution is advised. Inland from Bailey Bay is an area of hot springs. A mooring buoy is on the W side of Bailey Bay about 1 mile from the head.

(348) **Hassler Pass** and **Gedney Pass**, on the E side of Behm Canal and S of Snipe Point Light, separate Hassler Island from Revillagigedo Island; the passes are broad and clear. At the head of Gedney Pass is **Shrimp Bay**, and at the head of the latter in **Klu Bay** is a good anchorage in 16 fathoms (29.0 m), soft bottom, suitable for vessels of moderate size. A private mooring buoy is on the W side of Klu Bay.

(349) **Dress Point** is a broad point on the E side of the S entrance to Hassler Pass. A snug anchorage for small craft in depths of 5 to 17 fathoms (9.1 to 31 m) is in the cove, 1.5 miles N of Dress Point on the E side of Hassler Pass.

(350) **Blind Pass**, between **Black Island** and the NW side of **Hassler Island**, is useless except as a small-craft anchorage in the basin at the SW end of the pass. Because of rocks in this entrance, local knowledge is necessary in entering the basin. The pass is closed by a sandbar just NE of the basin. The bar uncovers 3 feet (0.9 m) and is studded with small boulders up to a foot in diameter. NE of the bar the water is deep, ranging from 10 to 50 fathoms (18 to 91 m) except for a 3½-fathom (6.4 m) spot near midchannel in the NE part of the pass. A privately maintained mooring buoy is in a small bight on the S side about 0.9 mile NE of the bar.

(351) **Convenient Cove**, in the SW end of Hassler Island between it and Gedney Island, is too deep for anchorage. The narrow passage ESE of the cove leading to Gedney Pass is clear except for some rocks on the N shore and a ledge that extends in a N direction from the easternmost islet.

(352) **Yes Bay** enters Behm Canal from the NW between **Bluff Point** and **Syble Point**. **Bluff Point Light** (55°53.0'N., 131°44.8'W.), 12 feet (3.7 m) above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on Bluff Point on the SW side of the entrance to the bay. The entrance is free from dangers.

(353) A fishing resort is on the N point of a narrow passage leading to the first basin, about 2.6 miles above the entrance of Yes Bay. Caution must be exercised in navigating the E end of this passage, particularly in the vicinity of a wharf which stood 300 yards (274 m) E of the resort. No visible signs remain of the wharf. A 65-foot (19 m) float landing at the fishing resort had, in 1976, a reported depth alongside of 12 feet (3.7 m). Water and gasoline are available. The resort maintains radiotelephone communication with Ketchikan. Charter seaplane service with Ketchikan is also available. Anchorage can be had about 0.3 mile SE of the resort in 22 fathoms (40 m), mud bottom. A beached barge, covered at high water, is in the small cove in 55°54'55"N., 131°47'10"W., about 0.3 mile E of the resort.

(354) The narrow passage, close SSW of the fishing resort, leads to the first basin where good anchorage can be had in 15 to 32 fathoms (27.5 to 59 m), mud bottom. A good small-boat anchorage in 8 fathoms (14.6 m) is near the SE end of the first basin. At the head of the first basin is a group of islands, E of which is a channel leading to the inner basin, where good anchorage can be had in 11 to 12 fathoms (20.1 to 22.0 m), mud bottom.

(355) Care is required in navigating Yes Bay, and strangers should do so at low water. Enter in midchannel and then favor the N shore. In entering the first basin, pass about 35 to 40 yards (32 to 37 m) SSW of the resort site and keep the N shore close aboard until the basin opens up. If going to the inner basin, keep about 100 yards (91 m) off the N shore until up to the group of islands that separate the two basins. Here the channel narrows to about 75 yards (69 m) because of a submerged rock with 3 feet (0.9 m) over it, and a rock awash at low water, both of which are on the W side of the channel. In passing through this channel, keep the NE shore aboard about 30 yards (27 m). The inner basin is clear.

(356) **Spacious Bay**, WSW of Bluff Point Light, is a broad bay in the W shore of Behm Canal about 22 miles above **Caamano Point** (55°30.0'N., 131°58.2'W.). **Square Island** is in the entrance near the S shore; the channel S of the island is not recommended. Near its head the

bottom is irregular and there is a considerable area of tidal flats with off-lying reefs and submerged rocks. Good anchorage can be selected in the lee of Square Island, sand and mud bottom. A dangerous submerged rock has been reported about 0.4 mile NW of the island. The bights in the N shore of the bay are not recommended for anchorage.

(357) **Snail Point**, on the W side of Behm Canal about 3.8 miles S of Bluff Point Light, is readily identified by the distinct knoll, about 0.5 mile S of the point. On the W side of the point is a bight 0.5 mile long that affords good anchorage for small craft. A submerged rock with ¾ fathom (1.37 m) over it is in the middle of the bay, and small craft should favor the E shore until clear of this rock and proceed to the head of the bay for anchorage.

(358) **Neets Bay** indents the E shore of Behm Canal about 19 miles above Caamano Point. The bay has no good anchorage. Small craft, however, can find fair shelter in the last cove (locally called Fire Cove) toward the head of the S side of the bay. Pass E of the small wooded islet and anchor E or S of it in 3 to 5 fathoms (5.5 to 9.1 m), sand bottom. In 1976, a logging camp was in operation in the cove. A log storage area is 1 mile W of the camp. Floats for small craft and seaplanes extend SW from the small wooded islet. Water and fuel are available only in an emergency. Radiotelephone communications with Ketchikan are maintained. The bottom in Neets Bay is very irregular and there are several dangers, one of which is a submerged rock with ¼ fathom (0.5 m) over it, 300 yards (274 m) SW from the W end of **Bug Island**, which is in the middle of the entrance to the bay. Enter Neets Bay either N or S of Bug Island but S of **Clam Island**, which is about 1.4 miles E of Bug Island. A shoal extends from Clam Island almost to the N shore of the bay.

(359) **Bushy Point**, a prominent projection on the E side of Behm Canal about 2 miles S of Neets Bay, is readily recognized from N and S by a series of dome-shaped hills immediately inshore from the point. **Bushy Point Light** (55°43.9'N., 131°43.9'W.), 18 feet (5.5 m) above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on the W side of the point.

(360) **Bushy Point Cove**, a small bay inside of Bushy Point, is too deep for anchorage except for small craft that anchor close to the beach at the head of the bay.

(361) **Heckman Point**, on the W shore of Behm Canal opposite Bushy Point, is prominent and readily identified by some reddish brown rocks. On the W side of the point is a small bight that is used as a temporary anchorage for small craft.

(362) **Traitors Cove**, entered about 2.5 miles SSE of Bushy Point Light, indents the E shore of Behm Canal about 15 miles above Caamano Point. An island is in the middle of the entrance. Ledges extend N and S from this island, and the center of the channels on both sides are clear. About 300 yards (274 m) W from the N point at the entrance is a reef that uncovers 6 feet (1.8 m). It presents a real danger to craft leaving or entering the cove by the N entrance.

(363) The cove should be avoided by strangers as the strong tidal currents and rocks make navigation dangerous. The upper part of the cove can be entered only by small craft at slack water, which is very short in duration; on the flood small craft should keep away from the narrow entrance to the upper cove as there is danger of being swept through by the force of the current. There is very little time of slack water on spring tides; the current changes direction very suddenly. **Marguerite Bay**, the bight on the S shore of Traitors Cove about 2 miles above the entrance, affords the only anchorage in the cove. Rocks are on both sides of the bight near its entrance, and a depth of 10 feet (3.0 m) is found in midchannel at the entrance.

(364) **Port Stewart** is an indentation in the W side of Behm Canal, 12.5 miles N of Caamano Point. Its S entrance is marked by a light just S of **Point Francis**, a prominent wooded point. The N entrance point is not well defined, being low, flat country for 1 mile from the beach. Four wooded islets are across the mouth of the bay. A clear channel is between the easternmost and southernmost islets, but there are some off-lying rocks to avoid. The best entrance is N of the two islets. The passage between the southernmost wooded islet and the main shore is narrow, but clear, with a least depth of 5 fathoms (9.1 m).

(365) Anchorage can be had in 16 fathoms (29.0 m), rock and mud bottom, 350 yards (320 m) 315° from the NW point of the westernmost wooded islet. Small craft with local knowledge can find sheltered anchorage in 5 to 6½ fathoms (9.1 to 11.9 m), mud bottom, in the land-locked bight in the N shore of Port Stewart, about 3.5 miles above Point Francis. A log storage area is on the flats at the head of Port Stewart.

(366) The small bight on the E shore of Behm Canal, about 0.5 mile N of **Escape Point** opposite Point Francis, is too deep for anchorage, although in good weather small craft anchor in the S end of this bight near Escape Point.

(367) **Raymond Cove** and **Wadding Cove**, opposite Naha Bay, are indentations in the W shore of Behm Canal about 3 and 3.9 miles, respectively, SW of Point Francis. They are useless as anchorages, and at low water there are extensive tidal flats of sand and gravel with some boulders.

(368) **Mike Point** is a low, rocky point separating Wadding and Raymond Coves. The point is foul and

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should be given a good berth. The beach here is strewn with bleached logs and other drift, and this is also true, to a lesser extent, of all the shore N to Point Francis.

(369) **Helm Bay** indents the W shore of Behm Canal about 5.5 miles above Caamano Point. The N entrance point is marked by **Trunk Island**, off **Helm Point**, a small, prominent, slightly wooded island. The S entrance point is marked by **Helm Bay Light** (55°34.8'N., 131°55.7'W.), 14 feet (4.3 m) above the water, shown from a skeleton tower with a red and white diamond-shaped daymark on the outermost islet on the SW side of the entrance.

(370) Behind **Forss Island**, on the W shore, 3.3 miles in from the light, is a small cove at the head of which is a privately maintained float with depths of 20 feet (6.1 m) reported alongside in 1976. Enter the cove from the N passing between two charted off-lying rocks.

(371) There are some dangers, but midchannel courses carry safely to the head of the bay. The channel leads between **Thomas Island** on the N and two wooded islands joined by a reef to S. Pass in midchannel N of Forss Island and another wooded island beyond, above which the bay is comparatively clear. There is about 0.5 mile of tidal flats at the head of the bay which drops suddenly into deep water.

(372) Anchorage is available in midchannel in 16 fathoms (29.0 m), mud bottom, about 1.2 miles above Forss Island, and in 21 fathoms (38 m), gravel and mud bottom, about 2 miles above the island. The latter is the better anchorage.

(373) **Smugglers Cove**, W of Helm Bay Light, is on the W side of Behm Canal, about 5 miles N of Caamano Point. It is a fair anchorage for small craft, although local knowledge is necessary to clear the dangers. Extensive tide flats are at the head of the cove.

Charts 17423, 17422

(374) **Indian Point** marks the N entrance to Naha Bay. The country N of the point is heavily wooded. The shore is rocky and generally steep-to.

(375) **Naha Bay**, on the E side of Behm Canal about 11.5 miles NE of Caamano Point, is a popular sports fishing and hunting area. The bay and its approaches are clear. **Loring** is a village on the N side near the head of the bay. **Cache Island**, round and wooded, is near the middle of Naha Bay and has deep water on all sides with the exception of a 9-fathom (16.4 m) spot about 0.3 mile W of the island.

(376) The usual anchorage is just below the ruins of an old wharf about 300 yards (274 m) from the shore of the village, in 19 fathoms (35 m), mud bottom. The shore in front of the village should not be approached closer than 100 yards (91 m). Small craft can find anchorage in the small bay N of **Dogfish Island** where shelter is had from any SW squalls which occasionally strike with considerable force. The bight E of the village is practically dry at low water. A State-maintained L-shaped small-craft float and a seaplane float joining it at the SE end are at the head of the cove W of the wharf in ruins. In 1976, depths of 12 feet (3.7 m) were reported alongside both floats.

(377) **Roosevelt Lagoon** is a body of brackish water that is connected to Naha Bay through a tiderace only at extreme high water. The passage is dangerous and should not be used without local knowledge. Small barges at one time made this passage.

(378) **Moser Bay**, an indentation in Revillagigedo Island, is separated from Naha Bay by **Cedar Island**, **Moser Island**, and **Stack Island**. Good anchorage for small craft is found in 7 fathoms (12.8 m) in the small bight in the NW part of the bay; for larger craft in 20 fathoms (36 m) at the head of the bay. Two private homes with floats are on the E side of the bay. At the head of the bay is a tidal flat about 0.5 mile long. A reef makes off SE from **Cod Point**, the N point at the entrance to **Long Arm**.

(379) **Grant Island**, on the E side of Behm Canal, is about 1.5 miles SSW of Naha Bay and about 8 miles NE of Guard Island Light. The island is heavily wooded. **Grant Island Light** (55°33.3'N., 131°43.7'W.), 18 feet (5.5 m) above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on the W side of the island.

Chart 17422

(380) **Clover Passage**, a deep passage on the W side of Revillagigedo Island, is frequently used by vessels proceeding between Tongass Narrows and Naha and Moser Bays. It has several entrances from the N in deep narrow channels between Cedar and Moser Islands, Stack and Grant Islands, and a deep, wider entrance between Back and Grant Islands.

(381) **Back Island**, low and heavily wooded, is about 1.2 miles W of the S end of Grant Island. A reef extends about 0.2 mile off the NW end of the island, and broken ground extends 0.3 mile E of the island. The channel between Back Island and Betton Island to the SW is foul with reefs of submerged rocks and rocks awash.

(382) **Hump Island** is close off the E side of Betton Island about 0.4 mile S of Back Island. A daybeacon is on the SE end of the island.

(383) **Betton Island** is on the E side of the W entrance to Behm Canal. **Betton Head**, on the W side of the island, is a prominent feature of the locality.

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(384) **Joe Island**, close SE of the S extremity of Grant Island, is in midchannel near the N entrance with deep channels on each side.

(385) **Pup Island** is off the S extremity of Betton Island at the SW entrance to Clover Passage. A narrow channel less than 100 yards (91 m) wide with a depth of 5 fathoms (9.1 m) is between the two islands.

(386) **Clover Island** is in midchannel in the SW entrance to Clover Passage. Deep channels are on each side of the island. **Clover Passage Entrance Light** (55°28.7'N., 131°48.8'W.), 20 feet (6.1 m) above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on an islet about 0.4 mile SW of Clover Island. A ledge with rocks awash extends about 0.2 mile NE of the light.

(387) **Knudson Cove** is a small bight on the SE side of Clover Passage, about 0.6 mile ESE of Clover Passage Entrance Light. Small craft use it as an anchorage. A depth of 4 fathoms (7.3 m) is at the entrance. In 1970, the 4-fathom (7.3 m) area was reported to provide good anchorage in SE winds up to 35 knots. A daybeacon marks the W side of the entrance to the cove. Another daybeacon near the head of the cove marks a rock awash at half tide. A floating breakwater, marked on the NW end by a private daybeacon, is in the cove. **Clover Pass** is an unincorported settlement on Knudson Cove.

(388) The city of Ketchikan maintains small-craft floats with about 615 feet (187 m) of mooring space, on the E side of Knudson Cove near the head. In 1976, depths of 20 to 60 feet (6.1 to 18.3) were reported alongside. Local regulations limit the size of vessels using the floats to 65 feet (19.8 m) in length. Two boat launching ramps with a float in the middle are close SW of the approach pier. Private floats are 75 yards (69 m) NE and 150 yards (137 m) W of the approach pier, respectively. Clover Pass has telephone and highway communications with Ketchikan.

(389) **Survey Point** is on the SE side of the SW entrance to Clover Passage. A fishing resort is 0.7 mile NE of the point. In 1976, the reported depths alongside the floats at the resort were 3 to 5 feet (0.9 to 1.5 m). Water, gasoline, and limited marine supplies are available.

(390) **Tatoosh Islands**, W of Betton Island, are a group of islands N of which are numerous off-lying rocks known as **Tatoosh Rocks**. The southernmost island has deep water close to the W shore, and a yellow cliff 130 feet (40 m) high on this island is a good landmark. The northwesternmost rock of Tatoosh Rocks is 14 feet (4.3 m) high and has an off-lying reef that bares 10 feet (3.0 m), 140 yards (128 m) NW. The rocks are light colored and show well in clear weather. A light marks the northernmost island.

(391) The passage between the southernmost Tatoosh Island and Betton Island is clear, but the N end of the passage is rocky, and local knowledge is necessary to navigate this area. Small craft use these waters for anchorage, but there is some danger from williwaws.

(392) **Bond Bay** and the smaller indentations between Bond Bay and Caamano Point Light are used as temporary anchorages by the smaller fishing craft during the trolling season. These anchorages are exposed to SE and are not recommended because of the suddenness and great force with which the SE winds strike in this area.

(393) **Bittersweet Rock** (55°31.7'N., 131°55.7"W.), about 0.5 mile E of the S extremity of the point forming the N side of Bond Bay, is a dangerous submerged rock covered 2 fathoms (3.6 m). Mariners are urged to exercise extreme caution in this area because other dangers or shoals may exist.

(394) **Caamano Point Light** (55°29.9'N., 131°59.0'W.), 41 feet (12.5 m) above the water, is shown from a steel post with a red and white diamond-shaped daymark on the southernmost part of the point.

(395) **Caamano Point**, the W point at the W entrance to Behm Canal, is long and low. Its extremity is somewhat indefinite when abeam, because of the Bond Bay shore in the background and because the light is not on the actual point, but 0.5 mile W.

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