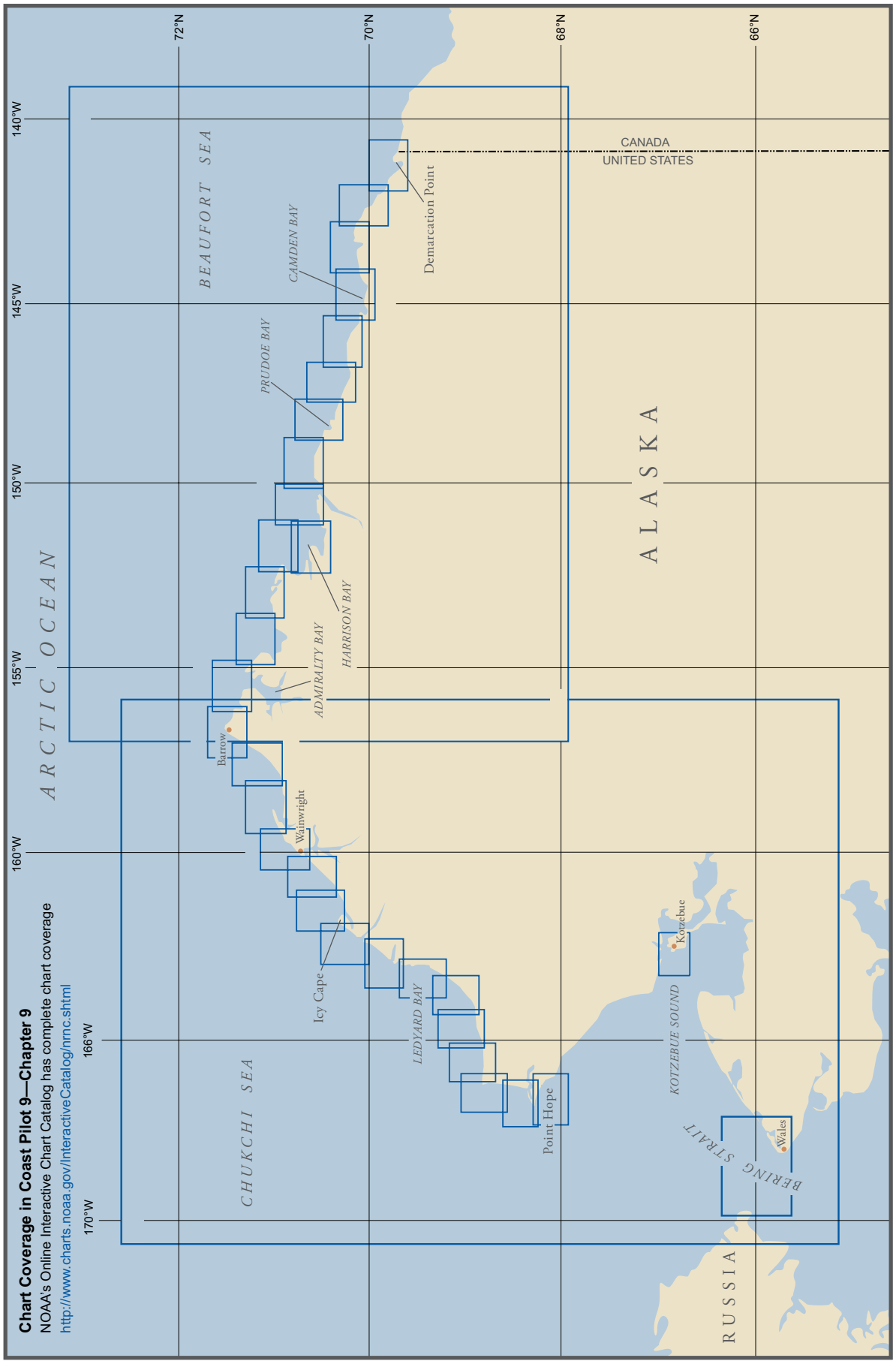
Chart Coverage in Coast Pilot 9—Chapter 9
NOAA's Online Interactive Chart Catalog has complete chart coverage
http://www.charts.noaa.gov/InteractiveCatalog/nrnc.shtml
72°N
70°N
68°N
66°N
140°W
145°W
150°W
155°W
160°W
166°W
170°W
BEAUFORT SEA
CHUKCHI SEA
ARCTIC OCEAN
ALASKA
RUSSIA
CANADA
UNITED STATES
CAMDEN BAY
PRUDOE BAY
HARRISON BAY
ADMIRALTY BAY
LEDYARD BAY
KOTZEBUE SOUND
BERING STRAIT
Demarcation Point
Barrow
Wainwright
Icy Cape
Point Hope
Kotzebue
Wales

Arctic Ocean

(1) This chapter describes the Arctic Ocean coastline of Alaska from the Bering Strait to Demarcation Point, at the boundary between the United States and Canada, and the waters of Kotzebue Sound and Prudhoe Bay. Also discussed are the Diomede Islands, Barter Island and many of the off-lying coastal islands and the more important towns and communities in this area including Wales, Kotzebue, Wainwright and Barrow.

(2)

Bering Strait to Demarcation Point

(3) **Bering Strait**, 44 miles wide between Cape Prince of Wales, Alaska, and Cape Dezhneva, Siberia, is the gateway from the Bering Sea in the Pacific Ocean to **Chukchi Sea** in the **Arctic Ocean**. The north limit of Chukchi Sea is a line from Point Barrow, Alaska, to the northernmost point of Wrangel Island, Siberia.

(4) The Arctic coast of Alaska has a general length of 921 nautical miles and is mostly low; tidal shoreline totals 2,191 miles. The lowlands have their greatest depth in the wide triangular plain with its apex near Barrow and its base against the **Brooks Range**, 150 miles to the south. The west end of Brooks Range is near Cape Lisburne and the east end is near Demarcation Point; actually it is not one but a series of ranges, some reaching elevations of more than 8,000 feet.

(5) Most of the coastal plain is low, rolling tundra cut by numerous streams and lakes. The **tundra** is a cover of grasses, lichens and shrubs which, for a short time during the summer, is brightened by flowers; during the rest of the year it presents a dreary aspect. Tundra is poorly drained and most of it is permanently frozen below the surface; this permanently frozen ground is known as **permafrost**. During the summer, the tundra thaws to a depth of a foot or more but is kept moist because water cannot penetrate the permafrost.

(6) The **frost mounds** seen occasionally along the coast are produced by frost action on the tundra and vary widely in size and duration. A large frost mound is known as a **pingo** has a fissured summit and may emit drinkable water. **Frost blisters** usually form along sloping ground and may shift in position from year to year; they seldom exceed 25 feet in height.

(7) Arctic coastal villages generally consist of small wooden homes build on stilts, unpaved roads, tank farms and a few larger public buildings such as native village community centers and schools. Fuel and supplies are brought in on barges that are beached or lightered from offshore. Whaling occurs in the arctic region year round. Landmarks are often not consistent from year to year, and occasionally entire communities are relocated a few miles due to coastal erosion.

(8) There are few harbors, port facilities or aids to navigation along the Arctic coast. Depths near shore may change as much as 6 feet because of ice gouging; storms also shift the sands in shallow water, but there is little evidence of such shifts in the deeper water. **Abnormal refraction** is a common occurrence; a pingo may loom like a mountain, and landmarks may be sighted much farther from shore than the normal limit of visibility.

(9) The area has satellite coverage which is adequate enough to obtain GPS position fixes; DGPS correctors are not broadcast in the area.

(10)

Currents

(11) Observations totaling about 6 days were made in the Bering Strait off Cape Prince of Wales during the summer of 1950. When not opposed by north winds, the current flowed north with velocities that sometimes exceeded 2.5 knots.

(12) From Bering Strait to Point Barrow the current sets north along the shore and has a velocity of not less than 1 knot when not opposed by winds or stopped by ice. A current from Kotzebue Sound joins the current from Bering Strait north of Cape Krusenstern, and the resultant velocity in July and August is 1.5 to 2 knots as far as Point Hope. The **Tigara Peninsula** deflects the current—resulting in a westerly flow—and extending at least 4 miles west of Point Hope. After rounding Point Hope the velocity decreases to about 1 knot.

(13) North of Point Lay the current is stopped if the ice has not opened up from the shore; if the ice is open to Point Barrow, the current continues along the shore but, because of the constricted space between shore and ice, increases in velocity to 2 or 3 knots at Point Barrow. The general current is affected by the winds and may be decreased or even stopped by north winds, but when such winds abate the current resumes; when the wind is with the current the velocity is increased. Well offshore, the currents are variable and not so strong; they are influenced considerably by the winds but there is a definite general set north. East of Point Barrow the currents are irregular and unpredictable but seem to be caused mostly by winds and moving ice.

(14)

Weather, Arctic Ocean

(15) During July, August and September, winds in the Bering Strait are most often out of the north or south at 13

to 15 knots. Gales blow less than one percent of the time, although winds reach 28 knots or more up to five percent of the time. This same flow is present over the open waters of the Chukchi Sea, where average wind speeds range from 14 to 18 knots and gales occur about two percent of the time. In September, north winds become more frequent in the Bering Strait and Chukchi Sea, signaling a return to winter. At Kotzebue winds out of the southwest through west are prevalent during the summer. In September, they return to the prevailing east winter flow; northeast winds are also common in winter. Gales blow two percent of the time in November, December, January and February, while winds at Kotzebue and Cape Lisburne reach 28 knots or more about three to seven percent of the time in winter.

(16) Off the North Slope in July, August and September, winds blow mainly out of the northeast through east, at average speeds of 11 to 14 knots. Gales occur less than one percent of the time in July and August but one to two percent of the time in September. Southwest through west winds are also common in summer. North through northeast winds prevail during the winter. At Barrow, northeasterlies and easterlies blow the year round at average speeds of 10 to 14 knots. Gales are infrequent and unlikely in March through August. At Barter Island, winds from the northeast through east and southwest through west make up about 75 to 85 percent of the observations. Westerlies are slightly more frequent in midwinter, while easterlies, which are frequent at all times, reach a peak in early summer. Winds from the west are strongest, averaging 17 to 18 knots during the winter, when gales blow two to four percent of the time. Winds have reached 75 knots at Barter Island. Strong winter winds often blow parallel to the coast from Barrow to Barter Island.

(17) In these north seas, advection or sea fog is the primary restriction to visibility during the warmer months of the year. It is most prevalent from June through September, affecting the exposed coasts as well as open seas. It is most dense during the morning hours. In July and August, visibilities drop below 2 miles 10 to 25 percent of the time in the Bering Strait, Chukchi Sea and off the north coast of Alaska. They fall to 0.5 mile or less 5 to 20 percent of the time and are worse off the North Slope. At Barter Island, visibilities of 0.5 mile or less occur on 11 to 16 days per month from June through September, and visibilities of 0.25 mile or less occur both here and at Barrow on about 3 to 5 mornings per month during this period. Cape Lisburne is subjected to 3 to 7 days per month when visibilities fall to 0.5 mile or below. At Kotzebue, midsummer visibilities are good, while from November through June, poor visibilities occur on 3 to 7 days per month on the average. In winter, snow and blowing snow can reduce visibilities to less than 0.5 mile. The snow that accumulates is often so dry and powdery that a 10-knot wind can pick up enough to reduce visibilities to less than 5 miles. Ice fog and steam fog or arctic smoke also reduce visibilities in winter. Radiation fog can occur on calm, clear nights.

(18) Winters are cold and summers are cool along this coast. In November, average daily maximums drop to the low teens °F (-11 to -9°C) or below, while average minimums are around 0°F (-17.8°C). February is generally the coldest month. Average maximums range from just above 0°F (>18°C) at Kotzebue to -14°F (-25.6°C) at Barter Island. Low temperatures in the -20°F (-28.9°C) range are common. Extremes of -59°F (-50.5°C) or below have been recorded. The big increase in temperature starts in March. By April, daytime highs in the 10 to 20°F (-12 to -7°C) range and nighttime lows in the -5 to 5°F (-21 to -15°C) range are common. By June, temperatures are often in the 40s (5 to 10°C) during the day and 30s (-1 to 4°C) at night. Warmest weather usually occurs in July. At Kotzebue, the average maximum is 59°F (15°C), while the average minimum is 48°F (8.9°C). Along the North Slope, these readings are 8 to 10°F (4 to 6°C) cooler. Extremes can reach the mid-70s to mid-80s (23 to 30°C).

(19) Since the air in this region holds relatively little moisture, particularly in winter, annual precipitation amounts are light, ranging from 5 to 15 inches (127 to 381 mm). The greatest amounts occur along the shores of the Chukchi Sea and Kotzebue Sound. While amounts are light, there are many snowy or rainy days. Some form of measurable precipitation falls on about 200 to 300 days each year. Snow falls in every month but is the most frequent precipitation form from October through May. About 30 to 50 inches (762 to 1,270 mm) fall each year. Heaviest amounts of precipitation are most likely in July, August and September, when 2 to 4 inches (51 to 102 mm) per month are common.

(20)

Ice

(21) Unless there is an unusually late spring, the ice begins to break in Bering Strait and Kotzebue Sound by early June. Heavy drift ice from Kotzebue Sound is often found between Cape Blossom and Point Hope in late June.

(22) At Point Hope and Cape Lisburne, the pack ice breaks off from the shore ice in May and moves off and closes in again with changing winds, gradually working off to the north and west. Young ice forms in the spaces thus left but gradually gets thinner until it disappears in June.

(23) From Cape Beaufort to Point Barrow the pack moves gradually north, clearing from point to point. A shift of the wind to west brings the pack in on shore when a few hours before it was out of sight from the land.

(24) At Point Barrow, the pack breaks off from the flaw or shore ice in the spring and moves off and on until June. When the pack moves off in June, it begins to take a northwest movement and continues to do so until it is out of sight. The movement of the pack, on and off, continues well into July, after which time heavily massed floe ice, much broken and heavily jammed together, may

be expected. Mariners are cautioned that the prevailing north currents near Point Barrow will tend to carry vessels, which are beset, farther into the ice mass. The shore ice leaves the beach late in July but remains in sight until the middle of August, or perhaps all summer. In exceptional seasons the pack remains on the point the year-round. East of Point Barrow, ice conditions are very uncertain. When the pack ice moves offshore it does not go very far, and the shore and drift ice extend well inshore from its edge. The current along the west shore of Alaska sets northeast from Point Barrow; the movements of the ice to the east of Point Barrow are due entirely to the winds.

(25) In the fall, young ice forms earlier to the east than to the west and can be seen as early as mid-August. The prevailing winds are northeast and soon bring the pack down to the east of Point Barrow. When this ice movement commences vessels proceed to the west of the point.

(26) At Point Barrow young ice begins to form around heavy ice about mid-September, and by the end of the month it forms in open water and makes rapidly along the beach. By this time the pack has moved close to shore. The young ice makes out to the pack during the first week of October, and then the ice is in for the winter. The pack shuts down on Icy Cape the first week in November, and after that time there is no open water between Point Barrow and Icy Cape except when the flaw opens.

(27) Freezeup normally begins at Kotzebue in late October, and a southbound vessel should try to clear Bering Strait by early November.

(28)

Small-boat operation in ice

(29) Launches usually can proceed through the looser-packed floe ice during calm weather, but slow speed and maneuverability are essential. Passage frequently can be made close to shore when large floes have been driven in to the beach. Large bergs may also make leads through the more solid floes. Small ice cakes can be pushed aside in the looser areas. Caution must be observed to avoid the underwater projections of the larger bergs and the growler type of berg which is low in the water and difficult to see. The bergs have a tendency to roll or break with disturbances of any sort. Native launches prefer to operate close-to and in the lee of ice floes to take advantage of the smoother seas and will sometimes leave the mainland to proceed in the lee of offshore ice.

(30) Aids to navigation are maintained only during the navigation season. (See Light List.)

(31)

Maritime Activity

(32) There have been increases in cargo vessels and oil exploration vessels transiting and operating in these waters in addition to tugs with barges and small native subsistence vessels recently due to receding ice.

(33) Automatic Identification System (AIS) receiving stations are located throughout the area to monitor vessel operations and to assess compliance with recommended safety measures. Mariners should ensure that all information broadcast via their AIS including cargo, destination and vessel type is updated and accurate.

(34)

Presence of Whales and Other Marine Mammals

(35) The Bering Strait region is a major transit area for bowhead whales and other marine mammals, with the heaviest concentrations of whales, walrus and seals present during the months of May to June and September to October in the areas of the Chukchi and Beaufort Seas. Mariners are requested to maintain a sharp lookout, reduce the speed of the vessel and maneuver to avoid striking whales and other marine mammals.

(36)

Presence of Native Subsistence Hunting and Fishing Vessels

(37) Small vessels (paddle, sail, outboard motor) are used by native subsistence hunters during the months of May to June and September to October in the waters north of the Bering Strait as far as 30 miles offshore. Mariners should maintain a sharp lookout for marine mammals and small vessels and exercise caution when operating in their vicinity. A wide closest point of approach is requested by the subsistence hunters in this area.

(38)

Cape Prince of Wales, AK to Diomede Islands

(39) **Cape Prince of Wales**, on the Alaska side of Bering Strait, is the west extremity of **Seward Peninsula**. **Cape Mountain**, 2,289 feet high, is a mile back of the steep rocky shores on the southwest side of the cape. A radar dome is atop the mountain and a parabolic antenna is 1.7 miles east-northeast of the mountain.

(40) **Tin City**, an abandoned village, is on the beach about 2 miles southeast of Cape Mountain. The bight off Tin City affords north weather anchorage in depths of 10 fathoms a mile from a sand beach that is steep enough for good landing. There is a Government airstrip and radar facility near Tin City. In July 2010, a 2-knot northwesterly current was experienced by NOAA Ship FAIRWEATHER while anchored there.

(41) **Wales**, 2.5 miles northwest of Cape Mountain, is at the south end of a low sandy beach that extends 4 miles north, then turns northeast toward Shismaref Inlet. The village has a mission, a school, a store and radiotelephone communication. Small planes carrying mail and a few passengers land on the beach in front of the village.

(42) **Cape Prince of Wales Light** (65°38'01"N., 168°07'09"W.), 20 feet above the water, is shown seasonally from a skeleton tower with a red and white diamond-shaped daymark on the beach 2 miles north of Wales.

(43) Anchorage off Wales is in depths of 10 fathoms 0.8 mile from the beach. A narrow naval **restricted area** extends nearly 4 miles due west from the beach midway between Wales and the light. (See **33 CFR 334.1330**,

chapter 2, for limits and regulations). Caution is advised to avoid being dragged north over the restricted area and on to Prince of Wales Shoal by the nontidal current that usually has a velocity of more than 1 knot.

(44)

Ice

(45) Average breakup in Bering Strait at Wales is in early June and average freezeup is about the first of December. Navigation is difficult from early December to early June and is usually suspended from late December through April.

(46) **Prince of Wales Shoal** is a narrow ridge of sand, covered 3½ to 5 fathoms, that extends about 35 miles north-northeast from the west extremity of the cape. Vessels bound south through Bering Strait should be careful not to fall too far east and be caught between the shoal and the north shore of Seward Peninsula. The shoal is unmarked because of ice conditions and the remoteness of the locality. Changing current and wind conditions offshore of the shoal often cause confused, choppy seas that may be dangerous for small craft.

(47) **Fairway Rock** (65°38'N., 168°44'W.), 15 miles west of Cape Prince of Wales, is 394 feet high, square headed, and steep sided.

(48) The **Diomede Islands**, midway between Cape Prince of Wales and the Siberian mainland, have nearly perpendicular sides and are without beaches; the tops of the islands are broken tablelands. The waters around the islands are deep, the bottom is mostly rocky but varies locally from stone to broken shell to mud, and anchorage is poor. The U.S.-Russia boundary passes between the two islands.

(49) **Little Diomede Island** (Alaska), with an elevation of 1,634 feet, is 20 miles west-northwest of Cape Prince of Wales and 8 miles north-northwest of Fairway Rock. **Diomede** (native name Inalik), the only village on the island, is midway along the west shore. A helipad is on a filled jetty west of the village. A yellow, white, and green rotating aerobeacon shows atop a cylindrical white water tank just east of the helipad when incoming or outgoing aircraft are expected. The aerobeacon is obscured between approximately 000° and 180°. Diomede has a health clinic and a native store. Very limited amounts of food and fuel are available. Mail is delivered on regular helicopter flights via Nome and Wales. A shoal extends west from the helipad toward the south end of Big Diomede Island across the U.S.-Russia boundary. Vessels approaching Little Diomede Island from the south and east may run close along the south shore, keeping in depths greater than 14 fathoms until the village is sighted, and anchor south of the shoal. Approach from east also has been made along north shore at distances decreasing from 1 mile to 0.4 mile and anchorage in depths of 17 fathoms 0.7 mile north of the spit.

(50) **Big Diomede Island** (Russia), 2.1 miles northwest of Little Diomede Island, rises to a height of 1,667 feet; close to the west shore are some bare rocks, and a light is shown from the north end. Natives report numerous uncharted shoals between the islands; passage should not be attempted by large vessels.

(51)

Cape Dezhneva, RU to Selawik National Wildlife Refuge

(52) **Cape Dezhneva**, 19 miles northwest of Big Diomede Island, is the east extremity of the mountainous peninsula at the northeast end of the Russian mainland. This peninsula, which rises to a height of 2,638 feet, resembles an island when seen from the offing because of the low, marshy land back of it. The coasts of the peninsula consist mainly of dark-colored cliffs rising in jagged terraces steeply from the sea. A light is shown from the southeast side of the cape. A radiobeacon is at the light. A submerged rock is a mile off the northeast face of the cape. Anchorage, with good protection from offshore winds, can be found in depths of 8 fathoms both north and south of the meeting place of lowlands and mountains. Anchorage is also possible in depths of 10 fathoms, muddy bottom, east of the cape.

(53) From Cape Prince of Wales to Shishmaref Inlet, 60 miles northeast, the coast is a low sand beach backed by lagoons and marshes. The mountains in the interior can be seen on a clear day; **Potato Mountain** (65°40'N., 167°35'W.), 1,406 feet, and **Ear Mountain** (65°55'N., 166°19'W.), 2,329 feet, are distinguishable.

(54) **Shishmaref Inlet** is large and extends about 15 miles into the land. Across its mouth is **Sarichef Island**, narrow and about 5 miles long. **Shishmaref Light** (66°15'32"N., 166°02'25"W.), 20 feet above the water, is shown seasonally from a skeleton tower with a red and white diamond-shaped daymark about 1.0 mile from the northeast end of the island.

(55) **Shishmaref**, 0.3 mile west of Shishmaref Light, is the most important settlement along this section of the coast. The village has a school, store, clinic and airstrip. An aerobeacon is at the airstrip. Limited supplies of gasoline, diesel fuel, food and water are available. The church steeple is the most conspicuous structure. Mail is delivered daily on flights from Nome.

(56) Anchorage can be had in depths of 3 to 5 fathoms 0.75 to 1.3 miles west-northwest of Shishmaref Light, sand bottom. Beach landings can be made only in calm weather on the seaward side of Sarichef Island because of shallow water that extends 250 yards from shore. A large stone breakwater wall extends along the seaward side of Shishmaref 0.1 mile southwest of the end of the breakwater wall is a sandy beach where barges are beached. This is also the preferred seaward landing point for small craft as well.

(57) The navigable channel into Shiskmaref Inlet rounds the southwest end of Sarichef Island with reported depths of up to 12 feet in the center of the channel year-round. However, vessels are not recommenced to transit through this channel without a native pilot. A second

channel rounds the northeast side of Sarichef Island and is not recommended for passage into Shishmaref Inlet. A dangerous bar extends out 0.5 mile from the point on the north side of this channel. Vessels drawing as much as 7 feet may be beached on the channel side of the sandy northeast end of Sarichef Island; drafts of 3 feet may be taken to within 100 yards of the inner beach southwest of Shishmaref, and native skiffs follow unmarked channels completely around the island. Local residents moor on the lagoon side of Shishmaref. Native pilots are available at Shishmaref. Although tidal variations in Shishmaref are only a few feet, Shishmaref Inlet is very susceptible to water build-up from storm winds blowing from the northwest. Storm tides in Shishmaref Inlet have been reported between 6 and 8 feet in autumn and winter gales before the freezeup.

(58)

Ice

(59) Average breakup at Shishmaref is in the latter part of June and average freezeup is about the second week of November. Navigation is difficult from the first of December until late June and usually is suspended from late December until early June.

(60) For 60 miles northeast and east from Shishmaref Inlet the coast is a line of low bluffs and small sand dunes that end in a very low spit at **Cape Espenberg**, which is difficult to make out. Native settlements are scattered along the coast from Cape Espenberg to Cape Prince of Wales.

(61) **Northwest Corner Light** (66°34'50"N., 164°24'24"W.), 75 feet above the water, is seasonally shown from a skeleton tower with a red and white diamond-shaped daymark 19 miles west of the cape. **Cape Espenberg Light** (66°33'27"N., 163°36'29"W.), 28 feet above the water, is shown seasonally from a skeleton tower with a red and white diamond-shaped daymark on the cape.

(62) **Kotzebue Sound**, at the northeast end of Seward Peninsula, is entered between Cape Espenberg and Cape Krusenstern, 33 miles to the north; depths are 6 to 9 fathoms throughout most of the sound.

(63) The 30-mile west side of Kotzebue Sound from Cape Espenberg south is relatively shallow, with depths of 3 fathoms as far as 5 miles from shore; the land on this side is mostly low but a small hill is conspicuous about halfway between the cape and the south shore.

(64) The 45-mile south shore of Kotzebue Sound proper is higher, rockier, and bolder than the west shore; inshore depths too are greater, with 4 and 5 fathoms quite close to the promontories. **Cape Deceit Light** (66°05'57"N., 162°45'02"W.), 200 feet above the water, is shown seasonally from a skeleton tower with a red and white diamond-shaped daymark on the extremity of **Cape Deceit**, which is halfway along the south shore.

(65) **Deering**, on the east side of Cape Deceit, has a school, stores and radio communication; anchorage is available in depths of 5 fathoms 1 mile east of Cape Deceit Light.

(66) **Kiwalik Lagoon**, in the southeast corner of Kotzebue Sound, is shallow and has a mud bottom. A narrow channel winds through the lagoon to **Kiwalik River**, which can be navigated only with local knowledge. Shallow-draft boats can operate in the lagoon during periods of high water, but the lagoon is almost dry when the water is lowered by adverse winds.

(67) **Kiwalik**, on the gravel spit on the west side of the lagoon entrance, has a rough landing strip that will accommodate small planes. **Candle**, about 6 miles upriver from Kiwalik, has stores, a school and a gravel airstrip.

(68) **Spafarief Bay**, also in the southeast corner of Kotzebue Sound but north of Kiwalik Lagoon, has depths of 3 to 5 fathoms.

(69) Tundra-covered **Chamisso Island**, 231 feet high and about 1 mile long, is 11 miles north across Spafarief Bay from Kiwalik Lagoon and 2.5 miles south of Choris Peninsula. The earth and rock bluffs that rim the island range in height from 15 feet at the south end to 80 feet at the northwest end. The shores are mostly broken boulders separated by short stretches of sand beach. Shallow water extends 0.3 to 0.5 mile from the north and east sides of the island. Early in the open season freshwater can be obtained on Chamisso Island.

(70) Tiny **Puffin Island**, 0.3 mile northwest of Chamisso Island, has steep rocky shores; there are two conspicuous rocks south of the island. The waters are deep on the north and west sides of Puffin Island, but the passage between the islands is foul.

(71) **Choris Peninsula**, 300 feet in elevation, is a 6-mile south projection from much larger and longer Baldwin Peninsula. The north of two hills on the small peninsula is joined to Baldwin Peninsula by a narrow neck of land about 20 feet in elevation. The outer end of Choris Peninsula is the widest part, 2 miles, of the entire feature; the bluffs are 50 to 95 feet high and there are projecting rock ledges. The passage between Choris Peninsula and Chamisso Island has depths of 3½ to 6 fathoms.

(72) **Eschscholtz Bay**, behind Choris Peninsula, Chamisso Island, and Spafarief Bay, extends 20 miles east along the south side of Baldwin Peninsula and is mostly shallow. The shore at the head of the bay is rimmed with long muddy flats that bare at low water in some places as far as 0.3 mile from the beach. **Buckland River**, which empties into the head of Eschscholtz Bay, is large but shallow and has little traffic; **Buckland**, 10 miles upriver, has a radio station.

(73) North of Choris Peninsula, **Baldwin Peninsula** is low for some distance, then rises to low bluffs which continue to the mouth of Hotham Inlet, 40 miles to the northwest. The faces of the bluffs are deeply furrowed by the gradual melting and sliding of the surface ice and frozen mud.

(74) **Cape Blossom** is a distinctive point in the Baldwin Peninsula bluffs, which are highest at the point and slope to either side.

(75) **Hotham Inlet** entrance, 15 miles north of Cape Blossom and 30 miles east-southeast of Cape Krusenstern, is obstructed by vast mud flats and sandbars, some of which are bare at low water; the 3-fathom curve extends as much as 9 miles from shore and nearly as far south as Cape Blossom. The inner waters of Hotham Inlet are 4 to 15 miles wide and extend 45 miles southeast behind Baldwin Peninsula; charted depths are 1 to 2 fathoms in what passes for a channel through this inner expanse, which has been known locally as **Kobuk Lake**. Landings cannot be made at many places in Hotham Inlet because of the extensive mud flats. The waters are little influenced by tides and are mostly fresh because of the near absence of any east current; prolonged southeast winds lower the level.

(76) **Selawik National Wildlife Refuge** includes areas of Hotham Inlet and Selawik Lake and is a Marine Protected Area.

(77)

Kotzebue to Cape Thompson

(78) **Kotzebue** is located on Baldwin Peninsula near the mouths of the Kobuk and Noatak Rivers, about 11 miles north of Cape Blossom and on the outer south side of Hotham Inlet entrance. It is the second largest city in Arctic Alaska and is the shipping and transportation hub for the Northwest Arctic Borough. Kotzebue has a school, a hospital, hotels, stores, gas stations, churches, banking facilities and an airport. The airport has radiotelephone communication and is marked by a rotating white and green aero-light and an aero-radiobeacon. Just south of the western end of the Kotzebue runway, a cell phone tower is marked by a white strobe light. A 410-foot radio tower marked with a white strobe light is south of the airport. A parabolic antenna south of the airport is visible upwards of 15 miles from Kotzebue on clear days. There is a heavily trafficked harbor east of town with a pier in good condition. Shoals outside the harbor are constantly shifting. During ice-free months privately maintained buoys mark the entrance to the channel. The channel is difficult to follow and is restricted to vessels with drafts under 6 feet; local knowledge is advised. Local pilots are available. Kotzebue is served by Northland Towing and Crowley Marine. Crowley maintains a fuel farm at Kotzebue from which its tugs and barges conduct re-supply runs to other Arctic villages.

(79) Deep-draft vessels approach Kotzebue as closely as possible and lighter their freight ashore. The trip by small boat from the anchorage to Kotzebue is about 15 miles and over many sandbars that are constantly shifting; local pilotage is advised.

(80) Good anchorage was reported in mud bottom outside of the channel and southwest of Cape Blossom in 5 to 7 fathoms of water. The anchorage outside of Kotzebue is sheltered from north and east winds. Mariners are advised to use caution during west winds as vessels may be damaged by drifting ice when present.

(81) The report further stated that the vessel after passing through Bering Strait found Ear Mountain (65°55'N., 166°19'W.) and Midnight Mountain (65°47'N., 164°35'W.) to be good marks. Upon rounding Cape Lowenstern, the vessel attempted to enter Kotzebue Sound, but encountering solid ice in the approach, had to turn about and head in a generally north direction keeping about 60 miles offshore to avoid broken ice and growlers to a point about 4 miles southwest of Kivalina. From this point the vessel headed in a generally south direction keeping about 10 miles offshore to the anchorage.

(82) In addition to the aids used in anchoring, the following were reported good marks in the south approach to the anchorage, the 2,070-foot peak northwest of Igichuk Hills, a tripod or post on Cape Krusenstern and the old unlighted radio towers in about 67°18.5'N., 163°40.0'W.

(83) Cape Mountain, 2,289 feet high, at the west end of Seward Peninsula, and the bluffs behind Cape Krusenstern were reported to be good radar targets, but the actual cape and shoreline proved deceptive.

(84)

Currents

(85) The average velocity of the tidal current is about 0.5 knot at the anchorage southwest of Cape Blossom; the flood sets southeast and the ebb northwest. Observations at this location show a northwest nontidal flow that sometimes has sufficient velocity to overcome the flood of the tidal current and produce a continuous northwest current of varying velocity for days at a time. This northwest flow attains maximum velocities of 1 to 2 knots at times of the tidal current's ebb strength. See the Tidal Current prediction service at *tidesandcurrents.noaa.gov* for specific information about times, directions, and velocities of the current at numerous locations throughout the area. Links to a user guide for this service can be found in chapter 1 of this book.

(86) Strong currents and tidal interfaces were observed outside of Kotzebue. The currents circulate within Kotzebue Sound at speeds between 1 to 2 knots. In the northeast corner of the sound, these currents interface with the outflow from the Noatak River and can create unexpected sets and drifts.

(87)

Weather, Kotzebue Vicinity

(88) Kotzebue is 26 miles inside the Arctic Circle and very near the north end of a long narrow peninsula bounded on the north and west by Kotzebue Sound and on the east by Hotham Inlet (known locally as Kobuk Lake). These water bodies produce a maritime type of climate when the water is ice-free which is roughly from late May to late October, although the west portion of the sound is not completely frozen until about December and not completely free of ice again until the middle of July. Local topography is nearly uniform with a general

low relief, so that there are no significant terrain barriers in the immediate area to impede surface air-flow or produce pronounced local variations in temperature and precipitation. The mountainous Seward Peninsula to the south, however, does deflect some low pressure systems that originate in or beyond the Bering Sea area and move toward this region.

(89) During the ice-free period cloudy skies prevail, fog occurs, daily temperatures are relatively uniform, relative humidity is high and west winds predominate. These normal conditions are altered only by cyclonic storms or by pressure systems strong enough to overcome local circulation tendencies.

(90) When the water surrounding the peninsula becomes frozen, the climatic characteristics approach the continental type. The change from maritime to approximately continental conditions becomes progressively more pronounced as the ice cover advances across the sound toward the Arctic Ocean. A similar, but inverse, change occurs as the ice diminishes.

(91) Average winter temperatures are not as severe as might be expected at this latitude. Cyclonic storms and the influence of the Arctic Ocean, which is often relatively free of ice, moderate the winter temperatures. Average winter maximums at Kotzebue are in the positive single digits 1°F to 10°F (-17°C to -12°C) while overnight lows average around -10°F (-23.3°C). During the summer months daily maximums average in the middle 50s Farenheit (12°C to 14°C) with overnight lows in the low to middle 40s Farenheit (6°C to 8°C). Extremes for Kotzebue have included a maximum of 85°F (29.4°C) in July 1958 and a minimum of -52°F (-46.8°C) in February of 1964 and 1968.

(92) Annual precipitation is very light. The total for a normal year is about nine inches (229 mm), and over half of that usually occurs in three months, July, August and September. The wettest year on record, 1990, had only 14.76 inches (374.9 mm) of precipitation. Snow falls on an average of 124 days during a given year and has fallen during every month. The snowiest month is November. The annual average snowfall is 49 inches (1,245 mm) with extremes of 88 inches (2,235 mm) and 21 inches (533 mm).

(93) The National Weather Service in Kotzebue broadcasts weather conditions and a week-long forecast twice daily on VHF channel 68 at 0930 and 1530. The forecasters can be contacted on VHF channel 16 during the day.

(94)

Ice

(95) Average breakup in Kotzebue Sound at Kotzebue is about the last of May and average freezeup is in the latter part of October. Navigation is difficult from late October to the latter part of June and usually is suspended from the second week in November to mid-June.

(96) **Noatak River**, which empties into the north side of Hotham Inlet entrance, has numerous rapids and is not navigated for any great distance by anything larger than a canoe. The natives portage from the headwaters of Noatak River to Chipp River and follow the latter to Beaufort Sea. **Noatak**, about 35 miles upriver from Hotham Inlet, has an airstrip and a radio station.

(97) **Kobuk River** empties into the east side of Hotham Inlet through a many-mouthed delta that extends inland for about 30 miles; depths off the delta are 2 to 4 feet for as much as 3 miles. The delta channels are difficult to navigate but the river proper is comparatively wide and deep. The natives portage their canoes from the headwaters of Kobuk River to Koyukuk River, a tributary of the Yukon.

(98) **Noorvik**, 25 miles up Kobuk River from Hotham Inlet, has a hospital, airstrip and radio station. **Kiana**, at the junction with **Squirrel River** 45 miles up the Kobuk from the inlet, has stores, a school, an airstrip and a radio station. Much farther up Kobuk River from the inlet are **Shungnak**, 150 miles, and **Kobuk**, 155 miles; both have airstrips and Shungnak has a school, a mission and a radio station.

(99) A narrow passage 4 miles long and 1 mile wide connects the southeast end of Hotham Inlet with **Selawik Lake**, which extends 35 miles farther east and averages 15 miles in width. A depth of 2 fathoms can be taken around the lake by giving the shores a wide berth. **Selawik River**, which empties into the east end of the lake through a maze of islands, has several entrances that are obstructed by mud flats; navigable entrance depth is uncertain but presumably is shallow. **Selawik**, near one of the entrances, has a school, a mission, a radio station and an airstrip.

(100) The coast is low from Hotham Inlet to Cape Krusenstern, and shallow water extends nearly half the distance from the mouth of the inlet toward the cape; the edge of the shoal is steep and should be approached carefully. For the rest of the distance there are depths of 4 to 6 fathoms close to the beach.

(101) Behind **Cape Krusenstern** is a high, prominent range of mountains that can be seen from great distances. On closer approach, the mountains are seen to fall away toward the cape in a series of steps and must not be mistaken for the low cape when shaping a course into Kotzebue Sound. A shoal extends 3 miles northwest from the north side of the cape.

(102) North of Cape Krusenstern the coast is a low, shingle beach backed by numerous lagoons that discharge through small shallow openings. The high ground behind the cape continues at some distance inland to **Mulgrave Hills**, about 30 miles north of the cape. Beyond the hills is a wide plain that extends another 30 miles before the mountains again approach the coast and slope down to the water.

(103) About 38 miles north-northwest of Cape Krusenstern is the Cominco-Red Dog Mine port site and loading facility. A large red, white, and blue building with a dark blue roof depicting an Alaska State flag is predominant and visible well offshore. Large bulk carriers anchor

approximately 4 miles south of the facility and have their loads barged out to them. The pier (67°34'24"N., 164°03'59"W.) is public but space is limited. The mining camp maintains telephone and radiotelephone communications year round; telephone 907-645-2184. Air service is available. Two lights, loading facility lights, and mooring buoys mark the site. Local knowledge is advised in approaching the area; pilots can be reached on VHF-FM channel 7A.

(104) About 42 miles north-northwest of Cape Krusenstern is the inlet to a lagoon that extends another 8 miles northwest behind the barrier beach that separates it from the ocean. **Kivalina**, on the barrier beach north of the inlet, has a prominent landmark of a brown building with large erosion mitigation sandbags. The village has a school, a volunteer search and rescue organization (VHF-FM channel 16), a store and a telecommunications center on VHF-FM channel 68. Small-craft anchorage is available along the inner side of the village where the channel bears in close to shore. Shifting shoals extend as much as 0.3 mile from either side of the inlet, and entrance should not be attempted without local pilotage. Mariners transiting the area are requested to contact the Kivalina telecom center on VHF-FM channel 68 for information on whaling activities. Severe fall storms have caused storm surges large enough to warrant the evacuation of the town; anchorage off Kivalina offers no protection from these storms.

(105)

Ice

(106) Average breakup at Kivalina is in the latter part of May and average freezeup is in the latter part of October.

(107)

Pilotage, Kivalina/Cape Krusenstern

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

(109) The Chukchi Sea area is served by the Alaska Marine Pilots. (See **Pilotage, General** (indexed), chapter 3, for the pilot pickup stations and other details.)

(110) At **Cape Thompson** (68°07.0'N., 165°57.0'W.), 80 miles northwest of Cape Krusenstern, the mountains drop directly to the water in a series of steep bluffs, and cliffs about 500 feet high and 6 miles long. Thousands of sea birds nest along the bluffs and their eggs are an Eskimo source of fresh food supply in early summer.

(111) The coast is without distinct promontories. About midway along the Cape Thompson cliffs is a rugged mountain face that has at its south end a distinct series of strata in an irregular semicircle. In the ravine south of this point is a small stream from which freshwater can be easily obtained. Directly off the stream, anchorage can be had in depths of 5 fathoms, sandy bottom. At other places along the cliffs the bottom is mostly rocky.

(112) In the bight 1 mile north of Cape Thompson, the water is fairly deep close to shore and remains calm in the severest north and east storms. Good anchorage, with sand bottom, is available for small craft. A 69-ton vessel has been brought to within 75 yards of the shore without grounding. Good water can be obtained from any of several streams.

(113)

Cape Thompson to Point Hope

(114) From Cape Thompson the mountains continue north to Cape Lisburne, while the coast curves northwest and west to Point Hope.

(115) **Point Hope**, 22 miles northwest of Cape Thompson and 102 miles from Cape Krusenstern, is the seaward extremity of a low tongue of land that projects 16 miles west from the general line of the coastal mountains. The point has a steep shingle beach that is backed by numerous lagoons. Point Hope is the most important and oldest settlement along this part of the coast and has a telecommunications center and volunteer search and rescue center that can be contacted on VHF-FM channels 16 and 68. There is an airport here, a school, police and fire station. Services include a radio and cable television station, internet and cellular service. There are no port facilities or dock at Point Hope. Limited quantities of marine gasoline and diesel fuel are barged to the beach south of the airport. An aero radiobeacon (68°21.0'N., 166°47.2'W.) is at the airport, about 1.4 miles northeast of the tip of Point Hope.

(116) Subsistence whaling at Point Hope occurs in the spring (April–May) and fall (September–October) as far as 30 miles offshore. Vessels transiting in the vicinity of Point Hope during these times are requested to contact the Alaska Eskimo Whaling Commission and the Point Hope communications center on VHF-FM channel 68.

(117) Depths of 4 fathoms are found 7 miles northwest of Point Hope—a strong westerly 2-knot-current is just south of here. A 2¼-fathom shoal extends about 2 miles from shore 6 miles east-southeast of the point. Vessels have anchored in depths of 6 fathoms about 0.8 mile south of Point Hope and in 5 fathoms 0.5 mile northeast of the tip of the point.

(118) In 2018, NOAA Ship *Fairweather* anchored about 3 miles west-southwest of Point Hope in 20 fathoms and 5 miles northeast of the point in 10 fathoms. The west-southwest anchorage affords little protection from weather and experiences strong current, but held well. the northeast anchorage is preferred for weather from the south and offers some protection from swell with good holding in sandy bottom.

(119)

Ice

(120) Average breakup at Point Hope is in the latter part of June and average freezeup is about the second week of November. Navigation is difficult from the latter part of November until mid-July and usually is suspended from early December until the latter part of June.

(121)

Marryat Inlet

(122) **Marryat Inlet**. 10 miles east-northeast of Point Hope is the entrance to a large inlet; a draft of 5 feet can be taken through the inlet but those not familiar with the channel should be cautious about entering. When the ice breaks in the inlet, there is a strong outflowing current and the moving ice is more or less dangerous. Depths off the inlet range from 1½ fathoms near shore to 3½ fathoms at a distance of 4 miles.

(123) North of Marryat Inlet the mountains slope down to rugged shore cliffs. The few ravines in the cliffs have running streams with shore outlets where freshwater can be obtained.

(124)

Cape Lisburne

(125) **Cape Lisburne** (68°52'54"N., 166°12'36"W.) is a bare brown mountain 35 miles north-northeast of Point Hope. This rugged headland is distinctively marked by a radar dome (68°52'12"N., 166°09'06"W.), pinnacles and rocks near its summit, and its shore faces are very steep. The cliffs are rookeries, and during the summer months the sky is sometimes darkened by flights of birds. The wind rushes down from the mountains in gusts of great violence and varying directions, and at such times passing vessels should stay well off the cape.

(126) Several beaches near the rocky point at Cape Lisburne are important resting areas (haulouts) for Pacific walruses from July through October. Walruses are extremely sensitive to unexpected or unfamiliar sights, smells and sounds and can easily be startled, in some cases causing deadly stampedes. Chukchi coast walrus haulouts are particularly sensitive as they are mainly comprised of females, many with calves which are especially vulnerable to being trampled and killed during stampedes due to their small size. Operating a watercraft in a manner which results in disturbing, harassing, herding, hazing or driving of walruses is prohibited under provisions of the Marine Mammal Protection Act. In an effort to prevent disturbance to walruses, marine vessel operators are requested to observe the following guidelines during haulout occupancy periods:

(127) Vessels less than 50 feet in length should remain at least 0.5 nautical mile away from a walrus haulout.

(128) Vessels 50 feet or more but less than 100 feet in length should remain at least 1 nautical mile away from a walrus haulout.

(129) Vessels 100 feet or more in length should remain at least 3 nautical miles away from a walrus haulout.

(130) All vessels should refrain from anchoring within 3 nautical miles of a walrus haulout.

(131) Maintain a 1 nautical mile buffer from active walrus haulouts when loading or unloading barge cargo at Cape Lisburne.

(132)

Cape Sabine

(133) The coast turns abruptly east from Cape Lisburne. The land is lower; the hills are rounded and slope to the sea. Toward **Cape Sabine** (68°55.0'N., 164°36.0'W.), 35 miles east of Cape Lisburne, is a series of ridges that terminate at the coast in bluffs. Cape Sabine is the outer end of one of the ridges and projects but slightly from the general line of the coast. Veins of coal 1 to 4 feet thick show plainly along the tops of the bluffs at Cape Sabine; some of the veins have been worked, but use of the coal is limited because of its poor quality and the difficulty of mining it.

(134)

Cape Beaufort

(135) From Cape Sabine, the land continues of a rolling character until near **Cape Beaufort** (69°02.0'N., 163°50.0'W.), a dark mountain that comes down to the coast 52 miles east by north of Cape Lisburne. There is no appreciable break in the coast at Cape Beaufort, and it probably was named a cape because it is the most north extension of high ground along the coast of Alaska. At this point the mountains recede inland and the coast continues low.

(136)

Kasegaluk Lagoon

(137) About 18 miles north of Cape Beaufort is the south extremity of **Kasegaluk Lagoon**, which extends to within a few miles of Wainwright Inlet. South and east of Icy Cape the lagoon is blocked by an extensive area of marsh; there is no passage behind the cape even for native skin-boats. Separating the lagoon from the ocean is a narrow sand barrier, only a few feet above the water; south of Icy Cape are several small, shallow passages through the barrier, and there are two larger openings north of the cape. The land on the inner side of the lagoon is mostly low, but there are some small bluffs with rolling terrain behind them. south of Icy Cape, Kasegaluk Lagoon has **Kukpowruk River**, **Kokolik River**, **Utukok River**, and several smaller streams emptying into it, but its whole expanse is filled with flats and bars that make it scarcely navigable even for native canoes.

(138)

Kukpowruk Pass

(139) **Kukpowruk Pass**, 41 miles north-northeast of Cape Beaufort, has a controlling depth of about 6 feet into Kasegaluk Lagoon and south for about 2 miles through a narrow channel along the inner side of the barrier beach; the channel leads to fair anchorage, protected from all directions. Northeast winds will lower the water level about 3 feet, and the pass changes from year to

year because of ice scouring. There is no channel north through the lagoon to Point Lay.

(140)

Point Lay

(141) **Point Lay** is a slight bend in the barrier beach 49 miles north-northeast of Cape Beaufort. The original village of Point Lay, destroyed by a fire, is on the beach 3 miles south of the point. Ruins of the original village are visible on the barrier island. Approximately 700 yards south of the ruins is an uncharted entrance to the lagoon. The lagoon is extremely shallow and is navigable only by small craft. Depths in the lagoon can be dramatically reduced by east winds, and passes through the barrier islands to the lagoon are often blocked by shallow or exposed sand bars. The village of Point Lay has a telecommunications center and volunteer search and rescue center that can be contacted on VHF-FM channels 16 and 68. Subsistence harvesting of Beluga whales occurs at Point Lay during the months of June and July, and vessels should contact the Point Lay telecommunications center on VHF-FM channel 68 if transiting in the area during this time. Anchorage is in depths of 6 fathoms 1.5 miles off the village. There is a prominent aero radiobeacon (69°44.1'N., 163°00.6'W.) at the airport on the mainland 2 miles south-southeast of the village.

(142) The barrier island opposite Kasegaluk Lagoon from the community of Point Lay is an important resting area (haulout) for Pacific walruses from July through October. Walruses are extremely sensitive to unexpected or unfamiliar sights, smells and sounds and can easily be startled, in some cases causing deadly stampedes. Chukchi coast walrus haulouts are particularly sensitive as they are mainly comprised of females, many with calves which are especially vulnerable to being trampled and killed during stampedes due to their small size. Operating a watercraft in a manner which results in disturbing, harassing, herding, hazing or driving of walruses is prohibited under provisions of the Marine Mammal Protection Act. In an effort to prevent disturbance to walruses, the Native Village of Point Lay requests that all vessels remain 5 nautical miles offshore of this area during periods of haulout occupancy. If vessels must transit closer than 5 nautical miles for safety or operational reasons, operators are requested to observe the following guidelines:

(143) Vessels less than 50 feet in length should remain at least 0.5 nautical miles away from a walrus haulout.

(144) Vessels 50 feet or more but less than 100 feet in length should remain at least 1 nautical mile away from a walrus haulout.

(145) Vessels 100 feet or more in length should remain at least 3 nautical miles away from a walrus haulout.

(146) All vessels should refrain from anchoring within 3 nautical miles of a walrus haulout.

(147) Please maintain a 1 nautical mile buffer from active walrus haulouts when loading or unloading barge cargo at Point Lay.

(148)

Ice

(149) Average breakup at Point Lay is in late June and average freezeup is in early November. Navigation is difficult from early November to late June and usually is suspended from mid-December to late June.

(150)

Icy Cape Pass to Akoliakatat Pass

(151) **Icy Cape Pass**, 2 miles southwest of the cape, has a controlling depth of about 5 feet, but entrance requires knowledge of bar and channel conditions. Fair anchorage is available in depths of 5 to 7 feet in Kasegaluk Lagoon southwest of the pass. A radar tower and an airstrip are on the mainland opposite the pass. Water can be obtained from a stream southwest of the tower.

(152) **Icy Cape** (70°19.9'N., 161°53.0'W.), 40 miles northeast of Point Lay and 125 miles from Cape Lisburne, is a sharp turning point in the low flat barrier beach that separates Kasegaluk Lagoon from the ocean. A house and a tank are near the point of the cape.

(153) **Blossom Shoals**, which extend 6 to 8 miles off Icy Cape, are a number of ridges that parallel the coast. In the approach to the shoals, the bottom is lumpy and depths are irregular. The shoals are usually given a wide berth, and it is recommended that vessels rounding the cape stay in depths greater than 12 fathoms.

(154) The shoals are the approximate south limit of the inshore ice during the July–September season for navigation in this area. The ice moves inshore and offshore with the winds and, as the shoals form a salient at this part of the coast, open water may extend north or south of them, but access from one open-water area to another may be blocked by ice on the other side of the shoals.

(155) Blossom Shoals show evidence of ice scour and probably change from year to year. Surveys made in 1948–1950 found depths of 10 feet 0.9 mile off Icy Cape, 16 feet 2 miles off, 20 feet 3.3 miles off 19 feet 4.4 miles off, 26 feet 6.4 miles off, and 37 feet 7 miles off.

(156) There are deep channels between the outer shoals. One that has been recommended by the survey party rounds the cape at a distance of 3.8 miles with no depths less than 35 feet. About 6 miles off the cape, and just inside the outermost shoal, is a passage with minimum depths of 10 fathoms.

(157) Behind the barrier beach that extends east from Icy Cape, **Kasegaluk Lagoon** has midchannel depths of 9 to 11 feet; numerous shoals project from both sides of the lagoon. The ice in the lagoon breaks up about 10 to 15 days after the sea ice has moved out. New ice forms about the middle of September and soon becomes about 6 inches thick. Launches not more than 4½ feet in draft may pass around **Nokotlek Point**, on the mainland 18 miles east of Icy Cape, through a very narrow channel.

(158) **Akoliakatat Pass**, 12 miles east of Icy Cape, has a narrow channel close to shore on the west side;

a controlling depth of about 7 feet can be carried into Kasegaluk Lagoon at normal tide levels. Anchorage can be found back of the pass in depths of 7 to 10 feet, good holding ground. The current in the pass may reach a velocity of 2 knots with strong southwest or northeast winds. A continuous period of northeast winds will lower the water as much as 3 feet below normal levels.

(159)

Pingorarok Pass

(160) **Pingorarok Pass**, 22 miles east of Icy Cape, has a controlling depth of 5 feet into Kasegaluk Lagoon through a very narrow channel on the east side. Breakers usually mark the shoals on both sides of the entrance.

(161)

Wainwright Inlet Pass to Kuk River

(162) **Wainwright Inlet** (70°36.5'N., 160°06.5'W.), 39 miles east-northeast of Icy Cape, is the entrance to **Wainwright Lagoon**. The narrow winding channel between **Point Collie** on the east and **Point Marsh** on the west has a controlling depth of 6 feet at normal water level, but passage should not be attempted without the aid of local guides. Shoals extend 0.7 mile off the inlet and are well defined by breakers during moderate weather; during west storms the breakers stretch across the channel. Ice that may enter the inlet during southwest storms follows the channel, where the current reaches a maximum velocity of about 2 knots.

(163) **Wainwright**, on the beach 2.5 miles northeast of the inlet, has stores, a hotel and restaurant, a school, a church and an airstrip. Wainwright bans the possession, sale and importation of alcohol. Limited quantities of fuel are also available in town and include marine gasoline and diesel. Subsistence hunting of marine mammals occurs around Wainwright year round but is heaviest during the spring Bowhead whale season. Vessels should contact the Alaskan Eskimo Whaling Committee when transiting near Wainwright during the spring and summer months. Wainwright operates a volunteer search and rescue service that can be contacted on VHF-FM channel 16. Vessels are requested to check in with Wainwright SAR with their vessel name and position when transiting near Wainwright on VHF-FM channel 16.

(164) A rotating green and white aerolight (70°38'17"N., 160°01'05"W.) is located near the Wainwright airstrip (70°36'36"N., 159°51'54"W.)

(165)

Ice

(166) Average breakup at Wainwright is about the last of June and average freezeup is about the first of October. Navigation is difficult from early November to mid-July and usually is suspended from early December to early July.

(167) **Kuk River**, which empties into the head of Wainwright Lagoon, has an even bottom and no definite channel. Depths decrease gradually from 10 feet at the lagoon to a reported 4 feet some 30 miles upriver. Three outcroppings of usable coal are 8 to 18 miles from the mouth.

(168)

Point Franklin Pass to Seahorse Islands, inlcuding Peard Bay

(169) **Point Franklin** (70°54.4'N., 158°47.2'W.), 70 miles east-northeast of Icy Cape, is the east end of the barrier sand beach that extends 8 miles along the northwest side of Peard Bay. A prominent 120-foot steel tower is about 2 miles west of the point.

(170) A mile east of Point Franklin is the north extremity of the narrow barrier **Seahorse Islands**, which extend south-southeast for 3 miles. The largest island has an elevation of about 20 feet and is the greatest along this series of barriers. Between Point Franklin and the Seahorse Islands is a narrow, winding channel with a least depth of about 4 feet; this channel may vary from year to year.

(171) A shoal makes out to north from Point Franklin. Depths less than 1 fathom extend out 1.2 miles; the 5-fathom curve is about 2 miles offshore, and the 10-fathom curve is 2.6 miles offshore.

(172) Protection from south to west weather is available northeast of Point Franklin and the Seahorse Islands. This shelter does not afford protection from ice.

(173) A current sets northeast along the shore except during strong northeast winds. It is estimated that the velocity is 1 to 2 knots under ordinary conditions. This northeast current forms a big eddy that circulates in a clockwise direction in the bight east of Point Franklin. The eddy extends about 20 miles to the northeast of the point and 5 to 6 miles from shore.

(174) When there is ice in this vicinity **abnormal refraction** can be expected at any time. A large amount of refraction can be expected at all times, whether or not ice is present.

(175) **Peard Bay**, behind the barrier beaches of Point Franklin and the Seahorse Islands, has uniform depths of about 20 feet over the greater part of its area. The bottom, which is mud and clay, is excellent holding ground. A depth of 12 feet can be carried into Peard Bay through a narrow channel just off the south end of the Seahorse Islands. A depth of about 8 feet can be carried into the bay on either side of the 4-foot shoal that is about 1 mile southeast of the south end of the islands. The bay affords good protection from heavy south and southwest winds. A small spit in the southeast part of the bay affords protection for small boats from winds from any direction.

(176) At the southwest end of Peard Bay is **Kugrua Bay**, into which **Kugrua River** empties. A draft of about 4 feet can be carried into Kugrua Bay; depths in the middle of the bay are 10 to 12 feet. In the northeast corner of the bay is a sandspit that affords good protection from all weather for small boats.

(177)

Skull Cliff to Barrow

(178) From Peard Bay east and northeast to Barrow the coast is rimmed with mud bluffs 25 to 90 feet high and furrowed by numerous small streams; the highest is **Skull Cliff** (70°56'N., 157°30'W.), 20 miles east of the bay. The coast has no projecting points or shoals, and the 5-fathom curve is 0.5 to 1 mile from shore, but depths may vary as much as a fathom from year to year because of ice gouging. There is no protection from heavy weather.

(179) The **Will Rogers Memorial** (71°09.3'N., 157°03.5'W.) is a 12-foot concrete monument on the northeast side of a wide stream 10 miles southwest of Barrow.

(180) **Barrow**, 8.5 miles southwest of point Barrow, is the government seat of the North Slope Borough and the largest community north of the Brooks Range. Barrow has a hospital, several churches, schools, a telecommunications center operating on VHF-FM channel 68 and several stores; limited quantities of supplies include gasoline, diesel fuel, food and clothing. Air-freight and commercial flight service are available throughout the year. Subsistence hunting of marine mammals occurs at Barrow year round as far as 30 miles offshore and is heaviest during the spring and fall Bowhead whale seasons. Vessels transiting the area during the whaling seasons are requested to contact Barrow on VHF-FM channel 68. Vessel traffic is at its heaviest during the summer months after the whaling season and consists of tugs carrying fuel and supply barges. Barrow is a destination for small cruise ships carrying as many as 400 passengers. The North Slope Borough also operates a volunteer search and rescue operation and can be hailed on VHF-FM channel 16. An aerolight (71°17'17"N., 156°46'18"W.) is at the airport. Three miles northeast of Barrow is the Barrow Arctic Science Consortium (BASC), the University of Ilisagvik and an aerolight (71°19'40"N., 156°40'38"W.). About 0.8 mile northeast of the Barrow Arctic Science Consortium is an airstrip and an aerolight (71°20'08"N., 156°38'20"W.). The dome (71°19'40"N., 156°37'57"W.) northeast of the laboratory is also very prominent.

(181) Barrow is not a port of entry.

(182) Barrow has no pier facilities. Marine cargo bound for Barrow is lightered from barges to landing craft. Anchorage can be had 1,200 yards off of Barrow in 30 feet of water to receive supplies and to transfer personnel by small boat. The anchorage is exposed to weather from all directions.

(183)

Point Barrow

(184) **Point Barrow** (71°23'N., 156°28'W.), the northernmost point of land in the United States, is the seaward end of a gravelly sandspit that extends 3 miles northeast from the rest of the mainland. The point is also the northeast corner of Chukchi Sea and the southwest corner of Beaufort Sea. The north limit of **Beaufort Sea** is a line from Point Barrow to Lands End, Prince Patrick Island, Canada.

(185)

Currents

(186) The current northwest of the point was observed to flow constantly in a northeast direction at an estimated strength of 3 to 4 knots; along the northeast side of the point the current flowed in a northwest direction at an estimated strength of 1 knot. Judging from the movement of the icebergs, there seemed to be an eddy centered several miles northeast of the point.

(187)

Caution

(188) Mariners are advised that in the shallow waters of the Beaufort Sea, water levels are strongly influenced by meteorological conditions. Strong offshore winds can produce water depths up to 2½ feet less than those shown on the charts.

(189) A number of oil drilling platforms are in the Beaufort Sea between 151°W and 147°W. These platforms are generally manmade gravel islands about 500 feet in diameter. In 1992, a majority of the platforms were reported abandoned, and the lights marking the structures were removed. A few are reported completely awash. The status of all known platforms is periodically published in the 17th Coast Guard District Local Notice to Mariners.

(190)

Weather, Barrow Vicinity

(191) Barrow is the location of the most northern Weather Service Office (WSO) operated by the National Weather Service. Although this station generally records one of the lowest mean temperatures for the winter months, the surrounding topography prevents the establishment of the lowest minimum for the state. With the Arctic Ocean to the north, east and west and level tundra stretching 200 miles to the south, there are no natural wind barriers to assist in stilling the wind, permitting the lowering of temperatures by radiation, and no downslope drainage areas to aid the flow of cold air to lower levels. Consequently, temperature inversions in the lower levels of the atmosphere are not as marked as those observed at stations in the central interior.

(192) Temperatures at the Barrow WSO remain below the freezing point through most of the year, with the daily maximum reaching higher than 32°F (0°C) on an average of only 109 days a year. The mean daily maximum for the station is only 15°F (-9.4°C) while the mean daily minimum is 4°F (-15.6°C). The mean annual temperature is 10°F (-12.2°C). Daily minimums drop below the freezing point (0°C) 324 days of the year, and freezing temperatures have been observed in every month of the year. February is generally the coldest month, with a normal mean of -17°F (-27.2°C), and the lowest temperature at the station on record, -56°F (-48.8°C), was reached in February 1924. March temperatures are but

little higher than those observed in the winter months. In April, temperatures begin a general upward trend, with May becoming the definite transitional period from winter to the summer season. During the latter month an average of five daily maximum temperatures climb above the freezing point. July is the warmest month of the year, with a normal mean of 40°F (4.4°C). The record high for the station is 79°F (26.1°C), recorded in July 1993. During late July or early August, the Arctic Ocean is generally ice free for the first time in summer. The end of the short summer is reached in September. By November about half of the daily mean temperatures are 0F (-17.8°C) or below.

(193) Precipitation at Barrow is extremely light with a mean annual value of 4.57 inches (116 mm). The wettest months are July and August when nearly a half of the annual precipitation total may fall. Despite such limited amounts of precipitation, precipitation is recorded an average 252 days per year. Snowfall averages about 29 inches (737 mm) each year, occurs an average of 211 days each year and has been recorded during every month.

(194)

Ice

(195) Average breakup at Barrow is in late July and average freezeup is in early October. Navigation is difficult from mid-October to late July and usually is suspended from early December to early July.

(196) The ice barrier that extends from 0.5 mile off Barrow to 1.5 miles northwest of Point Barrow can be dangerous to navigation. Formed when onshore winds drive icebergs aground, the barrier may break and drift seaward during heavy offshore winds. While aground the barrier keeps the main ice pack from drifting onto the beach and often gives protection along its inner side to shallow-draft vessels. During periods of offshore winds, leads may open in the barrier through which, when winds reverse to onshore, small bergs sometimes drift to block the inshore waters and stop all navigation. **Caution:** A vessel beset in the ice near Point Barrow will tend to drift north and farther into the ice mass.

(197) During the 1945 survey the main ice pack was never out of sight from Point Barrow. When the pack opened to the west it closed to the east and vice versa. Icebergs 30 to 50 feet high floated around continuously; some grounded at about the 5-fathom curve and remained stationary for a week or more until the wind changed with sufficient force to dislodge them.

(198) In general, the main ice pack drifts with the winds and currents during July through September and permits intermittent navigation outside the ice barrier. Outside navigation is impossible when the pack drifts shoreward; inside passage possibly can be made behind the barrier, but charted depths may not be too reliable because of berg gouging.

(199) Medium-draft vessels should be able to round Point Barrow at a distance of 1 mile; 30-foot drafts should stay at least 3 miles off. **Caution:** A 1957 report places a 25-foot shoal 7 miles northeast of Point Barrow; this may indicate a possible northeast extension of Point Barrow spit. If passage must be made east of Point Barrow, August is the best month for the attempt.

(200) Mariners should be aware that Alaskan Natives engage in subsistence whaling in the Beaufort Sea near Point Barrow in the spring from March through June and in the fall from September through November. Vessel operators are requested to contact the Alaska Eskimo Whaling Commission at 907-852-2392 or 800-478-2392 or aewcdir@barrow.com prior to entering this area for information about the location and avoidance of traditional Native hunting parties.

(201)

Point Barrow to Dease Inlet, including Admiralty Bay

(202) **Elson Lagoon** extends from Point Barrow to **Christie Point**, on the mainland 21 miles to the southeast. The lagoon is 2 to 5 miles wide and has depths of 8 to 11 feet. Between the lagoon and Beaufort Sea are the barrier **Plover Islands**, which are low and difficult to distinguish except in periods of good visibility. The islands and the mainland are barren stretches as viewed from offshore and are covered by snow and ice most of the year; there is nothing distinctive in the area.

(203) **Eluitkak Pass**, the most west entrance to Elson Lagoon, is between tiny **Doctor Island** and the spit that extends 2.5 miles southeast from Point Barrow; depths in the pass equal or exceed those in the lagoon. **Deadmans Island** and **Tapkaluk Islands** are southeast of Doctor Island.

(204) **Ekilukruak Entrance**, 15 miles southeast of Point Barrow, is between Tapkaluk Island and **Cooper Island**, 4 miles to the southeast; the passage into Elson Lagoon has depths of 5 to 7 feet. Cooper Island is one of the largest of the Plovers and is midway along the chain.

(205) **Sanigaruak Pass** (71°11.5'N., 155°23.5'W.), 24 miles southeast of Point Barrow, is a narrow and poorly defined channel through the Plover Islands at the west end of **Sanigaruak Island**; the controlling depth is about 6 feet into Elson Lagoon. **Igalik Island**, last major island of the Plover group, is between Sanigaruak Island and Tangent Point to the southeast.

(206) **Dease Inlet**, behind the southeast Plover Islands, is 10 miles wide between Christie Point and Tangent Point and extends inland about 20 miles. The inlet has depths of 8 to 10 feet except for the shallows near the beaches. The principal entrances are from Elson Lagoon and Sanigaruak Pass. **Tiny Island** and **Oarlock Island**, known as the **Kikiktak Islands**, are 10 to 15 miles up Dease Inlet from Christie Point; on Tiny Island is a small freshwater lake. **Admiralty Bay**, at the head of Dease Inlet, has depths and bottom similar to the outer part of the inlet; several rivers empty into the bay.

(207) During the 1945 survey of this area, the winter ice did not break up in Elson Lagoon until July 28 and started

forming again on September 13. The survey launches had a difficult time getting out of Dease Inlet on September 15 as the entire inlet and lagoon were frozen over to a thickness of 1 inch. In the winter, the ice freezes to a thickness of 6 to 10 feet.

(208)

Tangent Point to Drew Point

(209) **Tangent Point** (71°08.8'N., 155°05.8'W.), 30 miles southeast of Point Barrow, is the low, flat, tundra promontory on the east side of the entrance to Dease Inlet. There is a shallow entrance channel between the point and the islands to the northwest.

(210) The islands along the coast from Tangent Point to the southeast end of Fatigue Bay are low sand barriers separated from the mainland by mud flats and shallow lagoons. These rapidly changing islands have steep beaches on their seaward sides, with depths of 8 feet or more only 100 yards off. Deep channels open and close through the islands during summer storms.

(211) **Fatigue Bay (McKay Inlet)** extends southeast for about 6.5 miles from Tangent Point. The southeast part of the bay, south of Tulimanik Island, is the only shelter for small boats between Tangent Point and Cape Simpson. This shelter, however, is extremely limited because of the shallowness of the lagoons behind the islands. Remarks concerning frequent changes in channels are particularly applicable to the southeast part of Fatigue Bay.

(212) The bluffs along the coast from near the southeast end of Fatigue Bay to Cape Simpson vary in height from 4 to 15 feet; the land behind is marshy and has numerous lakes. Launches may proceed safely along this stretch of coast at a distance of about 100 yards.

(213) **Cape Simpson** (70°59.4'N., 154°34.0'W.) is a low promontory 14 miles southeast of Tangent Point. There are shoals and sandbars near the cape but no shelter for small boats.

(214) **Smith Bay**, between Cape Simpson and Drew Point, 14 miles to the southeast, extends 8 miles back of the entrance points and has general depths of 3 to 10 feet. Along the west shore of the bay, rapid erosion of the 10- to 20-foot bluffs has caused shoaling, and launches drawing 3 to 4 feet must stay 0.2 to 0.5 mile off, but there is still some protection from west weather.

(215) The delta of **Ikpikpuk River**, which empties into the head of Smith Bay, is building out steadily. Extensive shoals are forming as much as 3 miles out, and the 3-foot curve is 1 to 2 miles off the delta. The southeast side of the bay is very shallow; the 3-foot curve is 2 to 3 miles offshore.

(216) Along the east side of Smith Bay are intermittent bluffs. The only possible landing place for small craft is on **Drew Point**, at the entrance. Boats drawing less than 2½ feet can anchor south of the sandspit at the point.

(217)

Pitt Point

(218) **Pitt Point** (70°55.5'N., 153°08.2'W.), 69 miles east-southeast of Point Barrow, is about halfway between Smith Bay and Harrison Bay. On the southeast side is a large, shallow lagoon that is separated from Beaufort Sea by a narrow sand barrier. Heavy seas open and close passages that have been used by native launches. There are depths of 8 to 10 feet 200 yards off Pitt Point.

(219)

Cape Halkett

(220) **Cape Halkett** (70°48.0'N., 152°11.0'W.) is a low promontory 20 miles east-southeast of Pitt Point. A 1-foot shoal is 0.7 mile east of the cape; between the shoal and the cape are depths of 5 feet. In 1984, a submerged obstruction covered about 18 feet was reported about 6.1 miles east of the cape in about 70°47'57"N., 151°53'18"W.

(221)

Cape Halkett to Oliktok Point

(222) **Harrison Bay** is between Cape Halkett and Oliktok Point, 50 miles to the east-southeast; the inland extent is about 15 miles from the general line of the coast. The inner part of the bay is very shallow, and the Colville River delta projects several miles from the southeast side. **Pacific Shoal**, 3 to 5 feet deep and 5 miles in north-south length, is centered about 8 miles southeast of Cape Halkett. In 1969, a vessel with a draft of 26 feet reported touching bottom in 70°57.5'N., 150°33.5'W. In 1992, a shoal with a depth of 7 feet was reported in about 70°40'56.8"N., 150°55'28.6"W.

(223) **Saktuina Point** (70°34.9'N., 152°02.3'W.), 14 miles south from Cape Halkett, is the easternmost tip of the narrow peninsula that forms the north side of Kogru River. The **Eskimo Islands**, 1 mile east of Saktuina Point, have bluffs up to 20 feet in height.

(224) **Kogru River** is a series of connected lakes that form a 10-mile-long lagoon that empties into Harrison Bay between Saktuina Point and the Eskimo Islands. Entrance depth is about 4 feet and greater depths are reported inside.

(225) **Atigaru Point**, 7 miles east of Saktuina Point, is a low headland with extensive bars and shoals to the east and southeast. Natives report fair anchorage for small craft 3 miles south of the point.

(226) **Colville River**, the largest along the Arctic coast of Alaska, has a delta that extends 20 miles along the southeast side of Harrison Bay. There are three major channels and numerous minor channels through the delta. It is probable that a draft of 3 feet can be taken over the entrance bars and upriver to the rapids a few miles below the mouth of **Anaktuvuk River**, which empties into the Colville River 75 miles from Harrison Bay.

(227)

Oliktok Point to Beechey Point

(228) **Oliktok Point**, the first prominent mainland point east of Colville River, is a triangular sandflat with elevations of as much as 5 feet. Excellent small-boat anchorage is found in depths of 5 feet behind the small bar that extends northwest from the point; this anchorage is exposed to southwest weather, but protection from such can be found east of the island. A lighted artificial island is about 3.1 miles southwest of the south tip of the island in about 70°29'45"N., 150°14'48"W.

(229) **Thetis Island** is 6 miles northwest of Oliktok Point and 5 miles off the Colville River Delta. Good anchorage, with protection from southwest winds, is found in depths of 12 feet east of the island.

(230) **Spy Island**, 3 miles north of Oliktok Point and 4 miles east of Thetis Island, is the westernmost of the **Jones Islands**; the island is very low and floods during storm high waters. **Pingok Island**, largest and highest of the Jones group, is 6 miles long in an east-west direction and has several dunes or mounds. **Bertoncini Island** and **Bodfish Island** are about 2 miles east of Pingok Island; both are tundra covered and have bluffs along their shores. **Cottle Island**, 1.5 miles north of Beechey Point, is 3 miles long and is the easternmost of the Jones group. Bars and shoals obstruct the passages between Pingok and Cottle Islands. An artificial island is about 4.5 miles north-northeast of Cottle Island in about 70°35'05"N., 149°05'45"W.

(231) On the mainland back of the Jones Islands is **Milne Point**, which is 8 miles east of Oliktok Point and is rimmed with bluffs about 5 feet high. **Beechey Point** is 14 miles east of Oliktok Point; launches can find fair shelter in depths of 4 feet behind the small sandbar that extends northwest from Beechey Point.

(232) **Simpson Lagoon**, between the Jones Islands and the mainland, has depths of 6 feet and affords protected passage from Oliktok Point to Beechey Point. In 2007, the remnants of a man-made island, covered 2 feet, were about 4.0 miles northeast of Oliktok Point and in about 70°32'13.7"N., 149°41'05.5"W. In 2000, a 2-foot shoal was reported about 460 yards west of the man-made island in about 70°32'12.8"N., 149°41'46.4"W.

(233)

Return Islands to Foggy Island

(234) The **Return Islands** begin 0.5 mile southeast of Cottle Island and continue southeast another 11 miles. **Long Island** is the westernmost and longest, about 5 miles, of the Return group; the passage between Cottle Island and Long Island has depths of 2 feet. Off the southeast end of Long Island are bars and shoals that extend back into Gwydyr Bay, but depths of 5 feet can be carried into the bay between the bars and low, crescent-shaped **Egg Island**, next island to the southeast. Southeasternmost of the Return group is **Stump Island**, which is about 2 miles long and extends to within 0.5 mile of mainland Point McIntyre. The passage between Egg Island and Stump Island has depths of 3 feet, but there is little water between Stump Island and Point McIntyre.

(235) **Gwydyr Bay**, the lagoon area between the Return Islands and the mainland, has depths of 3 to 5 feet as far east as low **Storkersen Point**, which is 10 miles from Beechey Point; the best entrance to the bay is west of Egg Island. **Kuparuk River** empties into the south side of Gwydyr Bay west of Storkersen Point. There is little water between Storkersen Point and **Point McIntyre**, 3 miles to the southeast.

(236) From the Return Islands to Brownlow Point, barrier islands parallel the coast and are separated from it by **Stefansson Sound**, an extensive lagoon. The mainland is low tundra with very little relief except for three prominent mounds west and southwest of Tigvariak Island. The mainland shore consists of low bluffs, up to 35 feet in height, cut by river flood plains and deltas. The barrier islands are low sand and gravel reefs less than 8 feet in elevation; the larger islands have some sparse vegetation. Between the islands are many shoals and bars that are awash. The lagoon between the island and the mainland has depths of as much as 30 feet but also has many areas too shallow for navigation by small boats. The lagoon is 2 to 10 miles wide and extends in a continuous line from the Return Islands to Brownlow Point. Vessels following the coast may avoid the heavy ice that is nearly always present off the barrier islands by passing inside the islands by way of one of the deeper entrances. Ice frequently blocks these entrances, but passage usually can be made through leads.

(237) The **Midway Islands**, 7.5 miles northeast of Point McIntyre, are very low and have little driftwood on them; good anchorage for vessels drawing up to 6 feet can be found behind **Reindeer Island**, the west island of the group.

(238) **Cross Island** is 6 miles east of the Midway Islands. Somewhat protected anchorage for vessels drawing up to 10 feet can be found behind the crescent-shaped island and the several small islets that extend to the south. Large ice floes remain hinged to the north and east sides of the island during the entire open season. Two miles southeast of Cross Island is a shoal that extends 4 miles in a southeast direction. **Dinkum Sands**, a gravel reef that bares, is halfway along the shoal.

(239) **Prudhoe Bay** (70°20'N., 148°20'W.), southeast of Point McIntyre, has shoals across most of its entrance. **Gull Island**, a small island midway along the shoals, is a conspicuous radar target. The bay proper has depths of 6 to 9 feet and affords good holding anchorage with protection from all but northwest weather. The best access route has depths of 4 feet and parallels the west shore at a distance of 0.4 mile.

(240) On the northwest side of Prudhoe Bay, about 1.5 miles southeast of Point McIntyre, a causeway extends about 2.2 miles offshore. A barge dock is on the east side of the causeway and a seawater treatment plant is

near the outer end. Private daybeacons mark the intakes and outfalls of the seawater treatment plant. In 1969, a 360-foot wharf connected to the shore by a 1,200-foot causeway was constructed in the southeast corner of the bay, about 3.3 miles from Heald Point. Depths of 4½ feet are reported along the wharf.

(241) Cargo is hauled from Seattle by oceangoing tugs and barges that anchor about 6 miles offshore; the cargo is transferred to shallow-draft barges and moved to the wharf for transfer to shore.

(242) **Heald Point**, on the east side of Prudhoe Bay entrance and 8 miles from Point McIntyre, is a 15-foot-high tundra bluff with a narrow sand beach at its base. Three small sand islets extend northwest from the point. The submerged remains of an artificial island with a reported depth of 1 foot is about 2.9 miles north of the point. Put River aero radiobeacon (70°13'25"N., 148°24'50"W.) is about 8 miles south-southwest of Heald Point.

(243) The delta of **Sagavanirktok River** extends the 9 miles from Heald Point to Foggy Island. The waters off the delta are extremely shallow, and small boats find landing very difficult. **Howe Island**, 5 miles east of Heald Point, is near the middle of the delta area and is prominent from seaward; the island is 1 mile long and 0.2 mile wide and has an elevation of 35 feet near its east end. A mile east of Howe Island is **Duck Island**, a small silt mound, and 4 miles east of Howe Island is **Point Brower**, the north extremity of tundra-covered **Foggy Island**, which is part of the delta and separated from the mainland by two branches of the river.

(244)

Foggy Island to Belvedere Island

(245) **Foggy Island Bay**, which extends 12 miles along the mainland between Foggy Island and Tigvariak Island, has depths of as much as 20 feet but has wide shallow areas along its east and west sides.

(246) **Tigvariak Island**, close to the mainland, is 2 miles long and 1 mile wide and has elevations up to 30 feet. The tundra of Tigvariak Island is dotted with lakes and ponds from which freshwater is obtainable; the shores of the island are mostly sand beaches backed by bluffs ranging in height from 5 to 30 feet. At the east end of the island is **Reliance Point**, a sandspit that extends 0.8 mile to the south, and on the northeast side is a large sea-level lake that is separated from the ocean by a sand barrier. **Lion Point** is the outer end of a long sandbar that begins 0.3 mile from the north end of Tigvariak Island and continues 0.8 mile to the northwest.

(247) **Mikkelsen Bay**, between Tigvariak Island and **Bullen (Savakvik) Point**, 7 miles to the east-southeast, has depths of as much as 18 feet that decrease gradually as the beach is approached.

(248) Returning to the island chain off the mainland, **Narwhal Island**, northwesternmost of the **McClure Islands**, is 10 miles southeast of Cross Island and 8 miles northeast of mainland Foggy Island. Narwhal Island has some vegetation and there is some driftwood on it; near the center of the island are several small ponds. Protected anchorage is available in depths of 15 feet behind the northwest end of Narwhal Island; depths of 7 feet extend 0.5 mile southwest from the middle. Little ice is encountered during the open season, and the anchorage can be approached from the southwest. The southeast end of Narwhal Island, a low, narrow, sand strip, has been cut through in numerous places by storms and ice. The passage between Narwhal Island and Jeanette Island, 1 mile to the southeast, has irregular depths but can be navigated without difficulty by vessels drawing less than 7 feet.

(249) **Jeanette Island** and **Karluk Island**, 2.5 miles apart, are at opposite ends of the crescent-shaped series of small sand islets, some as much as 5 feet high, that form the southeast part of the McClure group. These islets are exposed to vigorous ice and wind action, and there is continuous change in the shorelines and in the shallower depths. Protected anchorage is available in depths of 9 to 15 feet south of the islets.

(250) **Newport Entrance** is between Karluk Island of the McClure group and Pole Island, west of the two major **Stockton Islands**, 5 miles east-southeast of the McClures. A sandbar is 1 mile south-southeast of Karluk Island, and a second sandbar is 2.3 miles southeast of the island; the two bars are only a few yards in width and are awash during storm high waters. Shoals extend 1.5 miles west from Pole Island. Vessels drawing less than 7 feet can pass between Karluk Island and the two sandbars, but caution is advised because of the current action and berg gouging. The principal passage through Newport Entrance is between the sandbars and the Pole Island shoal; least depth is 16 feet over a width of 1 mile.

(251) **Pole Island**, 5 miles northeast of mainland Tigvariak Island, is a narrow sand barrier 2 miles long and has elevations up to 5 feet; the island has some vegetation, a few small ponds and a considerable amount of driftwood. **Belvedere Island**, east of the Stockton Islands, also is a narrow sand barrier about 2 miles long. The passage between the two islands is 0.2 mile wide and has a controlling depth of 5 feet.

(252)

Challenge Entrance to Konganevik Point

(253) **Challenge Entrance** is between Belvedere Island and Challenge Island, 6 miles to the southeast. The west side of the opening and the area immediately south of Belvedere Island are shallow and dotted with tiny islets and bare shoals. The best water is 0.8 mile west of Challenge Island where vessels drawing 10 feet or less can enter with safety.

(254) **Challenge Island**, the westernmost of the **Maguire Islands**, is a strip of sand about 0.5 mile long and 3 feet high. **Alaska Island**, which begins 0.2 mile east of Challenge Island and continues 3 miles farther east, is a

very narrow sand and gravel formation; the easternmost third has been cut through in several places and is a series of sandbars, shoals and islets. There is no channel between Challenge and Alaska Islands.

(255) **Duchess Island**, 1 mile east of Alaska Island, is 1 mile long and 5 feet high. There is a narrow channel between Duchess and Alaska Islands but it is not recommended.

(256) **North Star Island**, 0.2 mile southeast of Duchess Island and easternmost of the four principal Maguires, is another narrow sand barrier about 1 mile long and has extensive shoals on the south and southeast sides. There are narrow channels at both ends of the island but they are shallow and subject to constant change.

(257) **Mary Sachs Entrance**, between North Star Island and Flaxman Island, has extensive shoals on both east and west sides. There is a 0.7-mile-wide passage with depths of 10 feet about midway between the two islands.

(258) **Flaxman Island**, which begins 2 miles east-southeast of North Star Island and continues 6 miles to within 2 miles of mainland Brownlow Point, is the largest barrier island between the Return Islands and the point. The west part of the island is mostly sand and gravel; the east part has tundra bluffs up to 20 feet in height and numerous small ponds, but freshwater is not available in any substantial quantity.

(259) Passage has been made between Flaxman Island and Brownlow Point by staying close to the east end of the island until well into the lagoon; the channel has depths of 8 feet that shoal to 4 feet in the lagoon. The shoals that stretch from Brownlow Point to the east side of the narrow channel usually are marked by breakers or ice.

(260) The mainland between Bullen Point and Brownlow Point has numerous other points, sandspits and bluffs. The west branch of Canning River empties into the lagoon southwest of Brownlow Point; the river delta forms extensive shoals in the east part of the lagoon.

(261) **Brownlow Point** (70°09.8'N., 145°51.0'W.), 20 miles east of Bullen Point, is the most north feature of **Canning River** delta; the tundra point has elevations up to 25 feet. A sand and gravel bar, partly bare at high water, extends from Brownlow Point southeast past Canning River east branch to within 2 miles of Konganevik Point.

(262) From Brownlow Point to Canning River east branch, the lagoon between the delta and the barrier bar is about 0.5 mile wide and has depths of 2 to 3 feet. The discharge from the river discolors the sea water for many miles. Southeast of the river's east branch is a lagoon that provides excellent small-craft anchorage in depths of 8 to 10 feet; the best approach from seaward is around the southeast end of the barrier bar at a distance of 0.3 mile. A covered ridge that extends halfway from Konganevik Point to the bar protects the lagoon from northeast wind-driven ice. The lagoon was ice free in mid-August 1976.

(263)

Konganevik Point to Anderson Point

(264) **Konganevik (Kangigivik) Point** (70°01.5'N., 145°10.5'W.), 16 miles southeast of Brownlow Point, projects 2 miles northeast from the mainland and is the west limit of **Camden Bay**. About 1 mile north of the point are extensive shoals that are partly awash; between the shoals and the point is a channel with depths of 7 to 17 feet. The lee provided by the shoals might be helpful in some conditions.

(265) Launch anchorage has been reported east of Konganevik Point, but there are large boulders in the area, and boulders are seen along the entire shore of the point; natives use this anchorage in preference to Simpson Cove, to the east-southeast, to avoid the ice that moves back and forth across Camden Bay with the winds. A better small-craft anchorage is in the lagoon 2 miles south of the point; the lagoon affords ample protection from all winds in depths of 4 feet. Entrance to the lagoon can be made through the break in the barrier bar across the mouth by staying close to the south shore.

(266) **Katakuruk (Katakturak) River** empties into the south side of Camden Bay on the west side of **Simpson Cove** and is 6 miles east-southeast of Konganevik Point. The cove has excellent holding ground and affords protection from ice and wind for vessels drawing up to 6 feet; approach should be made from northeast of **Collinson Point**, the west end of the long narrow sandspit that extends from the mainland on the east side of the entrance. The best water is about 0.3 mile from the point; once past the point, there are depths of 9 to 11 feet in the greater part of the cove. Vessels should anchor as close to the weather shore as their drafts will permit.

(267) **Anderson Point** (70°01.5'N., 144°27.8'W.), 15 miles east of Konganevik Point, is the east limit of Camden Bay. The point is low and flat but behind it is a bluff that ranges in height from 4 to 30 feet and is prominent from west; from east the bluff blends with the hills and is hard to see. West of Anderson Point the bottom slopes to depths of 10 to 12 feet very close to shore; north of the point the slope is gradual to depths of 2 or 3 feet, then sharp to depths of 12 to 30 feet.

(268)

Arey Island to Griffin Point

(269) Low, narrow, gravelly **Arey Island** (70°07.3'N., 143°54.0'W.) begins about 10 miles northeast of Anderson Point and extends 3 miles northeast, then 2.5 miles east-southeast. The water is deep close to the outer shore of the island except at the southwest end. Incoming ice hits the northernmost part of Arey Island before any other place in the vicinity. A vessel can navigate very close to this part of the island if a lead can be found through the ice.

(270) **Barter Island**, close east of Arey Island and about 45 miles east of Brownlow Point, is roughly triangular in

shape, each side being 3 to 4 miles in length. The island rises to an elevation of 58 feet, is the highest ground in this general area and has bluffs along its seaward side. **Kaktovik** is on the north shore of Barter Island between the Okpilak and Jago Rivers. Kaktovik can be easily identified from sea by a large white radar dome and tower. The approach to Kaktovik is characterized by shifting shoals, and approaches to the beach are not recommended without local knowledge. In 2008, an uncharted shoal was reported about 400 yards north of the beach running east to west for approximately 0.5 mile with depths of about 3 to 4 feet. The village consists of several homes, a telecommunications center operating on VHF-FM channel 68, a post office, a fire and rescue service, a health clinic and a store with limited supplies of food, clothing, first-aid and hardware. The sale and possession of alcoholic beverages is prohibited within Kaktovik. Kaktovik has an airstrip with service to Barrow and Fairbanks. An aero radiobeacon (70°07.9'N., 143°38.5'W.) and an aerolight (70°08.2'N., 143°35.2'W.) are on the island. Subsistence hunting of marine mammals occurs at Kaktovik year round as far as thirty miles offshore. There are no piers or small boat facilities; however, limited amounts of gasoline and diesel fuel are available. Kaktovik lies within Arctic National Wildlife Refuge.

(271) Kaktovik is not a port of entry.

(272) Off the northeast end of Barter Island is **Bernard Spit**, a sand barrier that extends nearly 4 miles in an east-southeast direction. Between the overlapping ends of Barter Island and Bernard Spit is **Bernard Harbor**, which has depths of 5 to 7 feet over good holding bottom but can only be entered by drafts of 4 feet or less. The north part of the harbor is out of the way of drifting bergs; ice does not get to this part of the harbor during west winds. Vessels entering Bernard Harbor from west should favor the Barter Island shore; this passage may become blocked soon after the ice starts in.

(273) Protection from ice and wind is available just east of the sandspit at the northwest end of Barter Island. The anchorage is not recommended for vessels drawing more than 5 feet.

(274)

Weather, Barter Island Vicinity

(275) The climate is determined by the surrounding open Arctic water surface. The island terrain and the terrain of the mainland south of Barter Island is low, flat, and generally marshy tundra with numerous lakes and with no elevations of consequence until the Brooks Range 65 miles to the south. Consequently, there are no topographic features to affect temperature and precipitation.

(276) During the long Arctic night, temperatures along this Arctic coastal region do not drop to the extreme low readings reached in Alaska's interior. The modifying effect of the surrounding ocean area, although frozen during the winter months, is one of the factors preventing extremely low temperatures. During the warmest months of the summer the more open water surface is still more effective in modifying the warming effects of a continuous period of possible sunshine that continues almost from the middle of May to the end of July. Extreme maximums have exceeded 70°F (21.1°C) only in July and August, with the all-time maximum of 78°F (25.6°C) recorded in July 1974. The annual mean daily maximum temperature is just under 16°F (-8.9°C), and the mean daily minimum is slightly above 4°F (-15.6°C). Freezing temperatures are reached, as a general rule, during all months of the year. Diurnal temperature ranges are confined within relatively narrow limits, reaching monthly maximums of around 17°F (8.3°C) in April and diminishing to their minimums of slightly less than 8°F (13.3°C) in June during the period of continuous daylight. February is the coldest month, with a mean temperature of -19°F (-28.3°C). The all-time minimum for the station is -59°F (-50.5°C) in February 1950. Only the months of June through September have not seen below 0°F (-17.8°C) temperatures.

(277) Snow covers the ground about eight months of the year, and snow usually falls every month of the year. Barter Island has seen a 3-inch (76 mm) snowfall in July. Overall precipitation is very light, averaging only six inches (152 mm) in a year. The wettest month is August, when about an inch of precipitation can be expected. Snowfall averages about 42 inches (1,067 mm) each year and the snowiest month is October. The relatively strong winds experienced from October through February make accurate measurement of snowfall and precipitation difficult because of drifting and blowing snow. The winds, combined with relatively high humidities, are prime factors in producing uncomfortable weather conditions during the winter months. The sun remains below the horizon from late November until mid-January.

(278) Ice formation and movement is an important factor in the Barter Island area. The dates of the appearance of ice in the fall varies greatly from year to year, but the breakup dates in the late spring, or early summer, appear to be better confined. Ice on the Beaufort Sea and in the lagoons adjacent to Barter Island have become safe for navigation as early as September 24 but have remained unsafe as late as mid-November. The ice appears to remain safe for vehicles until the first of June and, sometimes, almost to the end of June. It has become unsafe for navigation as early as June 10 but remained safe as late as mid-July. Tidal action often makes travel over ice or through the broken ice quite hazardous for considerable periods during the freeze in the early winter and, particularly, during the breakup of late spring or early summer.

(279) Ice records of the National Weather Service for Barter Island are meager but indicate a similarity to conditions at Barrow. Observations of National Ocean Survey field parties from 1948 through 1953 show that the ice usually breaks off from shore in late July or early August. After the breakup, ice is present in varying amounts and moves on and off the shore with the winds until mid-September or early October when it freezes up for the winter.

(280) **Manning Point** is a barrier spit that projects north from the mainland to within 0.2 mile of the northeast end of Barter Island. **Kaktovik (Kaktoavik) Lagoon**, between the spit and the island, and **Jago Lagoon**, on the east side of the spit, have depths of 9 to 12 feet but, like Bernard Harbor, cannot be entered by drafts greater than 4 feet.

(281) **Martin Point** (70°07'N., 143°16'W.), low and irregular, is on the east side of the entrance to **Jago River** and 53 miles east of Brownlow Point. The west end of a barrier island is 2 miles northwest of Martin Point.

(282) From Martin Point east-southeast to Griffin Point, a distance of about 9 miles, the low, narrow barrier islands are less than 5 feet high and are separated from the mainland by shallow lagoons. Considerable driftwood has been deposited on the higher parts of the islands. The mainland shores of the lagoons have tundra bluffs with elevations up to 20 feet. There is deep water along the seaward sides of the barrier islands, and small boats can navigate within a few yards of the beach except near the inlets.

(283)

Griffin Point to Siku Point

(284) **Griffin Point** (70°03.6'N., 142°52.4'W.) is a low sandspit that projects out from the mainland. A mile west-northwest of the point is **Oruktalik Entrance**, a narrow barrier passage through which a depth of about 5 feet can be taken into **Oruktalik Lagoon**.

(285) The barrier islands off Griffin Point continue southeast for 3 miles; thence to Pokok Bay are 25- to 30-foot bluffs fronted by narrow, steep sand beach except for the last 1.5 miles. Small boats can navigate very close to the beach between Griffin Point and Pokok Bay.

(286) **Pokok Bay**, 17 miles southeast of Martin Point, is about 1 mile across. Bars extend out from both sides of the entrance. Depths are about 7 feet in the entrance and 10 to 12 feet in the bay proper. The entrance should be approached from the west, but care must be taken to stay off the sandbar that makes out from the northwest side. The bay has good holding bottom and good protection from ice and winds.

(287) Tundra-covered **Humphrey Point** (69°58.3'N., 142°30.9'W.), on the southeast side of Pokok Bay, has a low bluff and a narrow sand beach. Southeast of Siku Point are low barrier islands that cover in many places at high water. The seaward sides of the islands are irregular, and small boats must stay well offshore.

(288) **Angun Lagoon**, behind the barrier reef between Humphrey Point and **Angun Point**, 4 miles to the southeast, has depths of 10 to 11 feet. There is a 10-foot bluff at Angun Point. The lagoon entrance, 1 mile northwest of Angun Point, is 75 to 100 yards wide and has a controlling depth of 8 feet. The barrier islands are subject to change; entrance must be made with caution.

(289) **Beaufort Lagoon**, with depths of 5 to 12 feet in the middle, extends about 14 miles southeast behind the barrier reef from Angun Point to Siku Point. The southeast part of the lagoon from the delta of Aichilik River to Siku Point has not been surveyed, but the entrances are known to be very shallow and subject to change. The principal entrance to the lagoon is a narrow channel with a depth of 2 to 5 feet about 1.8 miles southeast of Angun Point; caution is advised.

(290) **Nuvagapak Lagoon**, with depths of 8 to 10 feet in the middle, is south of Beaufort Lagoon and extends southeast to the delta of **Aichilik River** from **Nuvagapak Point**, a high tundra 1 mile back of the reef and 3.5 miles southeast of Angun Point. **Egaksrak Lagoon**, south of Beaufort Lagoon between the delta of Aichilik River and Siku Point, has not been surveyed.

(291)

Siku Point to Alaska-Canada Boundary

(292) **Siku Point** (69°49.0'N., 141°54.7'W.), 16 miles southeast of Humphrey Point, is the northwest end of **Icy Reef**, a barrier that extends 13 miles southeast to Demarcation Bay without a break. Icy Reef has elevations of 1 to 10 feet and is more prominent than the barrier islands to the northwest; the reef is a combination of several ridges built by wave action and has considerable driftwood along its entire length.

(293) Broken ice can be expected along the seaward side of Icy Reef during most of the open season. Small boats usually can push through the ice by staying close to the beach or by taking advantage of the loosely packed ice farther offshore. There are depths of 15 feet within 100 yards of the beach and 30 feet within 0.3 mile.

(294) The northwest part of the mainland behind Icy Reef is low and relatively flat. Halfway along the mainland shore is a large ice field, about 3 miles long, which the Eskimos say never melts; observations from Icy Reef indicated that the ice field was fairly uniform and that it stood a few feet above the surface of the lagoon.

(295) The southeast half of the mainland shore behind Icy Reef has bluffs with elevations of as much as 25 feet. Four miles northwest of Demarcation Bay is bluff **Pingokraluk Point** (69°43.7'N., 141°32.0'W.), and about 0.3 mile southeast of the point is a 49-foot-high tundra mound that is very prominent.

(296) **Demarcation Bay**, 30 miles southeast of Humphrey Point, is about 5 miles in width by 3 miles in inland extent. **Demarcation Point** (69°41.2'N., 141°17.5'W.), on the east side of the entrance, is low tundra that rises gradually to a 30-foot bluff.

(297) A depth of about 13 feet can be carried into Demarcation Bay 0.5 mile west of Demarcation Point; the bay has depths of 13 to 16 feet, sticky bottom, and good protection from all weather. Along the shores of the bay are bluffs with elevations up to 25 feet.

(298) From Demarcation Point, Alaska, to **Clarence Lagoon**, 10 miles to the east-southeast in Canada, the narrow, steep sand beach is backed by irregular bluffs.

Small boats can navigate within a few yards of the beach, and there are depths of 30 feet 0.3 mile off.

(299) **Alaska-Canada Boundary Monument No. 1** (69°38.8'N., 140°59.8'W.) is 6.5 miles east-southeast of Demarcation Point; the 4-foot obelisk is 100 feet inland from the top of the bluff and is fairly conspicuous.

(300) There is an aero radiobeacon (69°35'N., 140°11'W.) about 17 miles east by south of the boundary monument.

(301) **Herschel Island**, Canada, about 40 miles east of the boundary, rises to an elevation of 550 feet. The island has an extent of about 10 miles from east to west and 7 miles from north to south. Thetis Bay, on the southeast side of the island, affords fairly good anchorage, sheltered from north and west winds, for vessels drawing up to 18 feet.