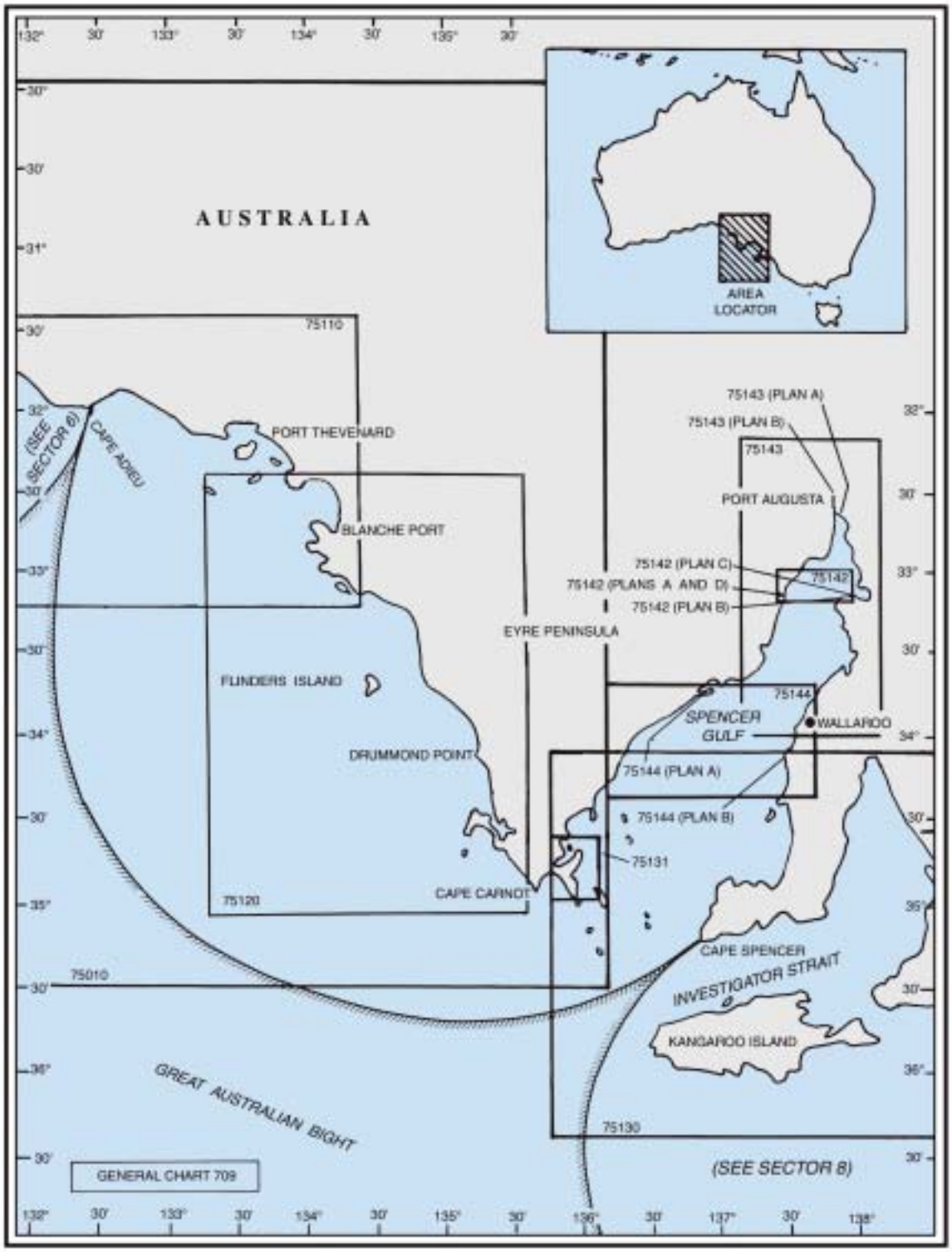
Table of Contents




Additional chart coverage may be found in CATP2, Catalog of Nautical Charts.

SECTOR **7** —CHAR T INFORMATION

Double click on "See Sector" to be hotlinked to the Sector.

Table of Contents

# SECTOR 7

## GREAT AUSTRALIAN BIGHT—CAPE ADIEU T O CAPE SPENCER INCLUDING SPENCER GULF

**Plan.—**This sector describes the Great Australian Bight from Cape Adieu to Cape Spencer and includes Spencer Gulf. The descriptive sequence is SE to the entrance of Spencer Gulf and then NNE through this gulf to its head.

## General Remarks

**7.1** The coast of the Great Australian Bight, between Cape Adieu and Cape Catastrophe, about 266 miles SE, is bordered by moderately high cliffs and hills and indented by several open bays and inlets. Most of these bays are fairly deep up to within a short distance of the coast, whereas, others are fairly shoal and obstructed by numerous islets, rocks, and reefs. All of these bays are exposed to the heavy SW swell which constantly rolls in, even during SE winds.

The small settlements which lie within these indentations are, in most cases, available only to small vessels of moderate draft. Several commercial ports are available to ocean-going vessels in Spencer Gulf. Sheltered anchorage is provided in the lee of some of the islands for small craft with local knowledge. The entrance of Spencer Gulf lies between Cape Catastrophe and Cape Spencer, about 48 miles to the ESE. The gulf extends about 180 miles in a general NNE direction to Port Augusta at its head. Port Lincoln, Tumby Bay, Franklin Harbor, and Port Whyalla stand along the W side of the gulf. Port Victoria, Tipara Bay, Wallaroo Bay, Port Broughton, Port Pirie, and Germein Bay stand along the E side.

The gulf is navigable over most of its area by deep-draft vessels, but only vessels of moderate draft can reach and berth at Port Augusta.

**Winds—W eather.—**There is a marked winter maximum and a marked summer minimum in the annual course of rainfall along the coast. The annual average ranges from about 210mm at Port Hedland, a sheltered location at the head of Spencer Gulf to the E, to about 970mm at Cape Leeuwin, on the extreme W part of the S coast of Australia. It is dry at Eucla and at other stations along the coast of the Great Australian Bight, with rainfall in the area averaging about 305mm annually.

The S depression, with its mainly onshore accompanying winds, is responsible for the greatest portion of the rains. The depression and rainfall are most frequent from May to August, with the highest intensities occurring in June and July. In the summer, the depressions occur less than once a month, during which time rainless months are frequent along all but the W part of the S coast.

Tropical depressions extending S also cause rain. An average of two or three of these tropical depressions occur each month during the spring, which is the season of greatest frequency.

Prolonged rain in the summer and transient months does not occur anywhere along the coast. Occasionally, a wet spell of 2 to 4 days duration occurs with a tropical depression as it moves S.

The mean temperature of the air over the area varies little from E to W. The winter averages during June, July, and August along the SW coast, and along the Great Australian Bight, are between 12.2˚C and 14.4˚C. In the E section of Adelaide and Port August, the winter temperatures 11.1˚C to 13.3˚C.The summer averages are about 10.6˚C than in the winter. The extreme heat reaches over 37.8˚C at all the stations, with a high temperature of 50.6˚C being recorded at Eucla in January. The winter extremes seldom fall below freezing, with a low temperature of -3.9˚C being recorded at Eyre in July. The daily range is usually small, but it varies with the season, usually having a maximum in the summer and a minimum in the winter.

The highest occurrence of thunderstorms is usually associated with the movement of the S depressions across the area. These thunderstorms occasionally are violent, with heavy rain and hail. Convectional thunderstorms, caused by the afternoon heat, also occur at places along the coast, but their incidence is more localized.

Lightning alone is frequently recorded when a tropical depression moves S over the coast. During this situation, night lightning at sea is frequently observed, possibly indicating a more frequent occurrence of thunderstorms at sea than observations indicate.

The cold front thunderstorm in mainly a winter and spring development. The convectional thunderstorm is most frequent in summer.

Fog is comparatively rare on the coast and over the adjacent sea. The highest frequency of fog occurs during the winter months.

Along the coast, patchy drifts of shallow fog or mist frequently occur in low-lying areas during the early morning hours. They are due to the combined effects of numerous islets, profuse vegetation, and the saturation of the air. They develop into dense fogs in tropical air chiefly of the pre-warm front type.

Fogs are likely to be dense along the coast when conditions favorable for their formation are preceded by rain. Low patches of clouds moving close to the surface are characteristic of the broken and changing skies observed during the frequent squalls that develop in the prevailing westerlies.

**Tides—Curr ents.—**Near Cape Leeuwin and off the S coast of Australia, the current appears to be principally influenced by the prevailing winds. Some vessels have experienced constant N and NE currents, with velocities of 1 to 1.5 knots. Other vessels have been set to the E, but little to the N, as they approached the SW coast of Australia.

From Cape Leeuwin to the Archipelago of the Recherche, the current usually sets in a direction parallel to the coast, being strongest between D' Entrecasteaux Point and King George Sound, where its rate can sometimes attain a velocity of 1.5 knots.From the archipelago around the Great Australian Bight to Cape Northumberland, it has less strength than farther

to the S. When approaching Bass Strait, the current sets E and SE at a rate of 1 to 2.5 knots.

From November to April, the E current loses strength, and after a fresh E wind frequently changes its direction to the NW.

In the offing between Cape Leeuwin and Cape Otway, the currents appear to be influenced mainly by the strong W winds which prevail during 9 months of the year.

Near the Australian coast, with E winds, a current has been found setting W, but this current is probably confined to the vicinity of the coast. To the N of Cape Jaffa, which lies about 220 miles NW of Cape Otway, a current sets E, at a rate of about 1 knot, during W gales; at the same time near Cape Jaffa, the current sets N.

Vessels approaching the vicinity of Cape Otway during strong W winds should be prepared for a S set.

**Caution.—**Vessels entering the gulf are advised that dangerous currents exist off **Cape Catastrophe** (34°59'S., 136°00'E.) and Waterhouse Point, on the SE end of **Thistle Island** (35°00'S., 136°09'E.), and violent tide-rips exist in the vicinity of the islets between Cape Catastrophe and the W side of Thistle Island. Deep-draft vessels should not approach within 5 miles of **South Neptune Island** (35°20'S., 136°07'E.) because of the irregularity of the bottom and lack of detailed surveys.

**7.2** **D'Entrecasteaux Reef** (31°59'S., 131°56'E.), lying between 11 and 12.5 miles W of Cape Adieu, is divided into two parts. The N part, the outline of which is always marked by breakers, is about 2 miles in extent and has several rocks, awash, near its NE extremity. The S part, which only breaks during a heavy swell, lies about 0.5 mile S of the N part. As soundings are not a good guide when approaching the coast in this vicinity, these dangers should be given a wide berth at night.

**Nuyts Reefs** (32°08'S., 132°09'E.) consist of a number of islets and sunken rocks extending about 9 miles S from Cape Adieu. The highest islet of the group rises to a height of 13m and stands about 7.5 miles S of the cape. This islet is connected to a smaller islet by rocks which uncover. The sea breaks a short distance N of some rocky heads that lie off the N end of these islets; elsewhere they appear steep-to. Three reefs lie about 1.5 miles S of the above highest islet. The center of the NE reef uncovers, but the other two are sunken and do not always break. However, during W gales and heavy swells, the breakers on the two sunken reefs can be seen before the islets are sighted. Two above-water rocks lie close together about 1.5 miles ENE of the above 13m islet. The NE rock is 9.1m high. The N danger of the group is a 6.1m high rock about 5 miles NNE of the 13m islet and about 1.5 miles off the coast. The sunken reef extends almost 1 mile S from it. There are depths of 22 to 51.2m between this reef and the 9.1m rock mentioned above.

## Cape Adieu to Denial Bay

**7.3** **Cape Adieu** (32°01'S., 132°09'E.) is described in paragraph 6.43. From Cape Adieu, the coast extends ESE for about 3.5 miles and then E for about 7.5 miles to Cape Nuyts. The coast between these capes consists of low, dark cliffs topped by sand hills in places and fronted by foul ground. The outermost rocks, about 1 mile offshore, break during heavy swells. The W of three hills, all of which are about 120m high, stands 3 miles NW of Cape Nuyts and is densely covered with scrub.

**Cape Nuyts** (32°02'S., 132°21'E.), 58.5m high, is a rocky cliff topped by sand hills. A steep-to sunken reef, which seldom breaks, lies about 1 mile SE of the cape. A detached 18.3m high rock stands close E of the NE side of the cape. The small bight between this rock and Scott Point is fronted by rocks which extend about 0.3 mile from the shore.

**Scott Point** (32°01'S., 132°23'E.) is 49m high and faced by steep cliffs. The point slopes down to the swamps behind it and appears like an island when seen from the SW or SE.

**Scott Bay** (32°01'S., 132°24'E.), fouled by rocks, lies close E of Scott Point. An extensive area of bare sand, which rises to a height of 38m, stands N of the bay.

**Point Fowler** (32°02'S., 132°29'E.), about 4 miles ESE of Scott Point, is a promontory that extends about 3 miles from the coast and forms the S side of Port Eyre. The point is faced by dark cliffs and appears flat-topped when seen from seaward. Sand hills, sparsely covered with vegetation, rise slightly above the cliffs on the SW side. The NE side of the point is lower and slopes gently upward. The SE extremity of the promontory is 48m high. Three rocky banks, with depths of 18.3m and less, lie between 0.5 and 1.5 miles SE of the point. The heavy swells and high rollers that accompany and follow SW gales break on these banks. Nantabi Sand, about 8 miles NE of Point Fowler, is a conspicuous mark on the N shore of Fowlers Bay. A tower stands 2 miles from the coast, 5 miles WNW of Nantabi Sand.

**Port Eyre** (32°00'S., 132°27'E.) (World Port Index No. 54430) consists of a bight which lies at the W end of Fowlers Bay, close N of Point Fowler, and provides shelter from all winds within the 10m curve. The high outside seas, which have been raised by SE winds, quickly subside in height when nearing the anchorage. Depths within the bay decrease gradually toward the shore. An extensive area of sandhills, N of Scott Bay, extends to the W shore of Port Eyre. The N end of these sandhills is steep and conspicuous. North of these sandhills, the beach is backed by a low ridge; farther inland the land is low and swampy. A scrub-covered range of hills, 55 to 66m high, stands farther N about 1 to 2 miles inland. A rock, awash, lies about 1 mile NW of Fowler Point and about 0.2 mile offshore. A shoal, with depths of less than 1.8m, extends about 0.5 mile NE from the shore on the SW side of Port Eyre. A jetty, suitable only for fishing boats, extends from the shore in the vicinity of the settlement.

Anchorage can be taken, in depths of 9.1 to 10m, with the E end of Point Fowler bearing 165° and the head of the jetty bearing 284°, or closer in according to draft. The bottom of sand and weed is good holding ground. Because of the increased height of the seas during SE winds, vessels should allow a safety margin of at least 0.9m under the keel at the inner anchorage and 1.8m at the outer anchorage. There are no permanent residents at the settlement.

**7.4** From Nantabi Sand, the coast extends E for about 9.5 miles and then curves SE for 14 miles to the inner end of the promontory that forms Sinclair Point. The first 4 miles consists of a sandy beach and then red bluffs for 6 miles, continued by a sandy beach with rocky points for the remaining distance.



Return to paragraph 6.43

Chadinga Hill, 52m high, extends about 2 miles inland as a sand dune along this latter stretch of coast. A dark, flat-topped range of hills, covered with dense scrub, extends from a position about 3.5 miles NNE of Nantabi Sand to a position N of Chadinga Hill. North of Nantabi Sand and **Eyre Bluff** (31° 58'S., 132° 44'E.), the summits of this range attain heights of about 122m.

**Yatala Reef** (32° 37'S., 132° 26'E.), a dangerous detached reef, lies about 36 miles S of Fowler Point in the S approach to Port Eyre and in the W approach to Nuyts Archipelago. The reef consists of two sunken rocks about 0.2 mile apart. The sea breaks on the N rock, which has a depth of less than 1.8m; the other rock, which breaks occasionally, has a greater depth over it. In 1984, a below-water rock, with 2m or less over it, was reported to lie 0.4 mile N of Yatala Reef. The reef lies near the E side of a bank, with depths of less than 55m, but the depths do not vary sufficiently for soundings to give warning of being too close to it. The reef is visible most days under normal conditions. When a large swell is running, the reef is visible at night at about 0.5 mile and can be picked up on radar at 6 to 8 miles. With little or no swell, the reef cannot be seen at night nor can it be picked up by radar. Vessels should give this reef a wide berth at night and during hazy weather. Eyre Bluff, about 13 miles ENE of Fowler Point, is a steep rocky islet, about 37m high, which is connected to the coast by rocks which uncover. A patch of foul ground, with a depth of 18.3m, lies about 4.25 miles SSW of Eyre Bluff.

**7.5 Sinclair Point** (32° 07'S., 132° 59'E.), 47m high and topped by a growth of coarse grass, is the outer end of a promontory that extends S for about 2 miles from the coast. A bare limestone cap stands about halfway up the granite slope which forms the S extremity of the point. There are heavy breakers on the rocks off this part of the coast. A rocky patch, with depths of 18.3m, lies about 4 miles WNW of Sinclair Point.

**Sinclair Island** (32° 09'S., 132° 59'E.), of granite and 16m high, stands 2.5 miles S of Sinclair Point. A 1.5m high rock, marked by breakers on its E side, lies about midway between the island and the point.

**Pudding Rock** (32° 07'S., 133° 00'E.), a bare rock, about 5.8m high, stands 2 miles SE of Sinclair Point. A reef, awash, lies about midway between the rock and the point. Sunken rocks extend about 0.4 mile SW from this reef; a sunken rock lies between this reef and Pudding Rock.

**Port Le Hunte** (32° 06'S., 133° 00'E.), close E of Sinclair Point, was formerly a landing place for the surrounding district. The jetty fronting the shore is no longer usable. Vessels anchoring in the vicinity should do so seaward of the 5m curve. The coast between Port Le Hunte and Bell Point, about 10 miles to the SE, is fronted by a long sandy beach backed by sand hills, 24.4 to 36.6m high.

**Black Peak** (32° 06'S., 133° 04'E.), 36m high, stands near the coast about 4 miles E of Sinclair Point.

**7.6 Point Bell** (32° 12'S., 133° 08'E.) extends about 2.5 miles from the coast, about 9.75 miles SE of Sinclair Point. The 54m high summit is grass-covered; the S extremity of the point consists of a smooth low granite formation. Rocks, which uncover, extend about 0.2 mile S from its extremity. A dark rock, 4.6m high, stands 1.25 miles SSW of Point Bell. This rock is surrounded by foul ground which breaks. Foul ground extends more than 1 mile SSW from this rock and its steep-to outer end breaks with a heavy sea and swell. An area of extensive shoals, with depths of 17.4 to 20m, lies centered about 9 miles SSW of Point Bell.

The bight close E of Point Bell provides anchorage, in depths of 3.7 to 5.5m, sandy bottom, in all seasons, for vessels with local knowledge and a draft of about 3m. Anchor bearings may be taken, with the shed near the beach bearing about 284° and the E extremity of Point Bell bearing 183°. A conspicuous bare sand peak, 35m high, stands on the N side of the bight about 2.5 miles NNE of the summit of Bell Point.

**Rocky Point** (32° 12'S., 133° 15'E.), low and backed by 30m high grass-covered hills, stands 6.5 miles E of Bell Point. The coast between these points is sandy and backed by barren sand hills. The most conspicuous sand hills stand near Bell Point and about midway between the two points. A rock, awash, lies about 0.75 mile W of Rocky Point and rocks lie within 0.1 mile of the S and E sides of the point.

**Flinders Rock** (32° 13'S., 133° 13'E.), a steep-to rock with a depth of 5.5m, lies about 2.5 miles WSW of Rocky Point. The sea occasionally breaks over this rock in a moderate swell.

**7.7 Purdie Islets** (32° 16'S., 133° 14'E.) consist of a large granite islet, 25m high, and several above and below-water rocks. A small 3m high rock stands about 0.5 mile S of the islet and sunken rocks extend over 0.25 mile N from the islet. A chain of breaking rocks, 1.5 to 4.6m high, extends about 1.5 miles NE from the islet. An isolated rock, 3.9m high, stands 2.25 miles ENE of the 25m islet. Depths of more than 18.3m are found close to all these dangers, but a depth of 7.5m lies 2.5 miles SE of the 25m islet. The Purdie Islets were reported to be good radar targets at distances of up to 11 miles.

**Lounds Island** (32° 16'S., 133° 22'E.) stands 7 miles SE of Rocky Point; the island is 10m high and steep-to.

**Lounds Reef** (32° 14'S., 133° 22'E.), which breaks occasionally, lies 2.75 miles N of Lounds Island and about 5.5 miles ESE of Rocky Point.

**James Point** (32° 12'S., 133° 25'E.), about 8.5 miles E of Rocky Point, is a small projection which has three dark rises, about 42m high, a short distance NW of it. Two bare sand hills lie close W of these rises; the E hill is 47m high. The intervening coast between the two points consists of rocky points and low cliffs with sandy beaches in between. Rocks extend about 0.25 mile offshore along this stretch of coast. A rock, which breaks, lies about 0.75 mile offshore abreast the W sand hill and about 2.5 miles W of James Point.

**Peter Point** (32° 12'S., 133° 29'E.), about 3.25 miles E of James Point, is the E extremity of an irregular peninsula that forms the S side of Tourville Bay, and is also the N point of the entrance of Denial Bay. The point rises gradually to its 34m high summit. Between James Point and Peter Point, the coast is indented by a sandy bay. Cowie Yalkeena, a bare sand hill, 36m high, is the most conspicuous feature of this bay. A rock, with a depth of 4.6m and on which the sea breaks occasionally, lies about 0.75 mile SW of Peter Point. A shoal, with a depth of 6m, on the N side of Yatala Channel, lies 2.5 miles ESE of the point. Yatala Channel leads from Denial Bay into Murat Bay.

## Nuyts Archipelago

**7.8 Nuyts Archipelago** (32° 15'S., 133° 40'E.), comprising a number of islands and rocks, extends about 32 miles SW from that part of the coast SE of Peter Point and between Denial Bay and Smoky Bay. St. Peter Island and St. Francis Island are the largest and only inhabited islands of the archipelago.

The only anchorages among the outer islands lie off the N side of St. Francis Island and off the N side of Franklin Island. The latter anchorage is available only during the summer, when SE winds prevail.

**St. Francis Isles** (32° 34'S., 133° 18'E.), consisting of a group of 11 islets, form the outermost and SW portion of the archipelago. St. Francis Island, the largest of this group, lies about 19 miles SSE of Bell Point.

**Hart Island** (32° 39'S., 133° 08'E.), the outermost island of the St. Francis Isles, stands 28 miles E of Yatala Reef (32° 37'S., 132° 26'E.) and about 10.5 miles SW of St. Francis Island. The island consists of a rock, 20m high, and is almost bare. The island is steep-to, except for a sunken rock within 0.1 mile of its SW end and an above-water rock near its NE end. Hart Island is a useful mark for vessels bound for Port Eyre from the SE.

**Cannan Reefs** (32° 39'S., 133° 15'E.), about 5.5 miles E of Hart Island, consist of a bare 7.6m high rock about 0.2 mile long, and several rocks awash. A breaking rock lies about 0.2 mile WSW of the 7.6m rock. A rock, awash, lies about 0.3 mile NNE of the E end of the 7.6m rock and another breaking rock lies about 0.75 mile NNE of the same above-water rock. A dangerous rocky patch, with a least depth of 4.9m was reported (1968) to lie about 4.25 miles SSE of this above-water rock. A depth of 29m was reported (1968) to lie 1.5 miles SSW of this rocky patch. A bank, with depths of 16m, lies 10 miles ESE of Cannan Reefs.

**7.9 Fenelon Island** (32° 35'S., 133° 17'E.), about 3 miles S of St. Francis Island, is very steep and rises to a height of 57m as a single peak. An above-water rock lies 0.2 mile off the N extremity of the island; detached boulders extend about 0.1 mile from the NW and E ends of the island. Elsewhere the island is steep-to.

**Masillon Island** (32° 34'S., 133° 17'E.), about 1 mile N of Fenelon Island, has three peaks of almost equal height, the highest rising to an elevation of 76m. The island is steep-to, except for a few rocks close offshore, and is very steep. A bight indents the W side of the island.

**Smooth Island** (32° 30'S., 133° 18'E.), almost 1 mile N of the NE extremity of St. Francis Island, is 35m high, smooth, round, and steep-to.

**Dog Island** (32° 29'S., 133° 20'E.), 1.5 miles NE of the NE extremity of St. Francis Island, is composed of light-colored cliffs which rise to a 60m high summit on the E side. The N side of the island is sheer, but the S end slopes gently. A few detached boulders lie on the N and E sides of the island, and rocks extend over 0.1 mile from the E and NE extremities of the island, otherwise it is steep-to.

**Freeling Island** (32° 29'S., 133° 20'E.), 0.5 mile NE of Dog Island, is dark in appearance and has a rounded summit, 35m high. Two rocks, awash, lie 0.15 mile off its N extremity; elsewhere it is steep-to.

**Egg Island** (32° 28'S., 133° 19'E.), the N island of the St. Francis Isles, stands 0.5 mile NE of Smooth Island. The island has a rounded summit, 37m high, which is steep on its E side and slopes on its W side. With the exception of a rock which lies 0.1 mile off the N extremity and on which the sea breaks, the island is steep-to.

**West Island** (32° 31'S., 133° 16'E.), about 1 mile WSW of the NW extremity of St. Francis Island, is 27m high and has a number of loose boulders on its W slope. The sea breaks within an area about 0.5 mile N of the island, and there are high rollers, which break occasionally, for a distance of 0.5 mile S of the island. A long, barren, rocky islet, about 7.6m high, stands about midway between West Island and St. Francis Island. The passage on either side of this islet should not be attempted.

**7.10 St. Francis Island** (32° 31'S., 133° 18'E.) is about 2 miles in extent and almost covered with vegetation. Its rounded summit, 80m high, stands on the E side of the island, and the highest point on the W side rises to a height of 49m. The sea breaks heavily on all except the N side of the island. A 17.7m rock, with a breaker close S of it, lies close off the SE extremity of the island and sunken rocks extend about 0.5 mile S from the S end of the island. With the exception of Petrel Bay, the N and E sides of the island are steep-to and clear of dangers. A light is exhibited from the summit of the island.

**Petrel Bay** (32° 30'S., 133° 16'E.) indents the N side of St. Francis Island close W of the NE extremity, and has a sandy beach. There are depths of 5.5m about 0.1 mile offshore, with depths of 12.8 to 18.3m farther offshore. Vessels with local knowledge can anchor in the bay over a bottom of weed and sand. The anchorage in Petrel Bay is sheltered from all except N and NE winds; however, such winds seldom blow with sufficient force to raise a heavy sea at this distance from the mainland. During W winds, the best anchorage lies in the W part of the bay, in a depth of 16.5m, about 0.5 mile offshore; smaller vessels can anchor farther in. During SE winds, the best anchorage is in the E part of the bay, in a depth of 16.5m, with the W side of the Egg Island bearing 025° and open W of the W side of Smooth Island, and with the NE extremity of the E entrance point of the bay bearing 093°.

**Lacy Islands** (32° 24'S., 133° 22'E.), with its largest island lying about 6.5 miles NNE of St. Francis Island, is 45m high and has a steep and apparently inaccessible coast, which is free of dangers. A small round islet lies 2 miles NW of the above island. A rock that uncovers lies about 0.3 mile E of the islet, and a sunken rock lies about 0.1 mile N of this rock. An above-water rock lies about 0.5 mile WSW of the islet. Depths of 23m and 18.2m lie 3 miles WNW and 9 miles W, respectively, of the 45m island.

**Evans Island** (32° 23'S., 133° 29'E.), 37m high, stands about 5 miles ENE of the largest of the Lacy Islands. Detached above and below-water rocks extend about 0.25 mile from the NW and SE extremities of the island. A breaking rock lies close off the SW extremity of the island. A depth of 13.8m lies 1.5 miles ENE of the island. A light is exhibited from the summit of the island.

**7.11 Flinders Reef** (32° 13'S., 133° 12'E.), about 3.5 miles E of Evans Island, consists of two rocks, one drying 1.5m and the other drying 2m, lying about 0.2 mile apart. The swell breaks heavily on this reef, which has deep water about 0.5 mile from it. A shoal, with a depth of 13.7m, lies about 1.5 miles NE of Evans Island.

**Franklin Islands** (32° 28'S., 133° 38'E.), which has its two principal islands lying about 16 miles E of St. Francis Island, are joined by a drying sand bar about 0.25 mile long. Both islands are flat-topped; the W island is 48m high, while the E island is almost the same height and has a conspicuous bush on its summit on the N side. A chain of above and below-water rocks, about 1.25 miles long, lies almost parallel to the S coast of the W island at a distance of 0.25 to 0.75 miles offshore. The largest rock of the chain rises to a height of 4.6m. A pyramidal rock, about 15.2m high, stands about 0.4 mile NE of the E island. Rocks which uncover extend almost 0.2 mile N from the 15.2m rock. The channel between this rock and Goalen Rocks, about 2 miles NE, is clear of reported dangers.

Anchorage can be taken, in depths of 11 to 16.5m, sand, off the N side of the W island. However, this anchorage provides shelter from SE winds only. Two dangers which must be avoided in the approach to this anchorage are a sunken rock, about 0.5 mile ENE of the NW island, and foul ground, which breaks occasionally, lying a little more than 0.5 mile WSW of the NW point of the E island.

**Directions.—**Round the W side of the W island at a distance of about 1 mile, taking care to avoid the W end of the chain of rocks S of the island. When the high water mark on the SW extremity of the E island is in range 123° with the high water mark on the NE end of the W island, proceed on this range until the point between the two sandy beaches on the N side of the W island bears 156°. Alter course to this bearing and anchor almost immediately with the NW point of the W island bearing 244°. A small vessel may anchor farther in with the NW end of the W island bearing 262°.

**7.12 Goat Island** (32° 19'S., 133° 31'E.), about 3 miles NNE of Evans Island, is 59m high. Its W side is free of dangers, but a reef, which has a 0.9m high rock on it, lies about 0.75 mile S of the E extremity of the island. Goat Island is joined to St. Peter Island, about 1 mile to the E, by a ridge which has a passage that is almost blocked by uncovering rocks. A dangerous wreck, with a depth of 0.5m and marked close N by a buoy, lies on this reef close N of the E extremity of Goat Island.

Temporary anchorage can be taken about 1 mile N of the E extremity of Goat Island. However, this anchorage, which is sheltered by the ridge mentioned above, has a rocky bottom in places and provides shelter from SE winds only.

**St. Peter Island** (32° 17'S., 133° 35'E.), the largest island of Nuyts Archipelago, stands on the S side of Denial Bay. The S part of the island has two parallel ranges of hills, about 42m high, which are covered with bushes and grass. Mount Younghusband, 44m high, forms a landmark on the NE extremity of the island. This conspicuous hill slopes gradually on its SW side, but on the NE side it falls steeply to a low sand spit that extends about 2 miles ENE from the island. A drying sandbank extends about 2 miles NE from the extremity of the sandspit. A large uncovering sandbank fronts the E side of the island and extends about 4 miles ENE from the E extremity of the island. A line of breaking reefs extends 3 miles ESE from the SE extremity of the island.

**Gliddon Reef** (32° 20'S., 133° 34'E.), which uncovers, lies 0.5 mile WSW of the S extremity of St. Peter Island.

## Denial Bay to Cape Finnis

**7.13 Denial Bay** (32° 15'S., 133° 30'E.), lying N of St. Peters Island and E of Peter Point, indents the coast in a general NE direction for about 10 miles, and is divided into three smaller bays, Tourville Bay, Murat Bay, and Bosanquet Bay, by two projecting headlands.

**Tourville Bay** (32° 10'S., 133° 28'E.), the W bay, is entered between Peter Point and Cape Beaufort, about 4 miles NE. The bay is fouled by drying sandbanks and has no commercial value. A depth of 6.4m lies about 2.75 miles ESE of Peter Point. Davenport Creek lies on the S side of the bay and is shallow. Vessels with local knowledge and with a draft of less than 3.7m can take sheltered anchorage within the creek at the S end of the first reach.

**Murat Bay** (32° 09'S., 133° 37'E.), the central bay and the only one of any commercial importance, is entered between Cape Beaufort and Cape Thevenard, about 4.75 miles ENE. The bay is entered through Yatala Channel. The bay is protected from seaward by St. Peter Island and is obstructed across its entrance by shoals and drying sandbanks. Drying sand flats and reefs extend almost 0.75 mile from the shore in places and there are general depths of less than 5.5m within 1 to 1.5 miles offshore.

**Cape Thevenard** (32° 09'S., 133° 39'E.) is a square, grass-covered point, 17m high, with a conspicuous clump of bushes on its summit. The point, which is connected to the coast by a low isthmus, projects W about 1.75 miles and forms the SE part of Murat Bay. There are conspicuous silos on the cape.

**Bosanquet Bay** (32° 10'S., 133° 40'E.), the E bay of the three, lies between Cape Thevenard and Cape Vivonne about 3.5 miles SE. A conspicuous red cliff, about 18.3m high, stands at the SE end of the beach which lines the shore. Cape Vivonne, a flat, grass-covered point about 9.1m high, slopes gradually from the summit of a hill 34m high, 1 mile E of the cape.

**7.14 Port Thevenard** (32° 08'S., 133° 39'E.) (World Port Index No. 54410) consists of that part of Murat Bay which lies N of Cape Beaufort and Cape Thevenard. The principal berth extends W from the latter cape and is approached through Yatala Channel.

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**Winds—W eather.—**The prevailing winds are from the W, although strong S winds up to 35 knots are common during the summer.

**Tides—Curr ents.—**The tidal current in Yatala Channel between the shoal ground at the S end of the bay attains a velocity of 1.5 to 2 knots at spring; the flood sets NE and the ebb to the SW. In the dredged channel, the currents setting across the channel are weak and in the N part of Murat Bay

they are barely perceptible. An E wind may lower the level of the water by 0.3 to 0.6m. The mean spring rise is 1.7m and the mean neap rise is 1m. The tidal current sets across the final leg of the approach channel between Lighted Beacon 16 and Lighted Beacon 28.

**Depths—Limitations.—** Yatala Channel, the principal entrance, is entered about 2.5 miles S of Cape Beaufort and leads in a NE direction for 3 miles between the foul ground which extends N from St. Peter Island and the foul ground extending SE from Cape Beaufort. The channel then leads E for about 1.25 miles between two drying sandbanks to a position almost 0.5 mile SE of Bird Rock. This rock stands about 3.5 miles ESE of Cape Beaufort. The channel then leads N, passing E of a large drying sandbank, to the deep water area in Murat Bay. The controlling depth is 8.2m in The Cutting, a dredged channel about 78m wide, which lies with its entrance about 0.4 mile E of Bird Rock and extends about 1.5 miles to the N.

Daphne Rock, which uncovers, lies about 0.5 mile SW of Cape Thevenard and is marked by a beacon.

Thevenard Jetty extends about 390m W from Cape Thevenard and has depths of 9.8m along both sides for a distance of 198m from its outer end. The principal commodities handled are gypsum, salt, and grain in bulk, all of which are carried along the jetty to the loading berths by conveyors. Vessels up to 180m long, with a maximum beam of 28m, can be accommodated, although vessels exceeding these limits may be accommodated at the discretion of the port master.

During strong S and NW winds, vessels may have to leave the jetty and anchor in Murat Bay because of the heavy surge alongside. An underkeel clearance of at least 0.9m is required for vessels with a draft of 8.2m and over; an underkeel clearance of 0.8m is required for all other vessels. These underkeel clearance figures are subject to change if abnormal tide or weather conditions prevail. Ceduna Jetty and Denial Jetty, which lie in the inner reaches of Murat Bay, are closed to commercial shipping.

**Aspect.—**The limits of the channel fairway are marked by lighted beacons and the alignment of the channel reaches are defined by lighted range beacons. A lighted aerobeacon, which stands about 3.5 miles ENE of Cape Thevenard, will be lighted when required.

**Pilotage.—**Pilotage is compulsory and should be requested at least 2 hours in advance; if the pilot is required outside normal working hours, the request should be made at least 4 hours in advance. The vessel's ETA should be given 24 hours in advance and confirmed 4 hours prior to arrival. The pilot boards about 1 mile SW of Entrance Lighted Beacon from an orange and white launch which is fitted with VHF. Only one pilot is available for night departures.

**Anchorage.—**Secure anchorage can be taken, in a depth of 7.3m, NW of Cape Thevenard. The mud bottom is good holding ground. Anchorage, for vessels awaiting a pilot for an extended period of time, can be obtained about 4 miles SW of the Entrance Lighted Beacon, in a depth of about 12m. Mariners are cautioned not to approach Entrance Lighted Beacon without a pilot owing to restricted sea room.

**Directions.—**Pass about 6.5 miles E of St. Francis Island Light and then steer 002° to pass between Lacy Islands and Evans Island. Approach Yatala Channel in the white sector of Entrance Lighted Beacon; by day, make the approach by keeping the lighted beacon bearing 042°. When Channel Lighted Beacon 2 and Channel Lighted Beacon 4 come in range, alter course to bring them fine on the starboard bow, then pass between Channel Lighted Beacon 2 and Channel Lighted Beacon 1 and steer a mid-channel course between the channel lighted beacons.

**7.15 Decres Bay** (32° 14'S., 133° 44'E.) indents the coast between Cape Vivonne and Cape D'Estree, about 5.75 miles SE, and consists for the most part of two long sandy beaches backed by sand hills. Whittelby Point, low and rocky, separates the two beaches. The coast on the SE side of the bay, up to 2 miles NNW of Cape D'Estree, is cliffy and about 21.3m high. There are general depths of 7.3 to 9.1m over the greater part of the bay, which may be approached by Waterwitch Channel and Smoky Bay, or from Denial Bay. The channel from Denial Bay has depths of 3.7 to 5.5m and leads between Cape Vivonne and the drying sandbank which extends NE from the sandspit off St. Peter Island. The limits of this channel are marked by beacons.

**Cape D'Estree** (32° 16'S., 133° 46'E.), the extremity of a headland which extends 3 miles S from the coast, is faced with light-colored cliffs 30m high. The land close behind it is lower; about 2.5 miles farther inland the land rises to scrub-covered hills. The cape separates Decres Bay from Smoky Bay.

**Smoky Bay** (32° 18'S., 133° 49'E.), which is contained between Cape D'Estree and Eyre Island, about 5.75 miles SSE, is protected from the sea by shoal ground that extends E from St. Peter Island and by Eyre Island and the banks and shoals that surround it.

The bay is about 12 miles long and provides anchorage in depths of about 7.3m. The bay is entered through Waterwitch Channel, which can be navigated at all times by vessels having local knowledge and a draft of not more than 5.5m. The coast between Cape D'Estree and the entrance of Laura Bay, about 2.5 miles ENE, consists of broken limestone cliffs.

A rocky islet, 9.1m high, is connected to the coast by a drying sandbank, about 1 mile SE of the entrance of Laura Bay. From Laura Bay, the coast extends SE for about 11.5 miles and curves sharply W and then NNW to Cape Missiessy.

The NE part of this coast consists of rocky points, low cliffs and beaches backed by sand hills. The most conspicuous of these hills stands about 1 mile E of Laura Bay and rises to a height of 44m. Saddle Peak, saddle-shaped and 28m high, stands 5.5 miles SE of Laura Bay. Two long round-topped hills stand 3 miles SE of Saddle Peak; the NE hill is 50m high. The coast in the SE part of Smoky Bay is low and backed by swamps in places.

**7.16 Cape Missiessy** (32° 24'S., 133° 52'E.) is the NW extremity of a low, sandy point. Swamps lie on the E side of this point. Smoky Bay Hill, dark and 33m high, stands 2.5 miles S of the cape.

**Eyre Island** (32° 23'S., 133° 50'E.), which lies on the SW side of Smoky Bay, stands close NW of Cape Missiessy and is separated from it by a narrow, shallow channel. A drying bank surrounds the island and extends about 3.25 miles WSW from

its NW end. A small bare islet stands on the S side of this extension.

**Goalen Rocks** (32° 24'S., 133° 43'E.), consisting of two rocks, one above-water and the other awash, lie about 4.25 miles SW of the NW extremity of Eyre Island. The intervening area is foul. A series of breaking reefs lies parallel to the coast of Eyre Island and extends from Goalen Rocks to the mainland about 2 miles SW of Smoky Bay Hill. The passage between Goalen Rocks and the 10m rock ENE of Franklin Island has depths of 14.6 to 27.4m and is clear of dangers.

**Waterwitch Channel** (32° 20'S., 133° 43'E.) leads into Smoky Bay, between the foul ground extending about 8 miles E from St. Peter Island and the shoal area extending N and NW from Eyre Island. The least depth in the fairway is a 5.5m patch near the E end of the channel, about 2.5 miles S of Cape D'Estree. A drying sandbank lies on the N side of this channel, about 1.5 miles SW of Cape D'Estree. Shoal water, with depths of 1.8m and less, lies on the S side of the channel about 3 miles S of Cape D'Estree. Mount Younghusband and Cape D'Estree are useful marks when navigating this channel. The N side of the channel is marked by a beacon about 7 miles E of the SE end of St. Peter Island.

The tidal currents in the outer part of Waterwitch Channel set in a NE and SW direction at a rate of 1 knot at springs. In the narrowest part of the channel, these currents set in an E and W direction at a rate of 2 knots at springs. The currents within the bay are negligible.

Anchorage can be taken, in a depth of 7.3m, with Cape D'Estree bearing 293° and the 44m hill E of Laura Bay bearing 034°. Small vessels can anchor anywhere within the bay according to draft and the direction of the wind. During strong W winds, the best sheltered anchorage lies in the W part of Decres Bay. Smoky Bay Jetty, which lies in the S part of the bay, has shallow depths and is closed to commercial shipping. The coast between Smoky Bay and Brown Point, about 6 miles S, consists of rocky points and sandy beaches backed by sand hills.

**Mount Mary** (32° 31'S., 123° 51'E.), the highest of these sand hills, rises to a height of 45m, about 2 miles NNE of Brown Point. Detached submerged rocks extend some distance off this part of the coast, and it should not be approached nearer than 2 miles.

**7.17 Streaky Bay** (32° 35'S., 134° 04'E.), entered between Brown Point and Cape Bauer, about 15 miles to the SE, recedes about 15 miles to the NE. This bay contains, in its NE part, the only secure anchorage in all weather for large vessels along the S coast of Australia between King George Sound and Port Lincoln. This anchorage is approached through Warburton Channel, which has a least fairway depth of 8.5m.

**Brown Point** (32° 33'S., 133° 51'E.), the N entrance point of Streaky Bay, is 35m high, red in color, and covered with coarse grass. Its E side is steep, whereas the W side has a gentle slope. A detached sunken rock lies about 0.5 mile S of the point.

The E part of the bay, S of Warburton Channel, is fronted by an extensive shoal area intersected by two channels which lead to deeper water between the shoals and the mainland. Dashwood Channel, with a least depth of 5m, leads through the middle of this shoal area and divides it into North Bank to the N and South Sand to the S. South Channel, with a depth of 3.4m, leads through the shoal area lying to the S of South Sand and the shoal area that fronts the N side of Gibson Peninsula.

Cape Bauer is the NW extremity of this peninsula. With the exception of the dangers to be described, there are general depths of 18.3m between the entrance points shoaling gradually to the shoal areas mentioned above. Blanche Port and Streaky Bay Township are located in the S part of the bay; Carawa Jetty lies on the NE side of the bay. A 9.1m rocky patch, on which the sea breaks during a heavy swell, lies about 4.5 miles SE of Brown Point. Another patch, which breaks during a heavy swell, lies about 4 miles E of the 9.1m patch. The least known depth over this patch is 14.6m, but lesser depths may exist.

**Dashwood Rock** (32° 38'S., 134° 04'E.), about 6 miles N of Cape Bauer, is a dangerous pinnacle rock with a depth of 2.7m and with depths of more than 9.1m about 0.2 mile from it. The sea only breaks occasionally on this danger, even with a heavy swell.

**Mount Westall** (32° 54'S., 134° 08'E.), bearing less than 172° and open W of Cape Bauer, leads W of Dashwood Rock.

**Olive Island** (32° 44'S., 133° 58'E.), a flat-topped rock 30m high, stands 4.5 miles W of Cape Bauer. Numerous rocks and other dangers extend about 1.75 miles NE from the island, and a small head of rock, about 3m high, stands near the NE extremity of this foul ground. Rocks and other dangers, which can usually be located by the heavy breakers over them, extend about 1 mile SSW and W from the island.

**7.18 Streaky Bay—North side.—Collinson Point** (32° 33'S., 133° 53'E.), 2 miles E of Brown Point, is low and sandy. A sunken reef, which breaks only during a heavy swell, extends about 1 mile S from the point, and a detached rocky patch, with a depth of 5.5m, lies about 1.5 miles E of the point. In bad weather, heavy rollers are formed between Brown Point and Collinson Point.

**Gascoigne Bay** (32° 31'S., 133° 56'E.) indents the coast between Collinson Point and De Mole Point, about 5.5 miles ENE. The low, sandy shores are fronted by rocks, except at the N part. A sand hill, 24m high, stands near the shore, about 3 miles W of De Mole Point.

Good anchorage can be taken in the NW part of the bay by small vessels with local knowledge, in a depth of 4m, sand and weed, with Collinson Point bearing 218° and De Mole Point bearing 090°. Two sunken rocks, on which the sea usually breaks, lie S and ESE of the anchorage, about 3.25 and 2.5 miles, respectively, W of De Mole Point. The 24m sand hill, bearing 009°, leads between them to the anchorage.

**De Mole Point** (32° 31'S., 133° 59'E.), 31m high, is dark and wooded. A rock, which uncovers, lies about 0.75 mile S of the point. Between De Mole Point and Lindsay Point, about 5 miles ENE, the coast is indented by a shallow bay. A conspicuous 20m high hillock stands close to the beach near the head of this bay.

**Lindsay Point** (32° 29'S., 134° 05'E.), 3.7m high, is round and sandy. Shoal water, with depths of less than 5.5m, extending almost 3.25 miles S from the point, forms the N side of Warburton Channel. The mouth of the Acraman Creek stands on the NE side of Lindsay Point. A drying bar obstructs the entrance of this creek. A sand hill, conspicuous from the

anchorage E of Lindsay Point, rises to a height of 15.5m about 1 mile NW of the creek entrance.

**7.19 Streaky Bay—East side.—**From the entrance of Acraman Creek, the coast extends about 2 miles E and then 5.25 miles SE to Carawa Jetty.

**North Bank** (32˚33'S., 134˚10'E.), a shoal area which dries in places, extends almost 6.5 miles offshore, about 1.25 miles S of Carawa Jetty, and lies between Warburton Channel to the N, and Dashwood Channel to the S. A long and narrow drying sandbank extends 2 miles W from the NE extremity of the bank and detached dry patches extend S from its W end to the N side of Dashwood Channel. The NE extremity of this bank has been reported to be extending NE.

**Warburton Channel** (32˚33'S., 134˚06'E.) leads in a NE direction between the shoal area to the S of Lindsay Point and the NW edge of North Bank. A least depth of 8.5m can be carried to the anchorage off Carawa Jetty, and also to the anchorage in the NE part of the bay. Tidal currents in the channel attain a rate of 1 knot at springs.

**South Sand** (32˚39'S., 134˚13'E.), a drying sandbank, extends about 4.75 miles W from a position about 1.5 miles W of Perlubie Hill. A shoal bank extends NW, W, and SW from the W end of South Sand, and lies between Dashwood Channel to the N and South Channel to the S. Depths of 10m are available in the fairway of the channel between the E extremity of South Sand and the coast.

**Dashwood Channel** (32˚36'S., 134˚08'E.), with a least depth of 5.5m in the fairway, leads in an E direction between North Bank and the shoal between the S side of North Bank and the bank extending W from South Sand. Tidal currents in the channel attain a rate of 1.5 knots at springs.

**South Channel** (32˚40'S., 134˚08'E.), with a depth of 3.4m in the fairway, leads in an E direction between the shoal water that extends SW from South Sand and the shoal area that fronts the N side of Gibson Peninsula. Tidal currents in the channel run at less than 1 knot at springs.

Anchorage can be taken by large vessels, in depths of 5.5 to 12.8m, W of Carawa Jetty, or in a depth of 9.8m, sand and weed, with Lindsay Point bearing 272˚, distant 1.75 miles and the summit of the prominent sandhill inside Acraman Creek bearing 309˚. Small vessels can anchor between this position and the entrance of Acraman Creek according to draft. Good shelter with fairly smooth water is provided in all weather.

Vessels that can pass through Dashwood Channel can anchor anywhere between North Bank and South Sand and the shore, or between the shoal water that extends N from Gibson Peninsula and the S side of South Sand. West winds raise a short uncomfortable sea near the E shore in this part of the bay, and considerable strain on the cable is experienced. Under these conditions the best sheltered anchorage lies SE of the middle of North Bank and as near as possible to its edge; however, Blanche Port is to be preferred.

**Perlubie Hill** (32˚38'S., 134˚16'E.), about 8.25 miles SSE of Carawa Jetty, is a conspicuous bare sand patch, 21.6m high. The intervening coast is low and has some sand hills standing near the beach. A range of rounded hills, 37m to 46m high and scrub-covered, parallels the coast about 1 to 2 miles inland. The coast between Perlubie Hill and the entrance of Blanche Port, about 7 miles to the SSW, continues low with some sand hills in places.

**Eba Island** (32˚41'S., 134˚16'E.), 28m high and grass-covered, is connected to the coast about 2.5 miles S of Perlubie Hill by a drying sandbank. A sandy cliff on the N side of the island is topped by sand hills. A rocky islet, 9.1m high, stands 1 mile S of the E end of Eba Island; a rock that uncovers lies close SW of this islet.

**7.20 Streaky Bay—South side.—Cape Bauer** (32˚44'S., 134˚04'E.) is the S point of the entrance of Streaky Bay. Sand hills surmount the cliffy extremity of the cape; the coast up to 2 miles E of the cape is cliffy. Its 90m summit, about 1 mile inland and covered with scrub, is the NW extremity of a range of scrub-covered hills of about the same height that extends several miles SE. Detached rocks lie between 0.25 and 0.75 mile N of the cape. A light is exhibited from Cape Bauer. From the end of the cliffs, about 2 miles E of Cape Bauer, the sandy coast extends about 6 miles E to Point Gibson, the NE extremity of Gibson Peninsula.

**Point Gibson** (32˚45'S., 134˚13'E.), the W entrance point of Blanche Port, is very low and sandy. A shallow inlet extends W for 3 miles from the S side of Point Gibson. A drying sandspit extends 1 mile E from Point Gibson and is steep-to on its outer end. A light is exhibited at the outer end of the spit and a lighted beacon stands about 4 miles NW of the point.

**Blanche Port** (32˚47'S., 134˚13'E.), entered between Point Gibson Light and the coast about 1 mile to the SE, occupies the extreme S part of Streaky Bay. The port is almost enclosed by Gibson Peninsula and provides anchorage, with excellent holding ground, for vessels with a draft of 5.8m or less. The shore is lined with sandy beaches and cliffy banks, some of which are red. One Tree Hill, SE of the port, a church in Streaky Bay Township, and a house on the W shore of the port are good landmarks. Streaky Bay township stands at the S end of Blanche Port.

**Perforated Rocks** (32˚45'S., 134˚14'E.), two limestone rocks, each 1.5m high with numerous holes in them, stand about 1 mile SSE of Point Gibson Light.

**Fairway Rock** (32˚45'S., 134˚13'E.), about 0.6 mile W of Perforated Rocks, consists of a rocky patch about 0.4 mile in length, with a depth of 0.4m.

**Oyster Spit** (32˚46'S., 134˚13'E.) dries for a distance of about 0.5 mile W of Crawford Landing, which is the next point S of Perforated Rocks.

**Sponge Rocks** (32˚47'S., 134˚12'E.), with depths of about 2m, lie about 1.25 miles W and SW of Crawford Landing.

Anchorage can be taken off Blanche Port, in a depth of 5m, mud, with the church in Streaky Bay township bearing 176˚ and the point at Crawford Landing bearing 082˚. Small vessels anchor nearer the township. A good berth, in a depth of 3m, mud, lies about 0.3 mile from the jetty with the church bearing 177˚.

The mean range of the tide in Streaky Bay is 1m. The tidal currents in Streaky Bay generally set directly through the channels, but are very weak in the open parts of the bay. At springs, they attain a velocity of 1 knot in Warburton Channel, 1.5 knots in Dashwood Channel, less than 1 knot in South Channel, 1.5 knots in the channel between South Sand and

Perlubie, and 2.5 knots in the entrance of Blanche Port. Within the port, the currents are slight.

**Streaky Bay Township** (32°48'S., 134°12'E.) is located at the S end of Blanche Port and is fronted by a wooden pier which extends from the shore N of the town. Streaky Bay is now only used as a fishing port.

**7.21 Directions—Warburton Channel.—**To pass through Warburton Channel, steer for a position about 3 miles S of De Mole Point, taking care to avoid the dangers previously described. From this position, steer to bring Carawa Jetty to bear 081°, and steer for it on that bearing. Having passed the NW elbow of North Bank, which is marked by a beacon, steer an ENE course until Carawa Jetty bears 089°; it should be steered for on this bearing, which leads to the anchorage or alongside. If intending to anchor at the N end of Streaky Bay, proceed as directed above and do not alter course for the N anchorage until near the anchorage off the jetty.

**Dashwood Channel.—**To enter by Dashwood Channel, steer for the entrance, avoiding the dangers previously described SE of Brown Point and Dashwood Rock.

Approach Dashwood Channel with Perlubie Hill bearing 106° until the red beacon at the SW end of North Bank bears 344°, distant about 1.75 miles, then steer to cross the bar in the best charted water.

If proceeding to Blanche Port and having crossed Dashwood Channel Bar, steer to bring Perlubie Hill to bear 113° and steer for it on that bearing; when the W end of Eba Island bears 177° steer for it, passing between the E end of South Sand and Perlubie Hill. When Perlubie Hill bears 060°, alter course to pass not less 0.6 mile W of Eba Island and about midway between that island and the 6.7m shoal lying 1.75 miles W of it; then steer for Perforated Rocks at the entrance of Blanche Port.

Give Perforated Rocks a berth of about 0.3 mile and steer to pass between them and Fairway Rock, which is marked by a beacon. When Streaky Bay Church bears 200°, steer for it on that bearing, until Perforated Rocks bear 048°, then steer to keep them astern on that bearing until the church bears 177°; steer for the church on that bearing and anchor according to draft.

The least depth obtained when following these directions is 4.9m.

**South Channel.—**To enter by South Channel, cross the bar with Eba Island bearing 093°, and having passed N of the lighted beacon marking the S side of the channel, steer ESE until Perforated Rocks bear 171°, then steer for them on that bearing until the directions given above can be followed.

**7.22 Corvisart Bay** (32°49'S., 134°05'E.) indents the coast between Cape Bauer and Westall Point, about 11 miles to the S. The shore of the bay consists of sand and rocks, with sand hills behind and the hills of Gibson Peninsula farther inland. Dreadnaughts Reef, with a depth of 7.3m over its outer end and on which the sea occasionally breaks, extends more than 1 mile N from a position about 2 miles NE of Westall Point. With the exception of this reef, there are considerable depths near the shore of Corvisart Bay; however, this bay is exposed to SW winds, and anchorage is not recommended.

**Westall Point** (32°55'S., 134°03'E.) is a narrow projection which extends W about 0.75 mile from a headland forming the S side of Corvisart Bay. The coast near the point is generally steep and reddish in appearance. Mount Westall, which rises to a height of 96m, stands about 1.75 miles NE of the point and has a conspicuous and even-shaped summit. A reef, on which the sea breaks heavily, extends about 1 mile SW from a position about 1.75 miles SE of Westall Point. A small foul bight indenting the shore about 3 miles SE of Westall Point is bordered by sand hills, about 36 to 40m high.

**Sceale Bay** (32°58'S., 134°10'E.) is entered about 6 miles SE of Westall Point and provides anchorage to small vessels with local knowledge at both ends during SE winds; however, it is not safe during W gales except in its NW part.

**Yanerby Hill** (32°55'S., 134°11'E.) rises to a height of 46m at the N end of a large patch of bare sand on the N shore of the bay and is conspicuous. A rocky patch, with a least depth of 8.2m and on which the sea breaks at times, lies about 1.25 miles E of a rocky point on the N side of Sceale Bay; otherwise, the bay is free of dangers.

Anchorage can be taken in the N part of the bay, in a depth of 5.5m, with Mount Westall, seen over the sand hills in the bight W of Sceale Bay, bearing 307° and the near point 206°. Note that when approaching this anchorage, Yanerby Hill bearing 034° leads W of the 8.2m patch and when the N point of the entrance bears 275° this patch will have been passed.

The S anchorage lies at the junction of the long sandy beach and the rocky coast of Cape Blanche on a bearing 172°. Anchorage can be taken according to draft.

Sceale Bay Jetty extends offshore at the S end of the bay, but can no longer be used by commercial shipping.

**Cape Blanche** (33°02'S., 134°07'E.) is the outer extremity of a headland that extends about 3.5 miles W from the coast and forms the S side of Sceale Bay. The outer end of the cape is bold and cliffy and topped by sand which is nearly of the same height as the summit for a distance of 2 miles SE.

From the sea, the point slopes inland to a low grassy plain which forms an isthmus. Rocks and breakers extend almost 1 mile W and N from the cape. Slade Point, the S extremity of the above headland, stands 3 miles SE of Cape Blanche. A heavily breaking reef extends 0.6 mile S from Slade Point. An 18.3m patch lies about 7 miles WSW of Cape Blanche. A depth of 35m lies 12.5 miles WSW of Cape Blanche.

**Searcy Bay** (33°05'S., 134°12'E.) indents the coast between Slade Point and Point Labatt, about 7 miles SSE. The shores of the bay are sandy and backed by sand hills, 37 to 61m high. Point Labatt is fringed by foul ground which extends up to 1 mile offshore in all directions.

**7.23 Cape Radstock** (33°12'S., 134°19'E.), about 5 miles SE of Point Labatt, is the N entrance point of Anxious Bay. At Point Labatt the cliffs begin and extend uninterruptedly to the cape. At the cape, which is steep and bold, the cliffs rise to a height of 135m, but on either side of the cape the cliffs decrease in height. The cape has been reported to be a good radar target at distances up to 23 miles.

Sunken rocks, marked by heavy breakers, extend almost 2 miles offshore at the N end of the cliffs between Point Labatt and Cape Radstock. A reef, which breaks occasionally, extends about 0.75 mile S from the cape. A rocky patch, about 100m in

extent and with a depth of 3.7m, was reported to lie about 2.25 miles SE of the cape. Detached banks, with depths of 55 and 37m, lie 23 and 26.5 miles, respectively, W of Cape Radstock.

**7.24 Anxious Bay** (33° 24'S., 134° 34'E.), entered between Cape Radstock and Cape Finnis, about 35 miles SE, extends about 10 miles NE and is fully exposed to the prevailing SW swell.

Venus Bay, about 16 miles E of Cape Radstock, is the only place of commercial importance.

Baird Bay is an indentation close NE of Cape Radstock.

**Mount Hall** (33° 04'S., 134° 28'E.), about 11 miles NE of Cape Radstock, is the 195m summit of a flat-topped, sandy, scrub-covered range that extends some distance inland. Calca Bluff, 106m high, stands 8 miles N of Cape Radstock. The bluff slopes steeply and marks the W end of the above range.

**Mount Camel** (33° 17'S., 134° 45'E.) stands 5 miles SE of the entrance of Venus Bay and close to the coast. This peak is 79m high and shows above the sand hills on both sides of it. Talia Hill, 4 miles inland, about 8 miles SE of Mount Camel, is a round isolated hill that attains a height of 122m. Bramfield Hill, somewhat similar to Talia Hill but higher, stands 7.5 miles ENE of Cape Finnis.

**Baird Bay** (Beard Bay) (33° 07'S., 134° 19'E.) is a shallow inlet extending about 10 miles inland in a NW direction. The bay entrance, 1.5 miles E of Cape Radstock, is fouled by Jones Island and numerous other rocks, which generally break the sea surface. A least depth of 3m can be carried over this bar by those possessing local knowledge.

The coast extends ENE for 5 miles from the entrance of Baird Bay and consists of rock and sand backed by sand hills about 30m high. Rocks and breakers extend about 1 mile offshore along this stretch of coast. The coast then extends SE for 10 miles to Weyland Point and is fronted by a continuous line of cliffs.

**7.25 Weyland Point** (33° 15'S., 134° 38'E.), a conspicuous cliffy point, 89m high, stands close SW of the entrance of Venus Bay. The point rises to a height of 96m close N and slopes inland toward Venus Bay.

**Howard Rock** (33° 15'S., 134° 37'E.) is a dangerous rock that lies 0.25 mile SE of Weyland Point. During bad weather, the sea breaks heavily over this rock, but at high water with a smooth sea it may not show.

**Venus Bay** (33° 14'S., 134° 39'E.) is an almost completely landlocked lagoon that is available to vessels with local knowledge having a draft of not more than 3.7m.

Anchorage is available, but the space is limited. Only fishing vessels frequent the bay and the port accommodations.

The bay is fouled over most of its area by sand banks and shoals; the only entrance to the bay lies about 1.75 miles NE of Weyland Point. The outer and most exposed part of the entrance bar has a least depth of 6.4m and usually breaks, except with a flood current and in moderate weather. During bad weather with an ebb current, the bar is a mass of breakers. In the inner and narrowest part of the entrance, there is a least depth of 4m, which is usually marked by smooth water.

The town of Parkin stands on the S side of the bay, about 1 mile E of the entrance. Port Kenny stands on the N side of the bay 3.5 miles N of Parkin.

**Germein Island** (33° 13'S., 134° 40'E.) lies on the N side of the channel leading to Port Kenny, about 0.75 mile NE of the N point of the entrance. The island is low and swampy and marked by mangroves on all except its S side, which is marked by a sand ridge, 12.2m high. Within the bay, the currents set in the direction of the channels at a rate of 3 to 4 knots. Two white range beacons, with triangular topmarks, stand on the W side of the entrance. These beacons, in range 027°, lead through the outer part of the bar. Two beacons, in range 069.5°, lead through the deepest water on the inner part of the bar and between the entrance points. The channel to Port Kenny is marked by beacons.

**Port Kenny** (33° 14'S., 134° 41'E.) and Parkin are the distribution centers for the surrounding area. A jetty is located 0.5 mile E of the entrance, with a depth of 4m at its outer end, which is 37m long; there is a small crane on the jetty. Another jetty, 32m in length, with depths alongside of 1.5m, is situated at Port Kenny, on the N side of the bay, about 3.5 miles N of Venus Bay.

From the entrance of Venus Bay, the coast extends about 9 miles SE and then 18 miles S to Cape Finnis. This section of coast consists of sandy beach backed by sand hills. Between Weyland Point and Cape Finnis, the coast may be approached at a distance of 1 mile.

**Cape Finnis** (33° 38'S., 134° 49'E.), the S entrance point of Anxious Bay, is a rocky headland with a rounded top, 47m high. Sunken rocks, with a depth of less than 1.8m, extend from the N side of the cape to the E island of Waldegrave Islands, about 1.5 miles to the NW.

## Investigator Group

**7.26 Investigator Group** (33° 44'S., 134° 21'E.) consists of a number of islands, rocks, and sunken dangers which extend about 38 miles SW from Cape Finnis. The group consists of Waldegrave Islands, The Watchers, Flinders Island, Topgallant Isles, Ward Isles, and Pearson Islands.

Anchorage, except during strong N and NE winds, can be taken off the NE side of Flinders Island, and for small vessels during S winds, NE of the more E of the Waldegrave Islands.

**Waldegrave Islands** (33° 36'S., 134° 47'E.) consist of two islands joined to each other and to Cape Finnis by sunken rocks. The E island, which is the larger of the group, is flat-topped and grassy and rises to a 39m summit near the E end. An above-water rock stands at the N end of a reef that extends 0.1 mile N from the NE extremity of the island.

During S winds, anchorage can be taken by small vessels with local knowledge close off the NE side of the island. The W island, 25m high, has a steep cliff on its S side, from the top of which the land slopes gradually on the N side. An above-water rock stands between the two islands about 0.15 mile W of the E island.

**The Watchers** (33° 36'S., 134° 42'E.) are two detached above-water rocks about 1 mile apart. The W rock, 7.3m high, lies about 3.5 miles W of the W island of Waldegrave Islands. These rocks are surrounded by sunken rocks for a short distance, but there are moderate depths in the passage between them.

**7.27 Flinders Island** (33°43'S., 134°29'E.), about 15.5 miles WSW of Cape Finnis, is the largest and only inhabited island of the group. The coast consists of cliffs and sandy beaches. The cliff on the E side of the island is 53m high and that on the next point to the W is 62m high. The land slopes N from these remarkable cliffs and three heads show above the top of them when viewed from the E. A steep cliff, 63m high, fronts the N end of the island. The island has several long-topped rises which slope to the S and W and are somewhat higher than the above cliffs; however, the most conspicuous of these hills, about 1 mile NE of the SW extremity of the island, is 66m high. Several small bights indent the E side of the island.

The bight close N of the inner end of the projection that forms the E end of the island is the only one which provides anchorage. The beach in this bight is backed by sand hills. A detached reef, which dries in its central part, lies about 0.5 mile E of the S end of the beach in this bight.

The N and W sides of the island are generally foul, and reefs and rocky patches extend over 1 mile from the coast. The bays on the S coast are foul, but between them and the SW extremity of the island, rocks do not extend more than 0.25 mile offshore. A light is exhibited from the NE point of the island.

Vessels with local knowledge can anchor in a bight on the NE side of Flinders Island. This anchorage is safe only when W or SW gales occur or in the summer during moderately S or E winds. Large vessels can anchor about 0.5 mile offshore, N of the middle of the beach, in depths of 11 to 14.6m, sand, with the SE extremity of the island bearing 169°, and the point at the N end of the beach bearing 301°.

Small vessels anchor between the above-mentioned detached reef and the shore, in depths of 5.5 to 7.3m, sand, with the SE extremity of the island bearing 161° If the wind blows from the N or NE, vessels should heave up and head for deeper water before the sea has time to break.

**Directions.—**When approaching this anchorage from the S, steer to pass between Flinders Island and Topgallant Isles, keeping more than 1 mile off Flinders Island until the N isle of the Topgallant Isles bears 099°. Then alter course to 279° and steer for the anchorage, with Topgallant Isles astern, taking care to avoid the previously-mentioned detached reef.

A large area of foul ground, about 2.5 miles in extent and on which the sea always breaks, lies between 3 and 6 miles W of the N part of Flinders Island. A detached breaking rock lies 2.5 miles NW of the NW end of the island, with a similar rock lying about midway between the SE extremity of the foul area and the island.

**7.28 Topgallant Isles** (33°43'S., 134°37'E.), about 3.5 miles E of Flinders Island, consist of an islet and a number of bare rocks that extend almost 1 mile SE from it. The islet, 101m high, has a rounded top and a high, steep, cliffy coast. The group takes its name from the rocks that, from various directions, have the appearance of sailing vessels showing their upper sails above the horizon. Sunken rocks extend about 0.5 mile SW from the islet and 0.75 mile E from the rock; elsewhere the Topgallant Isles are steep-to.

**Ward Islands** (33°45'S., 134°15'E.) consist of two islets, surrounded by sunken rocks, and three detached reefs, on which the sea generally breaks. The larger and NW islet, about 8 miles WNW of the SW end of Flinders Island, is 49m high and flat-topped, with a steep coast. Sunken rocks extend almost 0.5 mile N from it.

A detached reef lies 1 mile WNW of this islet; two similar reefs lie 0.75 and 1.25 miles, respectively, S of the same islet. A depth of 15.5m lies about 15 miles W of the islet. The SE islet, 28m high, is a small rock which lies about 1.5 miles from the NW islet. Sunken rocks surround the islet and extend about 0.1 mile S and N from it. Two shoals, each with a depth of 15m, lie 4 miles NW and 16.5 miles WNW of Ward Islands.

**Pearson Islands** (33°57'S., 134°15'E.), the SW and outermost of the Investigator Group, consists of four bold granite formations which lie between 13 and 18 miles SW of Flinders Island. An above-water rock lies W of the N island of the group, and a sunken rock lies between this island and the island S of it. A reef is located close to the SW end of the S island. With the exception of the above dangers, the Pearson Islands are steep-to.

The N island has steep cliffs on its W side which rise in the N part almost to its 238m high peaked summit. When first seen, this part of the island resembles Greenly Island (see paragraph 7.36), about 50 miles to the SE. The E side of the summit consists of a grassy slope that is partly wooded. The N end of the island attains a height of 183m. The S part of the island has two bare, rocky peaks, the S peak rising to a height of 115m. A light is exhibited from the W side of the island.

The two middle islands of the group are bare rocks; the N rock is 82m high and the S rock is 36m high. The S island of the group is barren and almost split in the middle. The N part of the island is 140m high and the S part is 102m high. Banks, with depths of 32m and 27m lie, respectively, 4.75 miles W and 9 miles W of Pearson Islands Light.

**Caution.—**Care should be taken when approaching Pearson Islands at night; the light is obscured from several directions. The Pearson Islands have been reported to be a good radar target at distances up to 22 miles.

## Cape Finnis to Coffin Bay

**7.29** The coast between Cape Finnis and Wellesley Point, about 2.5 miles SE, is cliffy and backed by hills about 61m high.

**Waterloo Bay** (33°38'S., 134°52'E.), a semicircular indentation in the coast, is entered between Wellesley Point and Wellington Point, about 0.75 mile SE. The bay is open to the SW, but is partially protected by the reefs which obstruct the entrance.

**Bramfield Hill** (33°35'S., 134°58'E.), 193m high and conspicuous, stands 6.25 miles NE of Wellesley Hill. When viewed from the SW, the hill appears to slope on either side. The bay provides shelter to vessels with local knowledge and a draft not exceeding 4.6m in all weather except SW gales. A rocky ledge extends across the bay entrance close behind the reefs, the edges of which can usually be seen. The basin within the ledge has depths of 5.5 to 10.3m and is about 0.25 mile in extent. There is a least depth of 4m leading through the channel

in the fairway of the entrance. Vessels with a draft of not more than 3m at all stages of the tide can use this channel.

**Caution.—**Vessels are advised to use their anchors with care in the area between 235 and 470m SW of the pier. An obstruction, presumed to be an old mooring cable, was reported to lie in this area. Two lighted beacons and two day beacons, in range 031.75°, lead across the bar in the greatest depths.

**Elliston** (33° 38'S., 134° 52'E.), a small town on the E side of the bay, is fronted by a pier, about 412m long, with a depth of 4.9m alongside its outer end. Vessels up to 45m in length, with a draft of up to 3.7m, can be accommodated alongside. The coast between Wellington Point and Drummond Point, about 35 miles SE, consists principally of steep cliffs. The only dangers along this stretch of coast are Tungketta Reef, a breaking reef which extends 1 mile offshore, 14 miles SE of Wellington Point, and some rocks in a sandy bight about 6 to 8 miles farther SE.

Conspicuous hills standing between Waterloo Bay and Drummond Point are Tungketta Hill, 138m high, about 11 miles SE of Waterloo Bay; Mount Misery, 114m high, about midway between Tungketta Hill and Drummond Point; and Kiana Cliff, 115m high, steep, and bold, almost midway between Mount Misery and Drummond Point.

**Cap Island** (33° 57'S., 135° 07'E.), named for its appearance, is 28m high and steep-to. This small islet lies W of Mount Misery, about 4 miles offshore.

**7.30 Drummond Point** (34° 09'S., 135° 14'E.), a prominent cliffy headland that extends from the coast, rises to a hill about 59m in height. Mount Hope, a wooded hill 172m high, stands 5 miles E of the point and Mount Drummond, also wooded and 173m high, stands 6 miles SE of the point. Both hills are conspicuous. A small above-water rock, with some breakers in the vicinity, lies close off Drummond Point. The coast between Drummond Point and another point about 2 miles S, and on which there is a hillock, 45m high, is steep-to. A rock, awash, lies 1 mile S of the latter point. From this point, the coast extends about 1 mile NE and forms a bight. Between the head of this bight and the foot of Mount Greenly, about 12 miles SE, the sandy coast rises gradually to some wooded ranges about 3 miles inland. These ranges terminate abruptly about 2 miles S of Mount Greenly.

**Rocky Island** (34° 16'S., 135° 15'E.), 15m high, stands 6.5 miles S of Drummond Point and about 3.5 miles offshore. The island has been reported to be a good radar target at distances up to 28 miles.

**Krause Rock** (34° 14'S., 135° 05'E.), over which the depth is 14.6m, lies about 8.5 miles WSW of Drummond Point. The sea breaks heavily over this danger during a high swell. Less water than charted has been reported to lie in the vicinity of this rock.

**Caution.—**An unexamined depth of 12.1m lies 2 miles NE of Krause Point.

**Mount Greenly** (34° 21'S., 135° 22'E.) rises to a height of 305m about 0.5 mile inland. When viewed from the N or S, the mount appears as a sharp peak, but when seen from the W, it has a rather long summit that falls abruptly to the N and slopes gradually in three steps to the S. Rocky cliffs form the top of the hill on the seaward side and around the summit, but between the base of these rocky cliffs and the top of the coastal cliff, the sloping sides are wooded. From the base of Mount Greenly to Frenchman Lookout, 0.5 mile inland abreast the E point of the entrance of Coffin Bay, the coast extends S for 4 miles and is cliffy.

**North Block** (34° 22'S., 135° 32'E.), a high peak, stands 9 miles E of Mount Greenly. Frenchman Lookout rises to three peaks of almost equal height; the summit, which is the central peak, rises to a height of 166m.

**7.31 Sir Isaac Point** (34° 26'S., 135° 13'E.), about 8 miles W of Frenchman Lookout, is the W point of the entrance of Coffin Bay and the N extremity of Coffin Bay Peninsula, which forms the W side of Coffin Bay. The W side of the point is fronted by cliffs, which are topped by partly-vegetated hills rising to a height of 52m. The E side of the point is lower and has a sandy beach at its base. A light is exhibited from Sir Isaac Point.

The W side of Coffin Bay Peninsula, between Sir Isaac Point and Whidbey Point, about 11 miles SSW, is rugged and cliffy. Reef Point, about midway between the above points, is the most projecting part of this coast. A depth of 2.7m lies 1.25 miles NNW of Reef Point. A sunken reef, about 1.5 miles in extent and which breaks heavily, lies off Reef Point. The S part of this reef apparently dries. Rocky ground, with depths of 11 to 14.6m, extends 1 mile N from the reef. During W gales the sea breaks over this rocky ground. Mount Greenly kept open N of Sir Isaac Point and bearing more than 063° leads NW of the dangers off Reef Point.

**Whidbey Point** (34° 35'S., 135° 06'E.) is fronted by low cliffs and rises to a round hill, 62m high, about 1 mile inland. Breaking reefs extend almost 0.75 mile S from the middle and E parts of the seaward side of Whidbey Point.

**Caution.—**The W side of Coffin Bay Peninsula should not be approached within a distance of 2 miles because of the heavy W swell that rolls in.

## Coffin Bay

**7.32 Coffin Bay** (34° 30'S., 135° 20'E.), about 14 miles long, lies between the mainland S of Frenchman Lookout and Coffin Bay Peninsula. The bay is divided into two parts by Horse Peninsula. That part of Coffin Bay to the W and S of this peninsula is Port Douglas; Mount Dutton Bay lies to the E of the peninsula and Kellidie Bay is the SE extension of Coffin Bay. There are considerable depths in parts of the bay, but many are so exposed that anchorage is not advised. Sheltered anchorage can be obtained by small vessels only, either in the lee of Sir Isaac Point, at Port Douglas, or in Mount Dutton Bay.

**7.33 Coffin Bay—East side.—**The coast from Frenchman Lookout to Horse Peninsula consists of rugged cliffs backed by wooded hills. South of the peninsula, the coast is bordered by sandy beach for 1.75 miles. Cliff Hill, about 3.25 miles S of Frenchman Lookout, is very similar in appearance to it. The central peak of three is the highest.

Mount Dutton, about 2.3 miles SSE of Cliff Hill, slopes gradually and is well-covered by trees. Its 276m summit curves to the E and S from the highest part on the W side. Marble

Range, rising to a height of 411m about 7 miles ESE of Frenchman Lookout, has two remarkable summits, with the S summit being very rocky near the top.

**7.34 Coffin Bay—West side.—**The coast from Sir Isaac Point extends S for 4 miles and is generally low, with rocky points and sandy beaches. It then extends E for 7 miles to the outer end of Longnose Point. Some conspicuous bare sand hills of moderate height stand close to the beach about 2 miles E of the junction of the S and E trend of the coast. A shoal, with a depth of 1.3m, lies about 3.75 miles SE of Sir Isaac Point; another shoal, with a depth of 1.8m, lies about 0.75 mile farther SSE. Longnose Point is a very narrow, sandy peninsula about 2 miles long and 6.1m high.

**Port Douglas** (34° 32'S., 135° 23'E.) is entered over a bar that lies between Longnose Point and a low point on Horse Peninsula, about 1.5 miles to the E. Local knowledge is essential.

Shoal water and drying sandbanks obstruct the entrance of Port Douglas. A drying sandbank fronts the W side of Horse Peninsula and extends W in places up to 2 miles. A similar bank extends from the peninsula terminating in Longnose Point as far S as 2 miles in places. However, depths of 3.7 to 7.3m are found over a considerable area in the S part of Port Douglas. In the NW part of the port, there is a basin with depths of 4.6 to 9.1m between the W edge of the drying sandbank and the shore.

There is a least depth of 2.4m in the fairway of a narrow, intricate channel that leads over the bar and between the drying sandbanks to the S part of the bay, and to Mount Dutton Bay and Kellidie Bay.

The Brothers, two small rocky islets, lie in the S part of Port Douglas about 1 mile W of the S extremity of Horse Peninsula. Another rocky islet, 8.5m high and surrounded by a drying sandbank, lies about 1.25 miles SSE of the SE extremity of Horse Peninsula.

The channel that leads to Port Douglas is marked by lighted beacons and buoys.

**Caution.—**The shoals and soundings are subject to change and the beacons should not be passed close to.

**7.35 Mount Dutton Bay** (34° 34'S., 135° 25'E.) lies between the E side of Horse Peninsula and the mainland. There are depths of 3.7 to 7.3m in the S part of the bay, which is relatively steep-to on its E side, but the N part of the bay is shallow. A small rocky islet lies in the NE part of Mount Dutton Bay.

**Kellidie Bay** (Killidie Bay) (34° 36'S., 135° 28'E.), E of the S part of Port Douglas, is shallow and obstructed across its entrance by a rocky ledge which almost dries. A submarine telephone cable, marked by notice boards, is laid across the entrance to Killidie Bay. A jetty, 28m long, with a depth of 3.4m alongside, extends from the shore of the bay for the use of fishing vessels.

**Anchorages.—**The outer part of Coffin Bay is exposed and not recommended as an anchorage. However, there is sheltered anchorage for small vessels in a bight formed in the shoal bank SE of Sir Isaac Point. The anchorage has a depth of 4.6m, sand and mud, with Frenchman Lookout bearing 062° and the NE extremity of Sir Isaac Point bearing about 340°.

In Port Douglas, the best anchorage can be taken, in a depth of 4m, sand and mud, with the W point of the entrance of Mount Dutton Bay bearing 043° and the 8.5m rocky islet bearing 094°.

In Mount Dutton Bay, anchorage can be taken, in depths of 2.7 to 3.7m, mud, with Mount Dutton just open W of the rocky islet and bearing 356°, and 0.5 mile from the islet.

At the entrance to Port Douglas, the tidal currents commence 1 hour after high and low water, respectively. Inside the entrance, the currents set in the direction of the channel where the fairway trends in a N and S direction, but where the channel trends in an E and W direction, the currents set across the channel. After a continuance of W winds, the tidal currents are very strong at the entrance from 1 hour after high water to 1 hour after low water.

**Directions.—**A vessel approaching Coffin Bay from the SE should pass about 4 miles WNW of Reef Point, with Mount Greenly open N of Sir Isaac Point and bearing more than 063°. Sir Isaac Point should then be rounded at a distance of 0.5 mile. Vessels intending to anchor in the outer part of the bay should steer for the conspicuous 46m sand hill in the SW part of the bay bearing 167° for about 2 miles or until Frenchman Lookout bears 062°. Course can then be altered to the W for the anchorage previously described.

Local knowledge is necessary for vessels intending to anchor in Mount Dutton Bay.

## Coffin Bay to Spencer Gulf

**7.36 Greenly Island** (34° 39'S., 134° 47'E.), about 16 miles WSW of Whidbey Point, is a bold mass of granite that rises to a 230m summit in its E part. The island is almost divided into two parts near its NW part. The isthmus that connects its two parts is awash at times. A rock, 61m high, stands 0.5 mile E of the island. Considerable depths exist about 1 mile from the island.

**Rocky Island** (34° 39'S., 134° 42'E.), about 10.5 miles SSW of Greenly Island, is a precipitous granite rock, 68m high. A sunken rock, which breaks, lies 0.5 mile W of the N extremity of the island, and rocks extend about 0.2 mile from the S extremity of the island; otherwise it is steep-to. Rocky Island has been reported to be a good radar target at distances of up to 28 miles.

**Whidbey Islands** (34° 44'S., 135° 08'E.) consist of Four Hummocks Islands, a rock to the E of them, Perforated Island, Price Island, and an island near the S side of Avoid Point; all of this group lies between Rocky Island and Avoid Point, which lies 12 miles SE of Whidbey Point.

**Four Hummocks Islands** (34° 46'S., 135° 01'E.) are four steep, rounded granite islands with several small rocks among them, most of which are above water. The S and highest of the group rises to a height of 110m and stands 15 miles E of Rocky Island. A large rock lies close off its SE side. A light is exhibited from the summit of the S island.

The two middle islands are almost joined and appear on most bearings as one island with two peaks; the N peak rises to a height of 88m and is the higher of the two. The passage between the S island and the two middle islands is about 0.3 mile wide and fouled by rocks, the highest of which is 15.2m high. The N island of the group, 89m high, stands about 2



Return to paragraph 7.28

miles NNE of the S island. The passage between this island and the two middle islands is about 0.75 mile wide, clear of dangers, and has depths of 27.5m and more.

A bare 23m high rock stands 2 miles E of the N island and is separated from it by a clear passage with depths of 38.4m and more. A depth of 42m was reported to lie 3 miles WNW of the S island. A depth of 31m was reported to lie 5 miles W of the island. Depths of 34m were reported to lie 0.5 mile farther NW. Depths of 33m and 35m were reported to lie 6 miles SW of Four Hummocks Light.

**7.37 Perforated Island** (34˚43'S., 135˚09'E.), about 8.25 miles SSE of Whidbey Point and nearly midway between Four Hummocks and Avoid Point, is 72m high, irregular in shape, and surrounded by steep cliffs almost as high as the summit. The heavy sea which breaks on the island has washed the island into rugged forms. There is a hole through the island near the top, about 0.25 mile from its N end. A breaking sunken reef extends about 1 mile W from the S end of the island.

**Caution.—**There is much foul ground S of an E-W line tangent to the S extremity of Perforated Island and within 3 miles of that extremity. Vessels should not approach the island nearer than 4 miles on any bearing more than 090˚ or less than 270˚.

A depth of 8m lies about 1.5 miles N of the NE end of Perforated Island.

**Price Island** (34˚43'S., 135˚17'E.), about 2.5 miles SW of Avoid Point, is 64m high, surrounded by limestone cliffs, and steep-to, except for a reef which extends 0.2 mile N from its N end. A limestone island, 55m high, stands 0.75 mile S of Avoid Point and is joined to it by an above and below-water ledge. A sunken reef extends about 1 mile W from the W extremity of the island.

**Currents.—**The currents between Greenly Island, Rocky Island, and Whidbey Islands are very strong. During and after a gale, these currents cause a confused sea in many places about the islands. Among the outer islands, from November to May, and after a continuance of SE winds, the current sets NW and attains a velocity of up to 2 knots. From May to November, during W winds, the current sets E at about the same velocity.

**7.38 Avoid Bay** (34˚37'S., 135˚14'E.) is entered between Whidbey Point and Avoid Point, about 12 miles SE, and recedes about 4.5 miles to the NE. There are considerable depths in Avoid Bay, with soundings of 18.3m and more being found up to 1 mile offshore.

**Black Rocks** (34˚37'S., 135˚17'E.) lie about 5 miles NNW of Avoid Point. The largest and highest of this group is an islet 47m high. A reef, which breaks, extends about 0.75 mile SE from the islet. A small above-water rock stands on the SE extremity of this reef. A flat rock lies about 0.1 mile WNW of the islet and a reef, with a small rock on its NW end, extends 0.3 mile farther WNW from the flat rock.

**Avoid Point** (34˚40'S., 135˚19'E.) is fronted on all of its seaward sides by limestone cliffs, about 46m high, which change abruptly to sand hills E of its S extremity. A green hill rises to a height of 57m above the point and a sand hill tops a rocky point in the N part of Avoid Point.

A rock, which seldom breaks, lies about 0.25 mile NE of the above-mentioned rocky point. A flat above-water rock lies close to the W side of Avoid Point. A sunken rock, which almost always breaks, lies about 1 mile W of the flat rock and must be avoided when entering Avoid Bay from the SW.

The sandy coast from the S side of Avoid Point extends about 10 miles SE to where the cliffs begin. The beach along the SE stretch of this coast is backed by bare sand hills that extend about 5 miles inland and attain their greatest height of 165m about 2 miles behind the beach. The shore is fairly steep-to and always marked by breakers.

A wooded hill, which slopes down to the cliffs NNW of **Shoal Point** (Stuart Point) (34˚47'S., 135˚29'E.) and joins the sand hills to the N of it, rises to a summit 193m high, about 2.5 miles N of Shoal Point. This is the highest land between Whidbey Point and Cape Catastrophe. Shoal Point, which is fronted by cliffs about 122m high, has a round green hill, about 137m, high for a summit.

**Stuart Reef** (34˚50'S., 135˚22'E.), a dangerous sunken reef which breaks heavily at times, lies 6.5 miles WSW of Shoal Point. The coast from Shoal Point extends regularly SE for 10 miles and then extends SSW for 2 miles to the extremity of Cape Carnot. This entire stretch of coast is fronted by high cliffs which are steep in places. Sand hills rise an additional 15.2 to 30.5m above these cliffs.

D'Anville Bay, a slight indentation, lies 3 miles N of Cape Carnot. A sunken rock, which seldom breaks during SE winds, lies about 0.5 mile offshore, 3 miles SSE of Shoal Point.

**Cape Rock** (34˚55'S., 135˚32'E.), 6.4m high, stands 4.5 miles WNW of Cape Carnot. A small breaking sunken rock lies 2 miles NE of Cape Rock.

**7.39 Cape Carnot** (34˚56'S., 135˚37'E.) is the SW extremity of a broad promontory of which Cape Wiles, 3 miles to the E, is the SE extremity. The summit of Cape Carnot is a round stony hill, 89m high, which slopes to the shore. Low cliffs commence at the extremity of Cape Carnot and rise gradually with the E trend of the coast, attaining their greatest elevation at Cape Wiles; the summit of Cape Wiles, 143m high, rises just above these cliffs.

A breaking rock lies about 0.75 mile NW of Cape Carnot and an uncovered ledge extends about 0.3 mile S from the cape. A 7.8m shoal depth lies approximately 1.5 miles SW of Cape Carnot. Two high rocks, conspicuous from the W or from Sleaford Bay, are just detached from Cape Wiles, and an above-water rock, about 0.2 mile long, lies about 0.3 mile S of the cape.

**Liguanea Island** (35˚00'S., 135˚37'E.) about 2 miles S of Cape Carnot, is cliffy and rather flat-topped. The highest part of the island, 56m high, stands near the S end. A detached reef, with its S end above water, extends about 0.5 mile SSW from the S extremity of the island.

Cabbage Patch, a shoal with a depth of 14.6m over which the sea breaks, lies 16 miles S of Liguanea Island. A bank, with a depth of 29m, which also breaks, lies 3 miles N of Cabbage Patch.

**7.40 Sleaford Bay** (34˚54'S., 135˚46'E.), entered between Cape Wiles and Cape Tournefort, about 8 miles to the ENE, indents the coast in a N direction for about 4.5 miles. There are

depths of 18.3 to 36.6m about 1 mile offshore around the perimeter of the bay, but anchorage is not recommended because of the heavy swell which sets inward. During bad weather, a very confused sea can be expected.

Cobbler Hill, conspicuous, conical, and 198m high, stands about 6.5 miles N of the head of the bay. North Side Hill, 195m high and conspicuous when viewed from the W part of the bay, stands 5.5 miles E of Cobbler Hill.

From Cape Wiles, the coast extends N for 2 miles to the S point of the entrance of Fishery Bay and is fronted by cliffs. Fishery Bay, about 0.5 mile in extent, is fronted by cliffs. Anchorage is not recommended in this bay. A breaking rock lies about 0.5 mile E of the N entrance point of the bay.

The coast of Sleaford Bay from the entrance of Fishery Bay extends about 4 miles N and then generally SE for 7.5 miles to Cape Tournefort. The shores of the bay are fronted by sandy beaches and backed by cliffs and hills. A rocky islet, about 7.6m high, stands close offshore about 2.25 miles NNW of Cape Tournefort. Another rocky islet, 55m high, stands about 0.75 mile SE of the above islet.

**7.41 Cape Tournefort** (34˚55'S., 135˚51'E.), which extends about 0.75 mile SW from the coast, rises to a 104m green summit that is bare of trees. The E side of the cape is fronted by high cliffs.

**Jussieu Bay** (34˚57'S., 135˚54'E.), a slight indentation, is entered between Cape Tournefort and West Point, about 6.5 miles SE. A chain of low rocks and islets, the highest being about 37m high, extends 2 miles S from the coast about 1 mile SE of Cape Tournefort. The coast of Jussieu Bay has been reported to be a good radar target at distances up to 24 miles.

**West Point** (35˚00'S., 135˚57'E.), the S extremity of Cape Catastrophe, is a cliffy headland that rises to a 140m high conical summit.

**Williams Island** (35˚02'S., 135˚58'E.), about 1 mile SSE of West Point, is separated from the mainland by a passage with considerable depths. The top of the island is almost flat. The S side of the island is very rugged, with long ledges of rock extending out from the cliffs.

A bay on the N side of the island has depths of 8.2m at its head, but is not suitable as an anchorage, except as a last resort. A light is exhibited from the W summit of the island.

A sunken rock lies close off the SE point of the island. A bank, with a depth of 44m, lies 4.5 miles SSW of Williams Island; a rocky bank, with a depth of 68m, lies 1.75 miles farther SSW.

**Cape Catastrophe** (34˚59'S., 136˚00'E.) is high and generally rocky. The cliffs, 15 to 30m high, consist of red and white limestone formation. Behind the cliffs, the land rises to conical hills, which are densely covered with scrub; farther inland the land rises to a rocky range of considerable height, upon which there are a few trees. A ledge of black rocks, which breaks, extends about 100m S from the cape.

## Spencer Gulf

**7.42 Spencer Gulf** (34˚38'S., 136˚53'E.) is entered between Cape Catastrophe and Cape Spencer, about 48 miles to the ESE. The gulf extends about 180 miles in a general NNE direction to Port Augusta, at the head of the gulf. Port Lincoln, Tumby Bay, Franklin Harbor, and Port Whyalla are on the W side of the gulf. Port Victoria, Tipara Bay, Wallaroo Bay, Port Broughton, Port Pirie, and Germein Bay are on the E side of the gulf.

The gulf is navigable over most of its area by deep-draft vessels; vessels of moderate draft can reach and lie at Port Augusta. In the middle of the entrance of the gulf lie the Gambier Islands; Thistle Island lies in the entrance near the W shore. Low Rocks and Neptune Isles are located in the offing to the S of Thistle Island.

**Tides—Curr ents.—**Strong tidal currents flow close around Cape Catastrophe, and between the cape and Williams Island. The ebb sets SW and the flood sets NE. With onshore winds, these tidal currents cause a race dangerous to small vessels.

**Caution.—**Local magnetic disturbances affecting the compass to a very marked degree have been reported by vessels navigating Spencer Gulf, especially between Middle Bank and Tiparra Reef. This magnetic attraction is stronger on the W side of the gulf, but it has been reported that there were considerable magnetic disturbances on the E side as well. Southbound vessels find that their compasses become sluggish after shaping course from Middle Bank to Tiparra Reef, and the farther W the vessel happens to be, the more sluggish the compass becomes. It has been reported that the variation changed from 001˚ W to 008˚ E within a distance of 2 miles of a position about 11 miles WSW of Tiparra Reef Light.

## Spencer Gulf—Islands off the Entrance

**7.43 Neptune Islands** (35˚16'S., 136˚06'E.), consisting of South Neptunes and North Neptunes, stand 22 and 15 miles SSE, respectively, of Cape Catastrophe.

**South Neptunes** (35˚20'S., 136˚07'E.), two islands composed of black-colored granite, are separated by a narrow foul channel. The S island is 37m high and covered with stunted vegetation; the N island is 35m high. The sea breaks very heavily on the S side of both islands. A rock, with a depth of less than 1.8m, lies within 0.2 mile of the NW side of the N island. An above-water rock lies 0.2 mile NW of the S island. A light is exhibited from the summit of the S island. A racon transmits from the light. The light on South Neptune Islands has been reported to be a good radar target at distances up to 19 miles.

A jetty, with a depth of 1.8m alongside its outer end, extends from the S island.

**Caution.—**Because of the irregularity of the bottom and lack of detailed surveys, deep-draft vessels should not approach within 5 miles of South Neptunes.

**North Neptunes** (35˚14'S., 136˚04'E.) consists of an island, an islet, and several detached rocks. The island is 49m high and almost flat-topped. Granite cliffs, against which the sea breaks heavily, front the S and SW sides of the island. A heavy surf breaks on the sand

A rock, on which the sea breaks only at times, but then with great violence, lies 0.25 mile E of the SE extremity of the island. A 12.8m shoal lies 1 mile E of the same extremity. A granite islet, 29m high, stands 0.25 mile E of the NE extremity of the island. A large rock, on which the sea breaks heavily, lies about 0.5 mile E of the islet. A light is exhibited from the

summit of the island. North Neptunes have been reported to be a good radar target at distances of up to 19 miles.

**Low Rocks** (35° 10'S., 136° 27'E.), about 3.5 miles N of North Neptunes, are a straggling mass of rocks, about 9.1m high. A rock, which breaks heavily, lies awash about 0.5 mile NNE of Low Rocks.

**7.44 Gambier Islands** (35° 10'S., 136° 27'E.), consisting of Wedge Island, North Islet, and a number of rocks and dangers in the vicinity, are located in the entrance of Spencer Gulf, about midway between Cape Catastrophe and Cape Spencer.

**Wedge Island** (35° 10'S., 136° 28'E.), about 19 miles ENE of South Neptunes, consists of limestone covered with low bushes, trees, and some grass. The island rises gradually from its N part and attains a height of 202m at its SE end, where it forms a nearly perpendicular cliff facing S. This cliff gives the island a wedge-shaped appearance when seen from a distance. Wedge Island has been reported to be a good radar target at distances up to 22 miles.

Sunken rocks extend about 0.25 mile offshore from a low point 1 mile SE of the NW extremity of the island; a 10.7m patch lies about 0.25 mile offshore, 0.5 mile N of the island's E extremity. Wedge Island Light is exhibited from the SE point of the island.

**Louise Shoal** (35° 13'S., 136° 32'E.), an 18.3m patch, and Suzanne Shoal, a 15.8m patch, lie about 3.5 and 5.25 miles SE of the SE extremity of Wedge Island. During and after SW gales, there are heavy breakers in this area.

**Lake Macquarie Bank** (35° 19'S., 136° 39'E.), with a depth of 29.2m, lies 11.5 miles SE of Wedge Island Light.

**Peaked Rocks** (35° 11'S., 136° 30'E.), 64 and 43m high, are two conical islets which lie 0.5 mile SW and 0.25 mile SSE, respectively, of the SE extremity of Wedge Island. A detached 10.1m patch lies 0.5 mile SE of the westernmost Peaked Rock.

**Southwest Rock** (35° 11'S., 136° 25'E.), about 1.75 miles SW of the SW end of Wedge Island and separated from it by a clear deep passage, is a mass of granite, 21m high. A cleft runs in a NNE direction in the rock and divides it into two unequal parts.

**West Rock** (35° 09'S., 136° 27'E.), which always breaks, lies awash about 0.5 mile W of the NW extremity of Wedge Island.

**North Islet** (35° 07'S., 136° 28'E.), about 1.25 miles NNE of the NW extremity of Wedge Island and separated from it by a passage with a depth of 9.1m, is 47m high. It has a few trees and some vegetation on it.

**Ward Rock** (35° 07'S., 136° 27'E.), with a depth of 12.8m, rises abruptly from depths of 37m about 0.75 mile W of North Islet. The rock is dangerous during a heavy swell because the sea then breaks violently over it. The rock does not break in fine weather.

**7.45 Middle Rock** (35° 06'S., 136° 29'E.) and Northnortheast Rock, both awash, lie 1 mile N and 3 miles NNE of North Islet. Deep water lies between Middle Rock and North Islet, and also between Middle Rock and Northnortheast Rock, but the latter, which stands on a foul area, should be given a berth of at least 1 mile.

A 16.5m patch, which breaks at times, lies at the W end of the passage between North Islet and Middle Rock, about 1.25 miles WSW of the latter. Southwest Rock, open its own breadth or more, W of the W end of Wedge Island and bearing less than 198°, leads W of Middle Rock and Northnortheast Rock. The 43m high Peaked Rock, open E of the E end of Wedge Island and bearing more than 190°, leads E of the rocks.

There is a good anchorage off the sandy beach on the NE side of Wedge Island, in depths of 11 to 12.8m, rocky bottom, sheltered from NW through W to S winds. The anchorage is located SE of the sunken rocks which extend from the low point near the NW extremity of the island, about 0.25 mile offshore, with the stone house, or the E corner of the field, on the island bearing 184° and the E point of Wedge Island bearing 139°.

Vessels approaching the anchorage from the W between West Rock and Ward Rock should keep the high cliff on the E end of Wedge Island just open E of the N extremity of the island bearing 128°. The N extremity may be passed close, but a good berth should be given to the sunken rocks off the low point about 1 mile SE of it.

Tidal currents in the vicinity of the Gambier Islands vary in velocity from less than 0.5 to 0.75 knot. The flood sets to the NW and the ebb sets to the SE.

## Spencer Gulf—W est Side

**7.46 Thistle Island** (35° 00'S., 136° 09'E.) lies on the W side of the entrance of Spencer Gulf, about 4 miles E of Cape Catastrophe. Thorny Passage separates Thistle Island from Cape Catastrophe. The island is irregular in outline, being about 9 miles long in a NW-SE direction. It rises to a 228m high summit near the middle of the island.

Good anchorage can be taken off the E and NE side of the island.

**Waterhouse Point** (35° 04'S., 136° 12'E.), the SE extremity of Thistle Island, is a rugged cliffy head, 46m high. The rock fringed point is steep-to. A small bight indents the coast between Waterhouse Point and another point about 1 mile to the W, but no good anchorage is available because of the S swell which rolls in. Waterhouse Point Light is exhibited from this point.

**Albatross Islet** (35° 04'S., 136° 11'E.) lies 0.5 mile S of the W entrance point of the above bight and is separated from it by a passage with depths of 4.6 to 11m. During gales, the sea breaks across this passage.

**South Rock** (35° 05'S., 136° 11'E.), which breaks, lies awash about 1 mile S of the above islet. The rock is steep-to and has a depth of 13.4m about 0.3 mile N of it.

**Caution.—**Vessels rounding Waterhouse Point should give it a berth of more than 2 miles to clear South Rock and the race off the point.

**7.47 Fossil Point** (35° 02'S., 136° 09'E.), about 3.5 miles NW of Waterhouse Point, extends WNW from the W coast of Thistle Island.

**O'Loughlin Bay** (35° 01'S., 136° 09'E.), a small bight, indents the coast NE of Fossil Point. From the N point of this bay, the coast extends NW for 3.5 miles to a sandy beach backed by a causeway of sand extending 0.75 mile NE to a remarkable hill, 82m high. The stretch of coast from Fossil Point to this sandy beach is fronted by red limestone cliffs 120 to 180m high.

From the N end of the sandy beach, **Carrington Point** (34˚58'S., 136˚05'E.), a high white cliffy projection, extends about 1 mile W from the coast. A ledge of breaking rocks fronts the S side of this projection for a distance of about 0.2 mile offshore. A small bay lies between Carrington Point and **Nose Point** (34˚57'S., 136˚05'E.), the NW extremity of the island, about 1 mile to the N. Observatory Point is located 2 miles farther NE.

**Observatory Point** (34˚56'S., 136˚06'E.), the N extremity of Thistle Island, is the low projecting extremity of a long sandy beach. A foul sand flat, which is occasionally marked by breakers during strong S or SW winds, extends 0.75 mile NW from the point. From Observatory Point, the coast extends about 5.5 miles SE to Whalers Bay.

**Whalers Bay** (35˚00'S., 136˚11'E.), which lies W of Horny Point, provides anchorage for coasters with local knowledge. Shelter is provided from S to W winds, in a depth of 7.3m, sand, with Horny Point bearing 071˚, distant 0.25 mile. A rock, awash, lies in the S side of Whalers Bay, about 0.15 mile W of Horny Point. The coast between Horny Point and Waterhouse Point, about 3 miles to the S, consists of sandy beach. Depths of 36m and more lie about 1.5 miles offshore along this stretch of coast.

**Caution.—**A restricted area, with a radius of 2 miles, lies about 1.5 miles E of Horny Point.

**7.48 Waterhouse Bay** (35˚03'S., 136˚12'E.) provides shelter to coasters with local knowledge. A rocky patch, which occasionally breaks, lies almost awash, about 0.3 mile offshore, 0.25 mile NW of the S entrance point of the bay.

**Anchorages.—**On the NE side of Thistle Island, the soundings gradually shoal to the NW. A vessel may take good anchorage, in a depth of 12.8m, sand, with Observatory Point bearing 276˚, distant 0.75 mile, and the SE end of the sandy beach bearing from 194˚ to 184˚.

Waterhouse Bay provides shelter for small vessels, in a depth of 5.5m, near the S part of the bay. Caution is necessary to avoid a 0.1 mile long rocky patch which lies 0.25 mile NW of the point.

**Tides—Cur rents.—**The tidal currents in the vicinity of Waterhouse Point attain a rate of 2 knots; the flood sets N around the point, and the ebb sweeps S around the point. Near the anchorage off Observatory Point, the tidal currents never attain a velocity that exceeds 0.5 knot. Sometimes they reverse direction, with the flood setting SE and the ebb setting NW. However, there is no regularity to these currents, and frequently they set in one direction all day and night. Between Observatory Point and Porter Rock, about 3 miles to the N, the currents attain a velocity of about 1.5 knots; the flood sets NE and the ebb sets SW. A dangerous race occurs off Waterhouse Point when the southgoing current meets the SW swell during S winds.

**Note.—**The dangers extending NNE from Observatory Point are described beginning in paragraph 7.51.

**7.49 Thorny Passage** (34˚57'S., 136˚02'E.), which lies between Thistle Island and Cape Catastrophe and the mainland N of it, is interspersed with a number of islands and dangers. Between Hopkins Island and Cape Catastrophe, the passage is restricted to its narrowest part, about 2.5 miles wide, which in turn is divided by Smith Island.

The best channel in the passage lies between Cape Catastrophe and Smith Island. This channel is about 1 mile wide and has depths of over 36.6m. In the S part of Thorny Passage, there are general depths of over 40m, which decrease gradually to about 18.3m NW of Thistle Island. Vessels navigating this channel at night do so in the white sector of Taylor Island Light between the bearings of 355˚ and 001˚.

**Smith Island** (34˚59'S., 136˚01'E.), 1 mile E of Cape Catastrophe, is 30m high, oval in shape, flat-topped, covered with stunted vegetation, and steep-to. A shoal, with a depth of 11m, lies about 1.5 miles SE of the S extremity of Smith Island.

**Hopkins Island** (34˚58'S., 136˚03'E.), located 1.25 miles NE of Smith Island, is separated from the NW extremity of Thistle Island by a passage about 0.5 mile wide. This passage is fouled by rocks. Rollers break across this passage during a southgoing current. The island is about 69m high, sandy, and flat-topped, with steep cliffs that resemble the white cliffs at the NW end of Thistle Island. Several detached rocks lie off the N end of the island.

Hopkins Island is dangerous to approach from the S because the S side of the island is fronted by foul ground and a sunken rock, with a depth of 4.2m. This rock, which only breaks during bad weather, lies 0.5 mile SSW of the SW extremity of the island.

The W side of Grindal Island, described below, in range 353˚ with the E side of Lewis Island leads about 0.5 mile W of the foul ground off Hopkins Island in depths of 49.4m.

**Lewis Island** (34˚57'S., 136˚02'E.), 44m high and steep-to, lies 1.5 miles N of Smith Island. This island is peaked, whereas the others are flat-topped. A shoal patch, with a depth of 10.4m, lies about 1 mile NE of Lewis Island.

**Little Islet** (34˚57'S., 136˚02'E.), about 0.5 mile NW of Lewis Island, is an irregular mass of black granite, 8.2m high. A 6.4m shoal patch lies about 2 miles NNE of this islet.

**Caution.—**It is dangerous to pass between Lewis Island and Little Islet because the currents sweep from one side to the other at a rate of more than 3 knots, forming eddies and tide rips. With a strong N current, these rips extend more than 0.5 mile N from Little Islet.

**7.50 Grindal Island** (34˚55'S., 136˚02'E.), about 3.75 miles N of Smith Island, is 25m high, flat-topped, and brush covered. Several rocks, awash, lie off the NE extremity of the island. A coral ledge, with depths of 7.3 to 12.8m, extends about 0.75 mile N from the N end of the island.

Doolan Shoal, a detached 6.1m shoal patch, lies about 0.75 mile SE from the SE extremity of the island; elsewhere, there are depths of 16.4 to 18.3m close offshore.

**Taylor Island** (34˚53'S., 136˚01'E.), the N island in Thorny Passage, is about 1.25 miles NNW of Grindal Island; the fairway between the islands has depths of 17.4 to 18.3m. A 69m high summit stands near the N end and a high cliff fronts the E side of the island. A light, with sectors which aids vessels through the passage, stands on the NE side of the island. With the exception of a sand flat that extends about 0.25 mile N from its N end, the island is steep-to. An islet, 12.2m high, stands on

the N extremity of the sand flat. An islet off the S end of Taylor Island is separated from it by a narrow passage.

**Anchorage.—**The passage between Taylor Island and the mainland, about 1.5 miles to the W, is clear of dangers and provides anchorage, in a depth of 16.5m, marl bottom, with the S extremity of Taylor Island bearing 139° and a remarkable high striped limestone cliff on the mainland bearing about 229°.

Tidal currents in Thorny Passage attain a rate of 3 knots; between Taylor Island and the mainland a rate of 1 knot is attained during spring tides. The flood sets to the N and the ebb to the S. In the vicinity of the islands between Cape Catastrophe and Thistle Island, there are tide rips which are strong enough to swamp a boat.

**Directions.—**When proceeding N through Thorny Passage, pass Cape Catastrophe at a distance of about 0.5 mile and then proceed between Grindal Island and Taylor Island.

**7.51 Caution.—Black Rock** (34° 55'S., 136° 06'E.) lies awash at high water about 1.25 miles N of Observatory Point, but at low water the rock appears as a mass of black granite, 1.8m above water. Sunken rocks surround the rock; a ledge extends about 0.2 mile SSW from it.

There are depths of 3.7 to 5.5m between Black Rock and the sand flat off Observatory Point. The small projection SE of Observatory Point kept open between the high cliffs and Horny Point leads between Black Rock and the sand flat NW of Observatory Point. The E end of Hopkins Island kept well-open of Thistle Island leads W of Black Rock.

**Porter Rock** (34° 53'S., 136° 09'E.), about 0.2 mile in extent, lies about 3 miles NNE of Observatory Point. There is a least depth of 1.2m over several knobs near the N end of this rock, but near the S end of this rock there are depths of 3.7m.

Between Black Rock and Porter Rock, there are depths of about 11m, rocky bottom. Black Rock is dangerous because the sea seldom breaks over it enough to be seen. Frequently, there is no broken water over it for some days.

Hopkins Island closed in by Thistle Island leads E of Porter Rock, while the same islands kept well-open of each other lead W of the rock. The northernmost of the high wooded conical hills N of Memory Cove kept open N of Taylor Island, bearing 274°, leads about 0.75 mile N of Porter Rock.

**Simms Rock** (34° 52'S., 136° 08'E.), on which the sea does not always break, lies about 4.75 miles NNE of Observatory Point. It consists of a number of pinnacle rocks, with a least depth of 3m. There are depths of 12.8m at a distance of 0.25 mile from the rock.

**Howard Rock** (34° 50'S., 136° 09'E.), on which the sea seldom breaks, lies about 6.5 miles NNE of Observatory Point and about 2.75 miles WSW of the center of Dangerous Reef. This steep-to rock has a depth of 3.9m. The W tip of Hopkins Island bearing not more than 200° leads clear of Howard Rock, Porter Rock, Simms Rock, and Black Rock. A shoal, about 0.75 mile long and 0.25 mile wide, lies 8.5 miles NE of Observatory Point and about 2.5 miles SE of the center of Dangerous Reef. The depths over this shoal are less than 9.1m and decrease to a least depth of 2.7m near its middle, on which the sea occasionally breaks heavily during S gales.

**Dangerous Reef** (34° 49'S., 136° 13'E.), which consists of four large rocks and a number of small rocks, lies about 9 miles NNE of Observatory Point. These rocks, the highest of which is 3m, extend 0.75 mile W and about 2.5 miles SE, respectively, from the largest rock. The depths exceed 18.3m about 0.25 mile from the reef. A light is exhibited from the center of the reef.

A 12.2m patch, with depths of 14.6 to 18.3m all around, lies 4.5 miles NW of Dangerous Reef Light.

**Dangerous Reef Light**

## Spencer Gulf—W est Coast

**7.52** The coast between Cape Catastrophe and the E entrance of Memory Cove, about 1.5 miles to the N, is fronted by high cliffs.

**Memory Cove** (34° 58'S., 135° 59'E.), a small bight, is well-sheltered from all winds from the NNW through W to SE. Winds from other directions raise a short sea in the bay.

Anchorage can be taken by moderate-sized vessels, with local knowledge, in a depth of 9.1m, sand, with the E entrance point of the cove in range 088° with the cliffs on the N side of Hopkins Island and the E end of the beach in the bight bearing 184°.

Larger vessels anchor farther out, in depths of 14.6 to 16.5m, with the N extremity of Smith Island bearing 128° and the E end of the beach in the bight bearing 195°.

The coast between Memory Cove and Maclaren Point, about 10 miles NNE, consists of rocky points bordered by sandy beaches in between.

**Maclaren Point** (34° 48'S., 136° 01'E.) extends about 0.5 mile E of the general line of the coast and has a small bight on either side of it. A rock, with a depth of 1.8m, lies about 0.15 mile NE of the E extremity of the point.

The coast from the inner end of Maclaren Point extends N for 4 miles to Cape Donington. It consists of sandy beaches broken by rocky points and backed by high hills. A rock, about 3m high, stands 1.5 miles N of Maclaren Point. Depths of 11 to 12.8m are found about 0.5 mile offshore along this stretch of coast.

**Cape Donington** (34° 44'S., 136° 00'E.), the S entrance point of Port Lincoln, is the N extremity of a peninsula which extends 4 miles N from the coast. This extension forms the E side of Spalding Cove. About 0.5 mile SW of the cape, the land rises to a wooded summit, 53m high. Cape Colbert is the NW extremity of the peninsula and is cliffy. A light is exhibited from Cape Donington.

**Donington Reef** (34° 43'S., 136° 00'E.), with a depth of 1.8m over its outer end, extends about 0.25 mile N from a rock, 3m



Return to paragraph 7.48

high, which lies 0.25 mile NNE of Cape Donington. Depths of 10.3 and 11m lie about 0.25 mile ESE and 0.25 mile E of the same rock.

Helen Shoal, with a depth of 14m, lies 3.5 miles E of Cape Donington. Jane Shoal, with a depth of 10.9m, and Nicolette Shoal, with a depth of 13.5m, lie about 7 and 6 miles, respectively, ENE of the same cape. A 15.5m patch lies about 0.5 mile W of Nicolette Shoal.

**7.53 Port Lincoln** (34˚43'S., 135˚56'E.), a large bay that indents the coast very irregularly in a general W direction for about 6 miles between Cape Donington and Boston Point, about 5.5 miles to the NW, has several smaller bays within it. It is divided into two parts by Kirton Point, which is located 4.75 miles W of Cape Colbert, and Boston Island. The S part of the bay consists of Spalding Cove, Proper Bay (Port Lincoln Proper), and Porter Bay. The N part consists of Boston Bay. Boston Island lies 1 mile inside the entrance of Port Lincoln and separates it into two entrances. The N entrance lies between Boston Island and Boston Point; the S entrance lies between Cape Colbert and the SE extremity of Boston Island.

Port Lincoln is the terminal for the Eyre Peninsula Railway System and is considered the finest harbor in South Australia The bay can provide land-locked anchorage for a large number of deep-draft vessels between Boston Island and the mainland to the W.

The town of Port Lincoln is located in the SW part of Boston Bay. Alongside berthing facilities, described in paragraph 7.56, are provided for ocean-going vessels.

The approach channel to Port Lincoln is dredged to a depth of 14.4m.

**Boston Point** (34˚39'S., 135˚56'E.), the N entrance point of Port Lincoln, is broad and low. It is also the S extremity of a peninsula that forms the NE side of Boston Bay. A light is exhibited from Boston Point. Davidson Rock, with a depth of 14m, lies about 2.75 miles SSE of Boston Point.

**Boston Island** (34˚42'S., 135˚56'E.) is generally hilly and rises to a summit, 90m high, near the middle of the island. It is wooded and in the winter is covered with very green grass. The coast of the island is irregular and composed of sandy bays and sloping points. The island is fairly steep-to, with depths of 11 to 14.6m lying 0.25 mile offshore.

**Fanny Point** (34˚44'S., 135˚56'E.), the S extremity of Boston Island, is low. A reef, with a depth of 2.7m over its outer end, extends about 0.15 mile S from the point. A light is exhibited from the point.

The coastal bank, with a depth of 6.1m over its outer end, extends 0.3 mile NE from Hayden Point, the SE extremity of Boston Island. A depth of 1.5m lies midway along the length of this bank 0.15 mile NE of the point.

**Maria Point** (34˚40'S., 135˚55'E.), the N end of Boston Island, is low, rocky, and the end of a narrow projection which is about 12.2m high. A steep-to reef, with a depth of 0.9m, extends about 0.25 mile W from a small white cliff, with a house near it, on the W side of the island, about 0.6 mile S of Maria Point.

**Kangaroo Reef** (34˚40'S., 135˚55'E.), with depths of less than 5.5m, has a least depth of 1.2m. This steep-to reef extends about 0.75 mile NE from Maria Point and is marked by a buoy.

**7.54 Spalding Cove** (34˚46'S., 135˚58'E.), entered between Cape Colbert and Surfleet Point, about 2 miles SW, extends about 3.5 miles S. The shores of the cove consist of sandy bights and low, rocky points; its E side is bordered by sandy cliffs. There are general depths of 9.1 to 14.6m within 1 mile of the cove head and within 0.5 mile of both sides.

Anchorage can be taken anywhere because there are no known dangers. The best anchorage lies in the small bay located close S of the summit of Cape Donington. During strong N winds, there is a short sea in this bay.

**Surfleet Point** (34˚46'S., 135˚57'E.) and Bickers Islets separate Spalding Cove from Proper Bay. Bickers Islets, two in number and small, lie NW of Surfleet Point. A ledge extends about 0.15 mile S from the S side of the N islet, but there are depths of 12.8 to 14.6m about 0.1 mile from the other sides.

A stony bank extends about 0.1 mile SE from the SE end of the S islet. There are depths of more than 9.1m about 0.1 mile off the W side and 0.25 mile off the E side of the S islet.

Sunken Brother Rock, with a depth of 2.7m, lies about 0.5 mile WSW of the summit of the southernmost of Bickers Islets. A short distance off there are depths of over 9.1m.

**Proper Bay** (Port Lincoln Proper) (34˚46'S., 135˚54'E.), which is entered between Surfleet Point and Billy Lights Point, the S entrance point of Porter Bay, about 3.25 miles to the WNW, extends almost 8 miles in a general SW direction. The coast between Surfleet Point and a point SE of Horse Rock, about 5.75 miles to the SW, consists of rocky points and sandy beaches backed by low, scrub-covered rises, over which the sand hills inland from Sleaford Bay are visible.

**Horse Rock** (34˚48'S., 135˚51'E.), about 0.6m high, lies 5.75 miles SW of Surfleet Point. The rock is connected to the point SE of it by a sandy spit with a depth of 0.4m. The coast between the point SE of Horse Rock and a sandy beach at the head of Proper Bay, about 3.75 miles to the W, consists of low limestone cliffs that have scrub-covered hills rising directly above them.

From the N end of the sandy beach at the head of the port the low limestone coast extends NE for 4.75 miles to the W end of the sandy beach on the S side of the peninsula of which Kirton Point is the NE extremity.

A drying sandspit extends about 0.5 mile offshore from a sandy beach located about 1.75 miles NE of the head of the port. The coast from the W end of the sandy beach on the S side of the peninsula curves E for 0.5 mile, then S for 1 mile, and forms a shallow bay.

From **Murray Point** (34˚46'S., 135˚52'E.), the E entrance point of this bay, the coast extends NE for about 2 miles to Billy Lights Point. This section of coast consists of low cliffs with sandy beaches and two slightly projecting points backed by hills, about 46m high. A sand flat, with shallow depths, extends SE from the S part of this stretch of coast to Grantham Island.

General depths of 5.5 to 9.1m are found in Proper Bay, with depths of 6.4 to 9.1m completely across the entrance. In the S part of the port, from Surfleet Point to within 1 mile of the head of the port, there are depths of more than 5.5m about 0.5 mile offshore; however, the NW part of the port is shallower, with depths of 5.5m and less N of a line from Grantham Island to the head of the port.

**Grantham Island** (34°47'S., 135°52'E.), about 4 miles WSW of Surfleet Point, is 15.2m high and scrub-covered. It has a cliffy coast, with rocks extending a short distance from all sides except the SE, which is steep-to.

**Caution.—**Shoals, with depths of 5.5 to 9.1m, extend about 1.5 miles ENE from Billy Lights Point and occupy the greater part of the W side of the passage between that point and Fanny Point. A shoal patch, with depths of 6.7 to 7.3m, lies in the deeper part of Port Lincoln Proper about 1 mile NE and 1.75 miles ENE of the NE extremity of Grantham Island.

An 8.5m patch lies S of the above patch, about 1 mile ENE of the NE extremity of Grantham Island. A 5.5m patch lies about 1.25 miles W of Horse Rock. The summit of the northernmost of Bicker Islets, in range 062° with the S end of Grantham Island, leads N of this patch, and the SE extremity of Boston Island, in range 050° with the S end of Grantham Island, leads S of the patch.

**7.55 Porter Bay** (34°44'S., 135°53'E.) indents the peninsula which forms the SW side of Boston Bay for about 1 mile. The S side of the bay consists of low sandy beach backed by scrub-covered hills. Foul ground extends about 0.25 mile in all directions from the S entrance point of the bay; depths of 7.3 to 9.1m exist between the entrance points, shoaling gradually toward the bay head. A small craft harbor is located in Porter Bay; a range bearing 261° marks the approach to the entrance.

**Kirton Point** (34°43'S., 135°53'E.), the N entrance point of Porter Bay, is a broad projection that rises to a 67m high summit covered with scrub; a radio mast stands on the point.

**Boston Bay** (34°41'S., 135°53'E.), protected from the sea by Boston Island, is an indentation in the coast between Kirton Point and Boston Point. It can be entered by either the S or N entrance. The 10m curve lies about 0.75 mile off the W shore and about 1.5 miles off the NW and N shores of the bay.

**Le Hunte Shoal** (34°42'S., 135°52'E.), with a least depth of 6.1m, soft mud over a rock bottom, lies about 2 miles NNW of Kirton Point. North Side Hill in range 223° with Town Jetty leads 0.25 mile SE of Le Hunte Shoal; the Roman Catholic Church in range 198° with the outer end of Town Jetty leads about 0.25 mile W of the shoal.

**Bass Shoal** (34°41'S., 135°53'E.), a detached 8.5m patch, lies about 2.25 miles N of Kirton Point. A fish haven, marked close E by a buoy, lies W of Bass Shoal.

**7.56 Port Lincoln** (34°43'S., 135°52'E.)(World Port Index No. 54350) lies about 1 mile W of Kirton Point and is fronted by a sandy beach that extends W for 0.5 mile, and then NW for another 0.5 mile. The coast then extends almost due N for about 5 miles to the village of North Shields. From North Shields, the coast extends NE, then E for about 1.25 miles, and is bordered by a sandy beach backed by low sand hills. From the E end of this beach, the coast extends SSE for 2 miles to Boston Point. Port Lincoln is a first port of entry.

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**Winds—Weather.—**Prevailing winds are from the W.

**Tides—Cur rents.—**There is very little tidal current in any part of Port Lincoln, but about 2 to 3 miles outside the port entrance the currents set N on the flood and S on the ebb. The tidal range is 0.9 to 1.5m.

**Depths—Limitations.—** The principal berths in Port Lincoln are at the Shipping Pier, which extends N from the S shore of Boston Bay. Berth No. 1 through Berth No. 4 are located on the W side of the Shipping Pier; Berth No. 5 through Berth No. 10 are located on the E side.

Berth No. 1, or the Old Grain Berth, is 204m long, with a depth alongside of 9.7m; this berth is no longer used and alongside depths are no longer maintained by dredging. The berth extends E, at a right angle, from the root of the Shipping Pier.

Berth No. 2, a general cargo berth located at the root of Shipping Pier, is 189m long and has a dredged depth of 8.5m.

Berth No. 3, in the middle of the W side of the Shipping Pier, is not used.

The seaward end of the Shipping Pier is equipped for loading deep draft bulk grain ships. Berth No. 4 lies the W side and Berth No. 5 lies on the E side. Both are 349m in length, have a dredged depth of 14.9m, and can accommodate vessels up to 60,000 dwt.

Berth No. 6 is in the middle of the E side of the Shipping Pier and is 247m in length, with an alongside depth of 11.9m.

Berth No. 7 through Berth No. 10 are situated along the E root of the Shipping Pier, have alongside depths of 2.4 to 8.2m, and are used for local shipping and fishing craft.

A ro-ro ramp, dredged to 5.5m alongside, is situated at Berth No. 9.

Kirton Point Jetty, about 0.25 mile E of the Shipping Pier, extends from the shore close W of Kirton Point.

An oil tanker berth, formed by a 61m long T-head with four dolphins, is located at the head of the jetty. An acid berth lies close S of the T-head. The tanker berth is 275m long, with a depth of 9.7m alongside; a vessel up to 198m in length, with a draft of 8.7m, has been accommodated.

Proper Bay (Port Lincoln Proper) lies in a small bight about 0.5 mile SW of Billy Lights Point and contains facilities for the loading of limestone. An L-shaped pier extends from the shore at the head of the bight and is approached from the ENE through a channel with a least fairway depth of 9.1m. A lighted beacon marks the E side of the channel 0.75 mile SW of Point Fanny. The L-shaped pier at Proper Bay has a berthing length of 274m between the dolphins, with a depth of 9.6m alongside.

Vessels up to 76,500 dwt, with lengths of up to 245m and drafts up to 14.7m, can be accommodated in Port Lincoln. At Proper Bay, the maximum length permitted at the berth is 183m; the maximum beam permitted is 24m.

**Pilotage.—**Pilotage is compulsory. Pilots board incoming vessels off the N entrance of Port Lincoln, about 1.5 miles SE of Boston Point.

Pilotage should be requested through the harbormaster at least 2 hours prior to arrival; if a pilot is required outside normal working hours, the request should be sent at least 4 hours in advance. The pilot vessel is equipped with radiotelephone. There is a Port Radio Station at Port Lincoln.

**Regulations.—**Vessels should send their ETA 24 hours and 4 hours in advance.



Return to paragraph 7.53

Berthing is allowed during daylight hours only. Unberthing may be done at any time.

Vessels normally berth port side-to.

**Signals.—**At Proper Bay, berthing signals are shown from the ship loader, as follows:

1. Four green neon strips—Jetty open for berthing.
2. Four red neon strips—Jetty closed for berthing.

**Anchorage.—**Vessels may anchor 2 miles SE of Point Boston, in 18 to 22m, good holding ground.

The anchorages at the N and S ends of Boston Bay, in 13m, are more sheltered; however, the holding ground is reported to be fair to moderate.

**Directions.—**The preferred approach to Port Lincoln and Boston Bay is to pass N of Boston Island rounding Point Boston close-to, avoiding Kangaroo Reef. Vessels should then follow the 14.4m dredged channel, which is marked by lighted beacons, taking care to avoid Bass Shoal and Le Hunte Shoal.

**7.57 Louth Bay** (34° 34'S., 136° 00'E.) indents the coast between Boston Point and Bolingbroke Point, about 10 miles NE, and is divided into three distinct smaller bays by the irregular coastal formations. There are general depths of 16.5 to 21.9m in the entrance of Louth Bay between Rabbit Island and Berlin Rock and 12.8 to 18.3m in the middle of the bay.

In the smaller bays within the limits of Louth Bay, there are general depths of 7.3 to 14.6m in the middle bay, and 10 to 11m in Peake Bay and the N bay. The S bay is shallow.

A range of wooded hills, about 2 miles inland, parallels the W shore of the bay. Mount Knott, the highest of these hills, is well-wooded and flat-topped, and rises to a 254m high summit about 8 miles NNW of Boston Point. Mount Gawler, also flat-topped, rises to a height of 248m about 2 miles WSW of Mount Knott.

On the N side of the bay, between the foot of the range of hills and Bolingbroke Point, the country consists of low hills covered with dense scrub, but the land on the W side of the bay is well-grassed and has open woods. Mount Liverpool, 322m high, about 16 miles N of Boston Point, and a conical hill, 259m high, about 1.5 miles ENE of Mount Liverpool, are both very conspicuous from Louth Bay.

**Bolingbroke Point** (34° 33'S., 136° 05'E.) is a round rocky point about 12.2m high. A reef, with a depth of less than 1.8m, extends about 0.5 mile S from the point, and a detached shoal, with a depth of 6.4m, lies about 1.5 miles S of the point. A light is exhibited from the point. A dangerous wreck lies 0.75 mile SE of Bolingbroke Point.

**Berlin Rock** (34° 36'S., 136° 04'E.), with a depth of 4.9m, lies about 3.25 miles SSW of Bolingbroke Point. A rock with a depth of less than 2m lies 1.75 miles NNW of Berlin Rock.

**Rabbit Island** (34° 36'S., 135° 59'E.), 10m high, lies about 3.5 miles NE of Boston Point and about 1.5 miles E of the entrance of the S bay. Its E side is cliffy, but its W side slopes gradually to the waters edge. A rock, with a depth of less than 1.8m, lies about 0.25 mile N of the N end of the island; a shoal, with a least depth of 7.6m, lies almost 0.75 miles farther N. Nowland Shoal, with a depth of 6.7m, lies about 0.5 mile S of the S end of the island. Elsewhere, there are depths of over 9.1m about 0.25 mile offshore and 9.1 to 12.8m between the island and the entrance of the bay.

**Hawkers Devil** (34° 38'S., 135° 57'E.), a rock, awash at low water, lies 1.25 miles NNE of Boston Point. Shoal water lies between the rock and the shore to the W. The S bay lies between a point about 2.5 miles N of Boston Point and Louth Island, which lies about 1 mile farther NE. With the exception of Hawkers Devil, the 10m curve extends from a position about 230m E of Boston Point to a position about 0.25 mile S of the S end of Louth Island. There are depths of 5.5 to 7.3m in an area about 1 mile in extent close within the entrance of the bay.

**7.58 Louth Island** (34° 34'S., 135° 38'E.), almost 1.75 miles NW of Rabbit Island, has two wooded peaks, both 23m high. A dry sandspit extends about 0.75 mile W from the NW end of the island and is connected to the mainland about 1 mile farther W by a sand bar which almost dries. The middle bay lies between the S extremity of Louth Island and Peake Point, about 5.5 miles to the NE, and has depths of more than 11m about 1 mile from its head. A pier extends from the shore of a cove about 2 miles NNW of Louth Island. The pier is 91m long, with a depth of 1.5m alongside, but is closed to commercial shipping. A reef lies close E of the pier. A rock, with a least depth of 0.9m, lies 0.25 mile offshore, about 0.75 mile N of the pier. Another reef lies about 0.5 mile offshore, about 1.5 miles NE of the pier.

**Peake Bay** (34° 30'S., 136° 03'E.) indents the E part of Louth Bay between Peake Point and Bolingbroke Point, about 4 miles ESE. There are depths of 10 to 11m in an area about 2 miles in extent in the middle of the bay.

Bolingbroke Reef, which uncovers and is steep-to off its W end, extends about 3 miles W from Bolingbroke Point and restricts the entrance of the bay to a width of 0.75 mile between the 10m curves. The E extremity of Peake Point, bearing N, leads close off the W extremity of Bolingbroke Reef.

**Anchorages.—**The best anchorage in Louth Bay lies N of the sandspit extending from Louth Island, in a depth of 5.8m, sand, with the extremities of Louth Island bearing 128° and 173°, respectively.

There is good anchorage, except during S gales, off the long sandy beach on the E side of Peake Bay, in a depth of 5.5m, sand, with the W side of Bolingbroke Point bearing 167° and the S extremity of some rocks that extend seaward from the middle of the beach bearing 055°.

**Directions.—**Vessels approaching Louth Bay from the N must pass about 3 miles E of Bolingbroke Point, and then steer to pass S of Berlin Rock, taking care to avoid the 6.4m patch and the foul ground between Bolingbroke Point and Berlin Rock. Care must be taken to give Berlin Rock a good berth.

Vessels intending to enter Peake Bay must have local knowledge.

## Sir Joseph Banks Group

**7.59 Sir Joseph Banks Group** (34° 35'S., 136° 18'E.) consists of about 20 islands, islets, and above-water rocks located E of Louth Bay and Bolingbroke Point. The S part of the group lies as far as 23.5 miles E of Cape Donington and the N part lies about 11 miles ENE of Bolingbroke Point. The N part of the group, excepting Kirkby Islet and Dalby Islet, is located on a shoal bank, with depths of less than 9.1m, that extends 9 miles N from positions 8.25 and 12 miles ESE of

Bolingbroke Point; the islands of the group to the S are all detached.

Anchorages near Spilsby Island, Blyth Islet, and Reevesby Island are included in the principal description. Spilsby Island and Reevesby Island are the only two islands of the group which are inhabited and on which the vegetation is higher than low bushes.

**Buffalo Reef** (34° 43'S., 136° 28'E.), 3m high, the southernmost and outermost of the group, lies about 23.5 miles E of Cape Donington and about 14 miles ENE of Dangerous Reef. Sunken rocks extend about 0.2 mile W and 0.1 mile NE from the reef; otherwise, it is steep-to. The sea sometimes breaks with considerable violence on this reef.

**Rosalind Shoal** (34° 48'S., 136° 33'E.), with a depth of 16.5m, lies about 6 miles SE of Buffalo Reef.

**Spilsby Island** (34° 40'S., 136° 21'E.), about 6 miles NW of Buffalo Reef, is the highest and only wooded island of the group; its N part rises to a round wooded summit, 41m high. Its coast is cliffy and bordered by sandy beaches and sand hills. A drying ledge extends about 0.2 mile offshore on the SW side of the island.

A sunken reef, about 0.5 mile in extent, extends about 1 mile W from the S end of Spilsby Island. There are depths of less than 1.8m on the reef, but the foul outer end projects S for about 0.5 mile to a depth of 3.7m.

A shoal bank, with a depth of 2.4m, extends about 1.25 miles NE from the NE extremity of the island. Boucaut Islet, 9.1m high, with Seal Rock close SE of it, lies near the NE edge of this shoal. The E side of Seal Rock is steep-to. The sea sometimes breaks over the shoal area between Spilsby Island and Boucaut Islet. A shoal area, with depths of 9.1m and less, extends between 1 and 1.25 miles from the N, NW, W and SW sides of the island.

**7.60 Bridget Shoal** (34° 43'S., 136° 18'E.), with a depth of 11.9m, lies about 5 miles SW of the S extremity of Spilsby Island. A detached patch, with a depth of 11.3m, lies about midway in between. A 10m patch lies about 1 mile N of the latter patch.

**Rosemary Shoal** (34° 42'S., 136° 22'E.), with a depth of 7.9m, lies about 1 mile SE of the S extremity of Spilsby Island.

**Duffield Islet** (34° 39'S., 136° 20'E.), about 6m high, lies about 0.75 mile W of the NW extremity of Spilsby Island. Foul ground lies between the islet and the island; rocks extend about 0.2 mile S from the islet.

There is good anchorage, sheltered from winds from W to S to SE, in a depth of 9.1m, off the N side of Spilsby Island. During E winds, small craft can anchor with the extremities of Spilsby Island bearing 088° and 167°, in a depth of 5.5m, but this position lies close to the 1.8m bank extending NW from the island. Local knowledge is required for both anchorages.

**Stickney Islet** (34° 41'S., 136° 17'E.), about 2.5 miles WSW of Spilsby Island, is 30.5m high and almost divided by two inlets. An above-water rock lies about 0.2 mile off the islet's SE point, being connected to it by drying rocks. The islet is steep-to at a distance of 0.5 mile offshore.

**Sibsey Islet** (34° 39'S., 136° 11'E.), about 24m high and steep-to, lies about 4.25 miles WNW of Stickney Islet; a light is exhibited on Sibsey Islet.

English Islet, about 0.75 mile NE of Sibsey Islet, is about 9m high, rocky, and steep-to, except on its N side. There are depths of 12.8 to 16.5m between these two islets.

Karen Shoal, with a depth of 14.6m, lies about 1 mile NE of the N extremity of English Islet.

**Caution.—**The islands comprising the N part of the Sir Joseph Banks Group all lie within the limits of a shoal bank, with depths of less than 9.1m.

**7.61 Roxby Islet** (34° 36'S., 136° 19'E.) lies near the SE extremity of the above bank, about 3.5 miles NNW of Spilsby Island. The islet is 23m high and cliffy on its N and E sides, but slopes to sandy beaches on its S and W sides. A reef, with a rock awash on it, extends about 0.5 mile SSE from the SE extremity of the islet.

**Hareby Islet** (34° 35'S., 136° 18'E.), located about 0.5 mile NW of Roxby Islet, rises to a height of 15m in its E part, which is the highest part of the islet. Shoals and drying rocks extend about 0.75 mile W from the islet and there are depths of 4.6m between it and Roxby Islet.

**Langton Islet** (34° 36'S., 136° 15'E.), 9.1m high, lies at the SW extremity of the above bank and about 2.5 miles W of Roxby Islet. The NE side of the islet consists of a sandbank about 0.2 mile long. The islet is steep-to about 0.5 mile off the E and S sides. A shoal, with a depth of a little over 5.5m, extends about 1 mile W from the islet.

**Smith Rock** (34° 35'S., 136° 16'E.) lies above water about 0.5 mile NE of Langton Islet. A channel, with a fairway depth of 6.4m, lies midway between Langton Islet and the rock. Also, between Smith Rock and the foul ground that extends W from Hareby Islet, there is a narrow channel with a fairway depth of 6.4m.

**Blyth Islet** (34° 34'S., 136° 18'E.), about 0.75 mile N of Hareby Islet, is 11.6m high, round, and sandy. Depths of less than 1.8m extend up to 1 mile NW from the islet and an above-water rock lies 0.3 mile NE of the island, with drying rocks in between.

Anchorage can be taken by vessels with local knowledge with Blyth Islet bearing 308° and the N extremity of Hareby Islet bearing 240°. Shelter is provided from W and S winds.

**7.62 Reevesby Island** (34° 32'S., 136° 17'E.), the largest island of the N group of Sir Joseph Banks Islands, lies 1.25 miles NNW of Blyth Islet. The island has a general height of 9.1 to 12.2m, but a round green hill, with a clump of bushes near the top, rises to a height of 33m near the S end of the island. A sandy peninsula, topped by a sand hill, extends 0.5 mile E from the N part of the island. A farm house and some sheds stand near the S end of the island.

The coast consists of sandy beaches and low rocky points. The 10m curve lies about 0.5 mile off the E side of the island, but on the W side foul ground extends W to Partney Island, Marum Islet, and Lusby Islet. A sandspit, with a rock ,awash, at its extremity, extends about 0.5 mile W from a position 1 mile S of the NW extremity of the island.

Good anchorage can be taken by vessels with local knowledge, in depths of 5.5 to 9.1m, N of the above sandspit, except during N and NW winds. Small vessels can anchor, in a depth of 6.4m, about 0.25 mile offshore.

**Winceby Island** (34° 30'S., 136° 17'E.), 10m high and the N island of the group, lies 0.5 mile N of Reevesby Island. The intervening channel has a fairway depth of 7.3m. This channel is available only to vessels with local knowledge.

**Winceby Island Light**

Shoal water, with a depth of less than 9.1m, extends 1 mile NW and 0.75 mile N from the island. Winceby Island Light is exhibited from a tower situated on the summit of the island.

**Judith Shoal** (34° 28'S., 136° 21'E.), with a least depth of less than 15.5m, lies about 3 miles ENE of Winceby Island.

**Marum Islet** (34° 31'S., 136° 15'E.), 8.8m high, lies 1.5 miles WSW of the NW extremity of Reevesby Island. The 10m curve lies about 0.3 mile N and W of the islet.

**7.63** **Partney Island** (34° 31'S., 136° 16'E.), 14m high, lies 0.5 mile SSE of Marum Islet and is joined to it by a sandspit which dries in places. A rocky patch, with a depth of less than 1.8m, lies about 0.75 mile W of Partney Island.

A detached reef, with depths of less than 1.8m and with a rock awash near its center, lies about 1.75 miles WSW of Partney Island. The reef marks the W extremity of the shoal bank on which the N part of Sir Joseph Banks Group lies.

**Lusby Islet** (34° 32'S., 136° 15'E.), 8.8m high, is joined to the W part of the S extremity of Reevesby Island by a drying sandspit, about 0.5 mile long. Rocks that dry in patches extend about 0.25 mile W and N from the NW extremity of the islet. The 10m curve lies close S and W of the islet.

**Kirkby Islet** (34° 33'S., 136° 13'E.), located about 6 miles E of Bolingbroke Point and 2 miles W of Lusby Islet, is 26m high and cone-shaped. Shoal water, with depths of less than 5.5m, extends about 0.5 mile NW from the islet. A small rock, with a depth of 8.2m and 18.3 to 20.1m all around, lies 0.75 mile NNE of the islet.

**Dalby Islet** (34° 34'S., 136° 15'E.), 8.8m high, lies about 1.25 miles SE of Kirkby Islet. The islet is steep-to, except on its SW side, where the 10m curve lies about 0.25 mile offshore.

## Spencer Gulf—West Coast (continued)

**7.64** The coast between Bolingbroke Point and Cape Euler, about 7 miles to the N, consists of low, red cliffs and sandy beaches, with drying rocks extending up to 0.5 mile offshore in places. Massena Bay is an indentation in the coast about 4 miles N of Bolingbroke Point. A red cliff stands on the N entrance point of the bay.

**Tumby Island** (34° 24'S., 136° 09'E.) stands about 2.25 miles NNE of Cape Euler and off a low point to which it is connected by a spit. There are depths of 14.6 to 20.1m between this stretch of coast and Sir Joseph Banks Group, but the coast should be given a berth of at least 1 mile between Bolingbroke Point and Cape Euler. Tumby Island should be given a berth of 2 miles.

**Secret Rock** (34° 31'S., 136° 07'E.) lies, awash, almost 0.5 mile E of a point located about 2 miles N of Bolingbroke Point. Quilty Rock, with a depth of 5.5m, lies about 1.25 miles SE of the same point. There are depths of less than 5.5m between the former point and the rock, and shoal water, with depths of less than 9.1m, extends about 0.75 mile S from Quilty Rock.

Rabbit Island, bearing 243° and well open S of Bolingbroke Point, leads clear of the shoal water S of Quilty Rock. The same bearing of Rabbit Island leads NW of the 6.4m shoal that lies 1.5 miles S of Bolingbroke Point, although this course is not recommended.

**Tumby Bay** (34° 23'S., 136° 10'E.), also known as Harvey's Bay, lies between Tumby Island and a point about 4.75 miles NE. Depths in the middle of the entrance range from 9.1 to 11m, shoaling gradually to the shores around the bay.

From a position about 3 miles E of Tumby Island, the range of hills to the N of the bay is conspicuous; Sheep Hill is the summit of this range. The red cliffs of Tumby Island and the coast between the island and Bolingbroke Point are prominent marks; however, the low hills that back this coast are barely visible above the cliffs.

A remarkable range, of which Mount Liverpool is the most conspicuous summit, is visible inland. The town of Tumby is located in the SW corner of the bay, about 2.5 miles NW of Tumby Island. A jetty, about 0.2 mile long, with a depth of 5.2m, extends from the shore abreast of the town but is now closed to commercial shipping. A light is exhibited from a white post on the jetty head.

Anchorage can be taken, in depths of 5 to 9m, with the jetty at the town bearing 269°. Local knowledge is necessary.

Small vessels can anchor, in depths of 4.6 to 5.5m, about 1.25 miles NW of Tumby Island with the NE extremity of the island bearing 122°.

Pilotage is not compulsory, but a pilot can be obtained at Port Lincoln if needed.

**Directions.—**Vessels approaching Tumby Bay from the S should pass about 2 miles E of Tumby Island on a N course until the jetty at the town of Tumby bears 269°. Course should then be altered to approach the jetty on that bearing.

Vessels approaching from the N should give the N entrance point of the bay a berth of about 2.25 miles until the jetty at Tumby bears 269°, then proceed as directed above.

The coast between the N entrance point of Tumby Bay and Lipson Cove, about 5.5 miles NE, consists of a sandy beach backed by low land for a distance of 3.5 miles and then high rocky points with sandy beach for the remaining distance.

**Lipson Cove** (34° 16'S., 136° 16'E.) is formed by a sandy beach and a rock that extends 0.2 mile in a NE direction from the S end of the beach; the cove contains a damaged and disused jetty.

Vessels with local knowledge may anchor, in a depth of 5.5m, about midway between the NE end of the rock and the N end of the beach. The anchorage is only 0.3 mile across and

provides little swinging room during NE winds. It should only be used during offshore winds that are likely to continue from that direction.

**7.65 Cape Hardy** (34° 11'S., 136° 20'E.), 30m high and grassy, lies 5 miles NE of Lipson Cove. A range of wooded hills parallels the coast between Lipson Cove and Cape Burr, 8 miles NE.

**Sheep Hill** (34° 14'S., 136° 15'E.), the summit of this range, rises about 1.75 miles NNW of Lipson Cove.

**Cape Burr** (34° 07'S., 136° 21'E.) lies 4 miles NNE of Cape Hardy. With the exception of a rock with a depth of 1.8m, which lies 0.75 mile S of the cape, the coast between Lipson Cove and Cape Burr is fairly steep-to close offshore.

**Mount Hill** (34° 04'S., 136° 11'E.), the highest and most conspicuous landmark along this coast, consists of an isolated, truncated cone, 378m high, which stands 8.5 miles WNW of Cape Burr.

**Mottled Cove** (34° 06'S., 136° 21'E.), a small sandy bight about 1 mile N of Cape Burr, is the site of Port Neill, a small settlement. A jetty extends about 250m offshore abreast the settlement and has a depth of 4.6m alongside its outer end. The jetty is now closed to commercial shipping.

Lighted beacons, in range 279°, indicate the axis of the jetty. By keeping N of the range with the lights slightly open, vessels may approach in the deepest water right up to the seaward end of the jetty.

Small vessels with local knowledge can anchor, in a depth of 5.5m, between Cape Burr and the jetty, with Cape Burr bearing 162°.

**Dutton Bay** (34° 05'S., 136° 24'E.), formed by a slight curve in the coast between Cape Burr and a sandy point about 11 miles to the NE, consists of sandy bays and cliffs. The cliffs along this stretch of coast are higher than those S of Cape Burr, and the country immediately behind the cliffs is lower and covered with dense scrub. The land behind the sandy point mentioned above is very low.

The 10m curve lies about 1.75 miles off the N and S parts of the bay, but in the middle of the bay, where the cliffs are highest, there are depths of more than 9.1m about 0.5 mile offshore.

Vessels with local knowledge can anchor on the bank in the N part of Dutton Bay, in a depth of 5.5m, sand, 1 mile offshore, with Cape Driver bearing 043° and the SW extremity of the long beach, 7.75 miles N of Port Neill, bearing 263°.

**7.66 Cape Driver** (33° 57'S., 136° 35'E.), a broad point 16m high, with rocks around its seaward face, lies 5 miles NE of the N point of Dutton Bay. A red cliffy point, of similar height and appearance to Cape Driver, lies 2 miles SW of Cape Driver.

**Elbow Hill** (33° 43'S., 136° 48'E.), which rises to a height of 216m about 6.5 miles NNE of Gibbon Point, appears by itself on the extreme right to the NE. Triple Hill, the first conspicuous summit W of Elbow Hill, rises to a height of 283m, in three summits of almost equal height, about 9 miles NW of Gibbon Point.

In clear weather, two ranges can be seen WSW of Triple Hill; the most conspicuous part of these ranges is a summit which rises to a sharp peak, 408m high, about 16.5 miles NW of Gibbon Point. The land to the SW of these ranges is much lower, and there are no conspicuous peaks as far as Mount Priscilla.

Mount Priscilla rises to a sharp cone, about 244m high, 12 miles NW of Cape Driver. Cone Hill and a ridge about 1 mile long rise to elevations of 122m midway between Mount Priscilla and Cape Driver.

Towards the W and SW, there is nothing conspicuous to be seen except Mount Hill, which may be seen if it is sufficiently clear. The land immediately behind the coast consists of low rises covered with dense scrub, and is barely higher than the cliffs or coastal sand hills.

**Arno Bay** (Salt Creek Cove) (33° 55'S., 136° 35'E.) indents the coast between a sandy point about 0.5 mile N of Cape Driver and another similar point about 1.5 miles farther N. A reef, which dries, extends 0.2 mile from the S point of the bay; a similar reef extends 0.3 mile SE from the N point of the bay. A sunken rock lies about 0.2 mile SW of the extremity of the latter reef.

A salt creek discharges into the SW part of the bay. A pier, with a depth of 3.7m alongside its outer end, extends from the shore close N of the creek, but is closed to commercial shipping.

Anchorage can be taken by small vessels with local knowledge, in a depth of 5.8m, sand, with Cape Driver bearing 195°, distant 1.25 miles, and the mouth of the salt creek bearing 257°. Shelter is provided from N to SW winds.

A sandy bight is formed in the coast between the N point of Arno Bay and a position about 1.75 miles NE. From this position, the coast extends NE for 9 miles to Gibbon Point. The first 5.5 miles of this coast is cliffy with an occasional sand hill, and the remaining 3.5 miles consists of a sandy beach backed by low sand hills. A green hill, 45m high, rises on the highest part of the cliffy coast, about 0.75 mile NE of the SW end of the cliffs.

All of the dangers between Arno Bay and Gibbon Point are contained within the 10m curve, which lies about 0.5 mile offshore.

**7.67 Gibbon Point** (33° 50'S., 136° 47'E.), which lies about 12.25 miles NE of Cape Driver, consists of a sandy point, 16.8m high, with drying rocks on either side.

**Port Gibbon** (33° 49'S., 136° 49'E.) lies in a bight between Gibbon Point and a low, rocky point about 3.75 miles NE. The S half of the bight consists of low, red sandy beach backed by low sand hills.

A jetty, 60m long with a depth of 2.1m alongside, extends from the shore about 2 miles NNE of Gibbon Point. This jetty is now closed to commercial shipping.

Anchorage for small vessels with local knowledge can be taken, in a depth of 6.4m, with Gibbon Point bearing 229°, distant 0.5 mile. Shelter is provided against W winds.

The coast between Port Gibbon and Germein Point, the SW entrance point of Franklin Harbor, about 7 miles ENE, is sandy.

**7.68 Franklin Harbor** (33° 44'S., 136° 57'E.) is a large landlocked body of water which is half-filled with drying sandbanks; it is available only for vessels of not more than 2.4m draft, to which it offers shelter in all weather.

The harbor is entered over a bar that lies about 1.25 miles seaward of the entrance between Germein Point and Victoria Point, 1.25 miles to the NE. An intricate channel, marked by beacons and indicated by ranges, leads to the town of Cowell about 4 miles NW of Germein Point.

The shores of the harbor are generally very low, swampy, and covered with mangroves, except in the NE corner, where there is a bare sandy beach.

A narrow passage, with depths of 2.4 to 4.9m, leads from the main channel in the vicinity of Cowell through drying sandbanks to a large pool that forms the SW part of the harbor that has depths of 2.4 to 4.3m.

With the exception of the low sandy beach that extends SW for about 5 miles from Germein Point, the land between the SE side of this pool and the sea is swampy and nearly covers at spring tides.

Entrance Island fronts the harbor entrance about 0.75 mile within the entrance points. The island is infested with highly venemous Death adders.

**Germein Point** (Germain Point) (33° 45'S., 136° 58'E.) is low and composed of masses of sand and weed which shift about from time to time. A spit, with depths of 0.6 to 1.4m, extends about 0.3 mile E and 1.25 miles SE from the E end of the point; this spit forms the W side of the bar. There are depths of less than 1.8m within 230m of the N side of the point. An obstruction lies about 1.75 miles S of Germein Point.

**Victoria Point** (33° 45'S., 136° 59'E.), the NE entrance point of Franklin Harbor, has a red cliff, 15.2m high, for a sea face. A drying bank, composed of sand and reefs, extends about 0.5 mile W and 0.75 mile S from the point, and a shoal, with depths of less than 1.2m, extends 0.75 mile farther S from the drying bank. This foul ground forms the E side of the bar. The underwater remains of a beacon lie about 1.5 miles S of Victoria Point.

**Cowell** (33° 41'S., 136° 56'E.), a small town and fishing port, is located in a gap in the mangroves on the W side of the N part of the harbor. The town jetty consists of a causeway extending 0.25 mile E from the shore at Cowell. New Jetty extends 320m SE from the head of the causeway and has a depth alongside of 3m. A light is shown from the head of the jetty. Old Jetty extends 147m E from the head of the causeway.

**7.69** The coast between Victoria Point and a sand hill at the entrance of a swamp about 3.5 miles ENE is very low, with the exception of one wooded rise. From the sand hill, the coast extends E for 6 miles to a very low point and then NE for 2.5 miles to Shoalwater Point. Three wooded rises stand 7 miles ENE of Victoria Point; off these rises, the edge of the drying bank lies a little over 1 mile from the beach. From Victoria Point and up to 4 miles to the E, the 10m curve lies 2 miles offshore; from there to Shoalwater Point, it lies from 3 to 4 miles offshore. The majority of coastal dangers are contained within this curve. A dangerous wreck lies 3 miles SE of Victoria Point.

**Shoalwater Point** (33° 40'S., 137° 12'E.) is not more than 3m high and backed by swampy land up to 15 miles inland. The shore bank dries up to 1.5 miles offshore and there are depths of less than 9.1m within 4 miles offshore. A conspicuous house stands about 1 mile inland of Shoalwater Point. A light is exhibited at the point and a beacon stands about 2.5 miles SSE of the light structure marking the shore bank.

At a distance of about 3 miles off Shoalwater Point, the flood sets NE and the ebb sets SW, at a rate of about 2 knots.

Good anchorage can be taken anywhere on the bank off Shoalwater Point, in depths of 3.7 to 9.1m, good holding ground. The coast between Shoalwater Point and Plank Point, about 15 miles NNE, never rises higher than 6.1m. A drying sand bank extends about 1 mile off this coast; depths of less than 9.1m are formed up to 5 miles offshore.

**Clan Macdougall Shoal** (33° 53'S., 137° 13'E.), with a depth of 10.6m, lies 11 miles S of Shoalwater Point beacon.

**Dillon Shoal** (33° 49'S., 137° 08'E.), with a least depth of 11.6m, lies about 8.5 miles SSW of Shoalwater Point beacon. A shoal, with a least depth of 3m, lies with its outer edge about 5 miles offshore, about 11.25 miles NE of Shoalwater Point beacon. Depths of 9.1m and less extend about 2 miles SSE from this shoal. A shoal, with a least depth of 7.6m, lies 6 miles ESE of Shoalwater Point beacon.

**Plank Point** (33° 27'S., 137° 21'E.) may be easily identified by the obelisk on it. The point lies close to the northernmost of three prominent sandhills. A lighted beacon stands about 6 miles SE of Plank Point and marks Plank Shoal; this shoal lies 7 miles ESE of the obelisk on Plank Point and is 2.5 miles in extent, with a least depth of 8.8m.

The coast from Plank Point extends in a general NNE direction for 21 miles to the foot of Mount Young and forms a shallow bay close S of the mount. This section of coast is bordered by a shallow bank that extends about 2 miles offshore in places and is steep-to.

A shoal area, about 0.75 mile in extent, with depths of about 10m, lies 5 miles offshore about 9 miles NNE of Plank Point. A 5.2m patch lies about 5 miles NE of Plank Point.

**7.70** **Mount Young** (33° 06'S., 137° 29'E.), about 22 miles NNE of Plank Point, is the most conspicuous feature of this part of Spencer Gulf; it rises steeply to an elevation of 135m about 1 mile inland. When viewed from a distance, it appears as a double peak. The land between it and the coast is swampy. Mount Young has been reported to be a good radar target at distances up to 10 miles.

The country inland of Mount Young is an extensive plain gradually rising to the W and is covered with stunted scrub. Mount Middleback, 457m high, stands 19 miles WSW of Mount Young. This mount and the surrounding ranges are too far distant to be of any use to navigation. An aeronautical radiobeacon is situated about 3 miles NE of Mount Young.

**Western Shoal** (33° 09'S., 127° 32'E.), with depths of less than 5.5m, extends about 5 miles offshore in the vicinity of Mount Young. A part of the shoal, about 3.5 miles S of Mount Young, dries; depths of less than 1.8m are formed up to 3 miles E of the drying patch. A lighted beacon stands about 2 miles SE of Western Shoal.

The coast between Mount Young and Hummock Hill, about 6.5 miles NE, is very low and swampy for some distance inland, and is fringed by mangroves. Drying sand flats extend from 0.5 to 1 mile offshore along this section of coast.

**Hummock Hill** (33° 02'S., 137° 36'E.), about 6.5 miles NE of Mount Young, is a grassy, round hill that rises to an elevation of 61m a short distance inland. A conspicuous metal

framework tower, 78m in height, stands 0.75 mile WNW of Hummock Hill.

**Mount Laura** (33°00'S., 137°31'E.), a conspicuous, sharp wedge-shaped hill with a nearly perpendicular W face, is 182m high and is located 4 miles NW of Hummocks Hill.

**7.71 Port Whyalla** (33°02'S., 137°36'E.) (World Port Index No. 54320) is one of the major ports of call in Spencer Gulf; it consists of an inner harbor and an outer harbor, both approached through dredged channels marked by lighted beacons and indicated by ranges. The berthing facilities are located in the SW part of False Bay. Port Whyalla is a first port of entry.

**Winds—Weather.—**The climate is hot and dry. The warmest weather is from November to March. South of the port, the heat is modified by the sea breeze. July and August are the coldest months. The prevailing winds are from the SW.

**Tides—Currents.—**The tide rises 2.5m at springs and 1.5m at neaps. About 0.5 mile offshore, in the vicinity of Hummock Hill, the flood sets N and the ebb sets S. Off Black Point, the flood sets E and the ebb sets W.

**Depths—Limitations.—** The Preferred Route to Whyalla from the Spencer Gulf is charted as far S as in the vicinity of 15 miles W of Cape Elizabeth. The route is approximately 77 miles long from its commencement off Cape Elizabeth to the entrance buoy 6.5 miles SSE of Port Whyalla.The tracks shown have not been surveyed in accordance with IMO standards for recommended tracks, but are the preferred routes for vessels with regard to the charted depths. A least depth of 20m is charted along this route.

Outer Harbor (South Harbor) consists of two jetties. The N jetty extends ESE from the coast at the foot of Hummock Hill. The ore berth, on the N side of the outer end of the N jetty, is dredged to a depth of 11.6m and is 250m long. A dolphin to assist vessels in turning lies off the head of the jetty. The maximum length of a vessel permitted at the berth is 250m.

The jetty S of the ore jetty is lighted and has alongside depths of less than 2m

The approach channel, dredged to a depth of 10.7m, is marked by a lighted beacons; the center line of the channel is indicated by lighted beacons, in range 280°.

The channel, leading in a 251° direction toward the ore jetty and dredged to a depth of 7.6m, is unmarked.

Inner Harbor (North Harbor) is located 1 mile N of Outer Harbor and is entered through a channel dredged to a depth of 10m. The sides of this channel are marked by lighted beacons; the alignment of the channel is indicated by lighted beacons, in range 306.5°.

Main Harbor Wharf (Blast Furnace Wharf), on the N side of Inner Harbor, is 700m long, with four berths having a depth of 10.7m alongside, including one berth for ro-ro traffic. The main wharf is equipped with loading facilities for bulk cargo, coal, limestone, and salt.

There is a berth, 180m long, on the S side of the basin used by the shipyard.

Vessels up to 69,000 dwt can be accommodated at Port Whyalla.

**Aspect.—**Several buildings and a conspicuous convoluted blast furnace stand on the NE side of Inner Harbor. A radio tower stands at the seaward corner of the Main Wharf.

A high radio tower stands on high ground about 1 mile WNW of the ore-loading jetty. A hospital is located 0.75 mile WNW of Hummock Hill.

Radar navigation has been reported to be good within 15 miles of Whyalla.

**Pilotage.—**Pilotage is compulsory. Pilots board about 1.7 miles SE of Lighted Beacon No. 1. The request for pilot and ETA should be made 48 and 24 hours in advance. The signal for a pilot should be displayed when within at least 10 miles of Port Whyalla. The pilot vessel is equipped with radiotelephone. There is a Port Radio Station at Port Whyalla.

**Regulations.—**Vessels must have an underkeel clearance of 10 percent of the maximum draft. If the vessel's draft is less than 6.53m, then a minimum underkeel clearance of 0.76m is required.

**Signals.—**Berthing signals are displayed from a tower at the outer end of the Inner Harbor, as follows:

| Signal | Meaning |
|---|---|
| One intensified red light | Vessel may not enter berth |
| One intensified green light | Vessel may enter berth |

Berthing signals are also shown from the top of the ore loader at the Outer Harbor Ore Jetty, as follows:

| Signal | Meaning |
|---|---|
| **Day signal** | |
| Two yellow balls | Vessel may berth |
| One yellow ball | Vessel may not berth |
| **Night signal** | |
| One green light or neon strip | Vessel may berth |
| One red light or neon strip | Vessel may not berth |

**Anchorage.—**Anchorage can be taken in a depth of 8.2m, clay and mud, with the summit of Hummock Hill bearing 245°, distant 1.5 miles.

The quarantine anchorage lies close off the outer beacons on the 306.5° range line and about 2 miles ESE of the ore jetty. At least 48 hours notice for a request for pratique is required.

**7.72 False Bay** (33°00'S., 137°40'E.) is an indentation in the coast between Hummock Hill and Black Point, about 7 miles ENE. The land at the head of the bay is very low and swampy for many miles inland. The bay shore is bordered by a drying sand flat which extends about 1.5 miles offshore in places.

East of Hummock Hill and S of Black Point, the 5m curve lies close offshore but between the two places it lies up to 2.5 miles offshore; the 10m curve lies from about 1 to 2 miles farther offshore than the 5m curve.

A dumping ground for solid ballast and a spoil ground are located within the bay and can best be seen on the chart.


**Althorpe Island from SW**

**Black Point** (32°59'S., 137°43'E.), a fairly steep-to limestone cliff about 15.2m high, lies 7 miles ENE of Hummock Hill. Although the point is light-colored, its overhanging face is nearly always shadowed and appears black.

The coast between Black Point and Lowly Point, about 3.3 miles to the E and marked by a light, is bordered by a drying rocky ledge that extends about 0.3 mile offshore in places. Off this section of coast, the 10m curve varies from about 1.5 miles offshore S of Black Point to about 0.25 mile offshore S of Lowly Point.

**7.73 Port Bonython** (33°00'S., 137°46'E.) (World Port Index No. 54325), situated close E of Stony Point, about 2 miles E of Black Point, is an oil and LPG terminal.

**Tides—Curr ents.—**In the area off the berth, the spring floods reach 1.25 knots and the ebbs 1.75 knots; both flood and ebb set slightly across the line of the berth towards the shore.

**Depths—Limitations.—** The port consists of a jetty 1.25 miles long, with a T-head wharf 340m long, and has a depth alongside of 18m. The jetty will accommodate tankers up to 110,000 dwt; gas carriers of up to 45,0000 dwt may be accommodated. The maximum departure draft is 16m.

A submarine pipeline is laid from the T-head NNE to the shore. A swinging basin, with a least depth of 20m, extends 0.25 mile from the jetty.

The approach channel to the jetty lies E of Fairway Bank and is marked by lighted buoys. The least charted depth in the channel is 18.4m.

**Pilotage.—**Pilotage is compulsory. Pilots board 2 miles NW of Entrance Lighted Buoy, moored 10 miles SSW of Lowly Point.The port is equipped with VHF radio.

**Regulations.—**Navigation is permitted during daylight hours only.

Vessels should send their ETA to the harbormaster at Port Whyalla at least 24 hours in advance, stating the following:

1. Draft.
2. Last port of call.
3. Whether ballast is clean and hull is sound.

**Signals.—**The following emergency signals may be shown at the port:

| Signal | Meaning |
|---|---|
| Fixed red light | Vessels must not approach within 400m. |
| Flashing red light | Vessels must not approach within 1,170m. |
| Two flashing red lights | Non-essential vessels must stay 2 miles clear. |

**Anchorage.—**Anchorage is available, in 16m, sand, good holding ground, near the pilot boarding position.

## Spencer Gulf—East Side—Althor pe Islands and Off-lying Dangers

**7.74 Althorpe Islands** (35°23'S., 136°51'E.) consists of a group of three islands, the southernmost of the group lying about 4.5 miles S of Cape Spencer, the E entrance point of Spencer Gulf. The group has been reported to be a good radar target from distances of up to 16 miles.

Althorpe Island, the S and largest, lies 4.5 miles S of Cape Spencer, with Haystack Island, 3.75 miles NE, and Seal Island, 3.5 miles ENE of it.

**Haystack Island** (35°19'S., 136°54'E.) and Seal Island are bare rocks, 43m and 30m high, respectively. A submerged rock, which generally breaks, lies 0.25 mile N of Seal Island. Althorpe Island is 93m high, nearly flat-topped, with steep sides, and has a cleft across its S part which is visible from both E and W.

Several rocks and islets lie within 1.5 miles off the NW side of Althorpe Island and the outer rock breaks. A light is exhibited from the center of Althorpe Island.

A range consisting of a light situated on the NW side of the island and the one at the center leads on a bearing of 157° between the mainland and the off-lying dangers at the SW extremity of Yorke Peninsula.

Anchorage, sheltered from W gales, can be taken, in depths of 14.6 to 18.3m, sand, off a remarkable yellow overhanging cliff on the E side of Althorpe Island.

A jetty, with depths of 3.4m at its outer end, extends from the NE side of the island.

**Southwest Rock** (35°20'S., 136°49'E.), which breaks during a heavy swell or in W gales, has a depth of 3m, and lies 3.25 miles NW of Althorpe Island Light.

**Emmes Reef** (35°18'S., 136°49'E.), almost 2 miles NNE of Southwest Rock, is a steep-to rocky patch about 2.1m high. The sea breaks heavily on this rock.

**Brook Shoal** (35°19'S., 136°48'E.), with a depth of 8.8m, lies about 0.75 mile WSW of Emmes Reef.



Return to paragraph 8.22

**Yorke Peninsula—SW extr emity, with West Cape (left) bearing 067˚ , distant 3 miles**

**Iron Whyalla Shoal** (35˚ 18'S., 136˚ 47'E.), with a depth of 11.3m and on which the sea breaks, lies 1.75 miles WNW of Emmes Reef; the sea also breaks close NW of this shoal during heavy SW swells.

A shoal, with a depth of 9.1m, lies 2 miles NNW of Iron Whyalla Shoal. This shoal breaks with a SW swell.

**Tides—Curr ents.—**South of the Althorpe Islands, the flood sets NE and divides off Cape Spencer, with the E part setting along the coast toward Marion Bay, and the W part setting NW, around West Cape, at a rate of 1.5 knots.

**Directions.—**Small vessels with local knowledge may pass between Haystack Island and Cape Spencer; Packman Shoal (see paragraph 7.75) lies close to this route.

Vessels approaching from a position midway between Althorpe Island and Seal Island should steer to pass midway between Emmes Reef and the reef extending off Reef Head (see paragraph 7.75).

Emmes Reef is very close to the track of vessels using the inner route and the greatest care should be exercised when navigating in this vicinity.

## Spencer Gulf—East Side

**7.75 Cape Spencer** (35˚ 18'S., 136˚ 53'E.), 79m high, is the E entrance point of Spencer Gulf. When viewed from the S, Cape Spencer appears as a cone with a ledge of rocks at its base. Together with Reef Head and West Cape, two cliffy points lying 2 and 4 miles, respectively, NW, it forms the SW end of Yorke Peninsula, which separates Spencer Gulf from the Gulf of St. Vincent. Cape Spencer has been reported to be a good radar target at distances up to 15 miles. A light is exhibited on the S extremity of the cape.

**Packman Shoal** (35˚ 19'S., 136˚ 53'E.), with a depth of 11.6m, lies about 1 mile S of Cape Spencer. A rocky shoal, with a depth of 13.1m, lies about 1.5 miles E of Packman Shoal.

**Reef Head** (35˚ 17'S., 136˚ 51'E.), about 2 miles WNW of Cape Spencer, has a reef extending about 0.4 mile SW from it. Foul ground lies in the vicinity.

**West Cape** (35˚ 15'S., 136˚ 49'E.), lies 2.25 miles NNW of Reef Head. A reef of sunken rocks, which breaks during SW gales, extends about 0.5 mile seaward from a cliffy head close S of a point about 0.75 mile NNE of West Cape. West Cape Light is exhibited from the cape.

**Lawry Shoal** (35˚ 15'S., 136˚ 46'E.), with a depth of 15.2m, lies 2.75 miles WNW of West Cape.

**Waller Shoal** (35˚ 13'S., 136˚ 48'E.), with a least depth of 10.4m, lies 2.25 miles NNW of West Cape. An 18.3m patch lies about 3.75 miles NNW of West Cape.

**7.76 Pondalowie Bay** (35˚ 14'S., 136˚ 50'E.), a small indentation in the coast, lies between a point located 0.75 mile NNE of West Cape and Royston Head, about 2.75 miles farther NNE. The E shore of the bay consists of a sandy beach backed by sand hills. Three islets, dark-colored on their W sides, front Pondalowie Bay. With the sun behind them, these islets appear quite black against the sand hills on the shore.

The S islet is small and is joined to the S point of the bay by drying ground. A light is exhibited on the S islet.

A rock, with a depth of 2.1m and which breaks at times during SW gales, lies close inside the bay entrance, about 0.25 mile NE of the outer point of the S islet.

The middle islet, about 0.75 mile N of the S islet, is 31m high and separated from the mainland by a rocky channel. A drying reef extends 0.4 mile from its W point; a similar reef extends 0.1 mile from its S side.

The N islet, 38m high, is close to Royston Head and is connected to it by a drying reef.

The S part of Pondalowie Bay provides anchorage from winds between N through E to WSW, in a depth of about 6.4m, about 0.25 mile offshore, over a bottom of smooth limestone with a thin cover of sand. The holding ground is poor.

The entrance of Pondalowie Bay is about 0.75 mile wide between the S and middle islets; there are depths of 11m in it. Small vessels, entering the bay between the middle and S islets, should steer with the high sand hill just open N of the S islet, bearing 105˚ ,in order to avoid the sunken rock NE of the S islet and the reef extending S from the middle islet. This course passes the steep-to S islet at a distance of about 0.1 mile, but local knowledge is necessary.

**Royston Head** (35˚ 12'S., 136˚ 50'E.), 59m high, lies 3.25 miles NNE of West Cape and is cliffy. The coast between Royston Head and a point about 8 miles to the NE is composed of small sandy beaches and rocky points.

Formby Bay, a small bight, lies between the point about 8 miles NE of Royston Head and Daly Head, 4 miles to the N. This bay has a sandy beach about 4 miles long. High sand hills back this section of coast and most of the rocky points have rocks which extend between 0.1 and 0.2 mile from them.

A heavily breaking rock lies 1 mile offshore 3.5 miles NNE of Royston Head. During E winds and in very fine weather this rock does not break. A 13.7m shoal patch, over which tide rips occur, lies about 4.5 miles NNE of Royston Head.

**7.77 Daly Head** (35˚ 02'S., 136˚ 56'E.), almost 11 miles NNE of Royston Head, is a steep rocky point which has a grassy summit, 63m high. This point has been reported to be a good radar target at distances of up to 14 miles.

A reef, part of which is 1.2m high, extends about 0.5 mile seaward from the head.

The coast between Daly Head and Corny Point, about 9 miles NNE, is generally sandy and backed by sand hills. This section of coast forms two bights, with Berry Bay being the N bight.



Return to paragraph 8.22


**Corny Point from SW**

The coast NE of Daly Head is low and marked by salt swamps and small grassy plains. Two reefs extend about 0.3 mile seaward from a rocky point about 1 mile NE of Daly Head; a number of rocks lie about 0.25 mile farther NE. A rock, with a depth of less than 1.8m, lies off a rocky point 4 miles NE of Daly Head.

**Webb Rock** (34˚ 58'S., 136˚ 55'E.) lies about 3 miles N of Daly Head and 2.25 miles offshore. A knob on the outer part of the rock is awash and there are usually heavy breakers over it;. In the summer, during long continued E winds, it breaks only at intervals, but then only slightly. Passage E of Webb Rock should never be attempted except by those completely familiar with the coast. A rock, with a depth of 3.7m, has been reported to lie about 1.25 miles ENE of Webb Rock. Two low, above-water rocks lie in this vicinity.

**Corny Point** (34˚ 54'S., 137˚ 01'E.), a sloping rocky double projection, lies about 9 miles NNE of Daly Head. The coast on the N side is low and sandy whereas the coast on the S side is higher than the point itself. Corny Point has been reported to be a good radar target at distances of up to 11 miles. A light is exhibited from the point.

Some detached rocks lie not more than 0.25 mile offshore SW of Corny Point, but it is otherwise free of dangers. The point may safely be rounded at a distance of 0.5 mile, but the depths shoal rapidly E of the point.

**7.78 Hardwicke Bay** (34˚ 40'S., 137˚ 20'E.) lies between Corny Point and the S extremity of Wardang Island, about 28 miles NE.

Port Turton is located in the SE part of the bay; Port Minlacowie and Port Rickaby are located on the E shore; and Port Victoria is located at the N end.

The bay has general depths of 14.6 to 20.1m, but between 5 and 10 miles SW of Wardang Island, the depths are very irregular. The rocky bottom raises a disturbed sea in the bay during W gales.

Anchorage, sheltered from all S winds, can be taken in many parts of the bay. These S winds appear to be the only ones with much strength. Although there is a rocky bottom in all parts of the bay, vessels with a good scope of chain should anchor safely.

**7.79 Hardwicke Bay—South side.—**The coast between Corny Point and Souttar Point, 12.75 miles E, consists of a sandy beach backed by woodlands. Corny Point Settlement is located 4 miles E of Corny Point.

A spit, with depths of less than 5.5m, extends 3.75 miles NNW from a low sandy point 8.75 miles E of Corny Point. A shoal with similar depths, which extends 2.5 miles offshore in places, fronts the coast between Corny Point and the above low sandy point. A shoal, with depths of less than 9.1m, and with depths of 6.4m near its outer end, extends 7 miles NE from the N point of the spit.

Anchorage can be taken, in a depth of 8.2m, off Corny Point Settlement, with Corny Point bearing 257˚. There is good shelter, good holding ground, and smooth water in a depth of 5m, about 0.5 mile offshore, between the lighted beacon, about 4 miles WNW of Souttar Point, and the point itself.

**Souttar Point** (34˚ 54'S., 137˚ 17'E.), 12.75 miles E of Corny Point, is marked by a 26m high sand hill, which is partly white. A lighted beacon stands about 4 miles W of the point.

The coast between Souttar Point and Point Turton, a cliffy projection about 4 miles to the ESE, consists of stony beaches and low cliffs.

**Mount Gore** (35˚ 00'S., 137˚ 16'E.), 101m high, is located 6 miles S of Souttar Point.

**Port Turton** (34˚ 57'S., 137˚ 21'E.), used exclusively by fishing boats, lies close E of Turton Point. A jetty, with a depth of 3.4m alongside its outer end and marked by a light, extends about 137m from the SE side of the point. The jetty is closed to commercial shipping.

A number of rocks, with depths of 0.6 to 1.2m, lie off off either side of the jetty and at its extremities.

**Anchorage.—**Vessels with local knowledge can anchor, in depths of 6.1 to 6.7m, with the jetty bearing 230˚, distant 0.3 mile.

Small vessels can anchor, in depths of 3.7 to 4.6m, on the alignment of the jetty, bearing 241˚, distant 0.15 mile.

The bottom in the vicinity of Port Turton is so rocky that a broken sea rises very quickly but subsides just as quickly when the wind dies down.

**7.80 Hardwicke Bay—East side.—**A sandy beach, which extends E and NE from Port Turton for a distance of 5 miles, forms the head of Hardwicke Bay. There is low, sandy land between the two wooded ranges S of this beach; this is the narrowest part of Yorke Peninsula, which is only 9 miles across here.

The coast from the NE end of this sandy beach extends N to Gawler Point, about 26.5 miles NNE of Turton Point. This section of coast consists of sandy beaches and low, rocky points, with a coastal range of sand hills. Behind these hills the land rises gradually to an elevation of about 152m.

**7.81 Port Minlacowie** (34˚ 51'S., 137˚ 28'E.) is located almost 8 miles NE of Turton Point. The shore in this vicinity is

backed by low sand hills covered with bushes and small trees, and fronted by a ledge of rocks which dry up to a distance of about 0.15 mile offshore. A number of dangerous rocks, with depths of from 0.6 to 3.4m, lie up to about 0.2 mile offshore.

Anchorage can be taken about 0.3 mile offshore in depths of 6.1 to 6.7m or about 0.75 mile offshore in depths of 7.3 to 7.9m. Local knowledge is essential.

**Brown Point** (34°43'S., 137°29'E.), marked by a white-topped sand hill with trees on it, stands 7 miles N of Port Minlacowie.

**Port Rickaby** (34°40'S., 137°30'E.), 10.75 miles N of Port Minlacowie, is fronted by a sandy beach. A jetty, with a depth of 5.5m along its outer end, extends from the shore abreast of Port Rickaby but is no longer used by shipping.

A tree-topped 21m high hill rises 0.25 mile S of the jetty. A rocky point lies almost 0.2 mile N of the root of the jetty; a drying reef lies about 0.1 mile off this rocky point, with a 3m patch lying about 0.15 mile farther seaward.

A sandy beach, which is clear of rocks, lies between the above rocky point and a position about 0.4 mile to the N, from which rocky drying ledges extend 0.4 mile seaward. Two bare sand hills rise behind this beach.

General depths of less than 5.5m extend not more than 0.15 mile off this beach, but a number of rocky patches, with depths of 4.6 to 5.5m, lie about 0.4 mile off the middle of the beach; beyond this the bottom is very irregular, but there are not depths of less than 5.8m.

Anchorage can be taken in, depths of 7.3 to 8.2m, about 0.75 mile offshore, with the 16.8m sand hill with a pole on it bearing 095°.

Small vessels can anchor on the same alignment but closer inshore.

Local knowledge is necessary for both anchorages.

In Hardwicke Bay, the flood current sets N and the ebb current sets S, following the direction of the coast. The offshore currents are stronger than the inshore currents.

**Directions.—**As a general rule, when approaching any of the ports in Hardwicke Bay, there are depths of more than 9.1m to within a distance of 1 mile of the shore, but off Port Victoria and Turton Point such depths are found much closer inshore.

At night, all dangers will be avoided if vessels anchor immediately upon obtaining depths of less than 9.1m.

Corny Point may be safely rounded at a distance of 0.5 mile, but vessels bound for Port Turton should keep Corny Point bearing less than 237° astern until Mount Gore bears more than 181°, at which time the jetty at Port Turton may be steered for.

Vessels drawing no more than 4.6m may keep Corny Point bearing less than 247°, and when Mount Gore bears more than 163°, steer for the jetty at Port Turton.

When approaching Port Minlacowie, and if drawing more than 3m, keep the outer end of the jetty bearing 125°; when within 0.5 mile of the shore; with a draft exceeding 2.4m, the outer end of the jetty must be kept between the bearings of 050° and 140° to avoid the submerged rocks.

Vessels approaching Port Rickaby should not come within 1 mile of the coast until the sand hill, mentioned above and located almost 0.35 mile N of the root of the jetty, bears between 072° and 140°.

**7.82 Port Victoria** (34°27'S., 137°28'E.) is the bight at the N end of Hardwicke Bay, E of Wardang Island and E of the peninsula of which Pearce Point is the S extremity.

The port has general depths of 6.4 to 9.1m, but the N and W sides of the port are shallow.

Within the harbor is a jetty, which is closed to commercial traffic, having a depth alongside of 3.4m. A ramp is located almost 0.75 mile S of the jetty. A light is shown from the head of the jetty.

**Anchorage.—**The port provides protection from all winds except those from between SW and S. The holding ground is not good and NW and W gales usually end with a gale from the SW, at which time anchorage becomes dangerous.

The shallow N entrance between Wardang Island and Pearce Point is used by small coastal vessels; otherwise, the port is approached from Hardwicke Bay.

**Gawler Point** (34°30'S., 137°28'E.), the SE entrance point of Port Victoria, is located 10 miles N of Port Rickaby. The low, sloping grassy point is steep-to on its W side, there being depths of 5.5m at less than 0.1 mile offshore. Drying rocks extend about 0.25 mile N from the point.

**Eclipse Rock** (34°30'S., 137°28'E.), with a depth of 1.8m, and with depths of less than 3.7m extending for a distance of about 100m from it, lies 0.75 mile N of Gawler Point. The rock is marked by a beacon.

**7.83 Wardang Island** (Wauraltee Island) (34°32'S., 137°21'E.), with its S point about 6 miles WSW of Gawler Point, rises to a height of 29m near its W side. The island is grass-covered except near the coast.

Above-water and sunken rocks extend as far as 0.5 mile S from the S part of the island. A light is exhibited from the summit of the island. Stranded wrecks lie close offshore on the W side of the island, 0.5 mile WNW and 1.5 miles SSW of the light structure.

**Wardang Island Light**

The W coast of Wardang Island consists of alternate sandy beaches and rocky points, with sand hills toward the N end of the island, where there are some remarkable cliffy points.

A dangerous wreck lies approximately 0.5 mile off the NE end of the island.

**Goose Islet** (34°27'S., 137°22'E.), a small grassy islet 27m high, lies about 0.3 mile off the N end of Wardang Island, to which it is connected at LW.

Cormorant Islet lies about 0.1 mile NNE of Goose Islet, to which it is connected at LW. The outer edge of White Rock, which dries, lies about 0.3 mile NNW of Goose Islet. An

obstruction, with depths of less than 2.7m over it and the position of which is approximate, lies about 0.1 mile N of White Rock.

The E coast of Wardang Island, with the exception of a red cliff located about 0.75 mile SE of the N extremity of the island, is a continuous sandy beach as far S as Cliff Point, the SE extremity of the island.

A drying sandy spit extends about 3.75 miles ENE from Bird Point, the E extremity of Wardang Island. Three narrow channels intersect this spit.

**7.84 Island Point** (34° 27'S., 137° 25'E.) is a low grassy point with a low islet close off it. It is the NE entrance point of the N entrance to Port Victoria and is connected to the peninsula at low water.

Beatrice Rock, which dries 0.6m, lies about 0.5 mile N of the above low islet at Island Point. A small drying rock lies 0.75 mile WSW of the islet.

**Green Islet** (34° 26'S., 137° 25'E.), which is connected to the W side of the above peninsula at LW, lies 1 mile SSW of the above low islet.

**Pearce Point** (34° 28'S., 137° 26'E.), the S point of the peninsula, lies 1.25 miles SE of Green Islet.

**Rocky Islet** (34° 29'S., 137° 26'E.) lies 0.75 mile S of Pearce Point. There are depths of about 1.8m in a channel that leads N of Rocky Islet and into Port Victoria, but local knowledge is necessary for the use of this channel.

The three channels, which intersect the spit extending ENE from Bird Point, lie between Rocky Islet and Wardang Island. These channels are liable to change, both in position and depth, and local knowledge is necessary to use them. Rocky Islet Channel, the E channel of the three, has a least depth of 2.4m and is used by small coastal craft. It is marked by two red can buoys, with red square topmarks, on its E side.

**Anchorage.—**Anchorage can be taken, sheltered from all but N and NW winds, in the N entrance of Port Victoria. The best anchorage lies, in a depth of 8.2m, sand and mud, with Goose Islet summit bearing 268° and Bird Point bearing 179°. Smaller vessels may anchor farther S.

Anchorage can be taken by vessels with a draft of 5.5m, in depths of 6.4 to 7m, off Port Victoria Jetty, with the outer end of the jetty bearing 134°, distant not less than 0.5 mile; vessels of greater draft can anchor in depths of 7.3 to 8.2m, with the outer end of the jetty bearing 095°, distant not less than 1 mile.

With the prior permission of the harbormaster, small vessels unable to go alongside the jetty may anchor, in depths of 3 to 3.7m, with the outer end of the jetty bearing 162°, distant about 0.15 mile.

**Tides—Curr ents.—**The mean range of the tide is 0.8m; the spring range is 1.2m.

At the anchorage in the N entrance of Port Victoria, the flood sets N at a rate of about 1.25 knots and the ebb sets S.

In the vicinity of Rocky Islet Channel the flood sets NW and the ebb SE at a rate of 2.5 knots at springs.

**7.85 Reef Point** (34° 24'S., 137° 27'E.), lying about 3.25 miles NNE of Island Point, is a low projection with a reddish cliff on its W side and a remarkable white sand patch about 0.4 mile S of it. Drying ledges and a sunken reef extend 0.5 mile NW from it.

A number of detached rocks, which generally break at LW, extend about 2 miles N from the point. The coast between Reef Point and Point Warrenne, about 5.25 miles NNE, is low and forms a sandy shallow bay obstructed by numerous rocks and shoals. A drying flat extends about 0.5 mile offshore in the S part of the bay.

**Point Warrenne** (Balgowan Point) (34° 19'S., 137° 29'E.) is a low, rocky projection with a grassy summit. A disused jetty extends about 138m W from the point. A reef lies about 0.1 mile W of the jetty.

The coast extends N for 3.25 miles from Point Warrenne to some low red cliffs at the head of a small open bay; this section of coast consists of red cliffs that rise, in one place, to a height of 16.5m.

The coast N of the bay consists of sandy beach extending 4 miles N to some bare white sand hills. From these hills a continuation of the sandy beach extends 3.5 miles NNW to Cape Elizabeth, and is bordered by rocky ledges, which in some places extend up to 0.5 mile offshore.

**Directions.—**When northbound up the coast between Island Point and Cape Elizabeth, small vessels usually keep close inshore. Larger vessels should not approach the bay N of Reef Point within a distance of 2 miles, as the depths shoal rapidly, in some places, from 11m to 1.8m.

There is no good holding ground along this coast and anchorage is not recommended.

**7.86 Cape Elizabeth** (34° 08'S., 137° 27'E.), a rounded sandy point, lies 11 miles N of Point Warrenne. It is covered with sparse vegetation and has a small cliffy point NE of it. Some bush-covered sand hills, which from seaward appear as separate elevations, the highest being 21.3m high, rise close S of the cape.

The land behind the cape is very low, level, and grassy. A drying ledge extends about 0.3 mile W from Cape Elizabeth. A dangerous rocky patch lies awash about 0.4 mile NW of Cape Elizabeth; the outer edge of this patch lies about 0.4 mile farther NW and is marked by a beacon. A dangerous wreck lies 2 miles WNW of the cape.

The 3.6m channel between the rocky patch and Cape Elizabeth should not be used because the currents are strong and attain a rate of 3 knots.

A rocky patch, with a least depth of 4.1m, lies almost 1.25 miles NNE of Cape Elizabeth,.

**Tiparra Bay** (34° 04'S., 137° 30'E.) lies between Cape Elizabeth and Warburton Point, about 8.25 miles NNE. Tiparra Reef divides the entrance into two parts.

Port Hughes lies in the middle of the E shore of the bay; Port Moonta lies about 1.5 miles NNE of Port Hughes.

Tiparra Bay has general depths of 5.5 to 11m. The land in the vicinity of Tiparra Bay presents no prominent features. When viewed from about 10 miles offshore, the outline of the land appears almost straight and uniformly dark in color. The objects on the coast are generally low and are not easily seen.

**Tiparra Reef** (34° 04'S., 137° 24'E.) is a bank of sand, 2.5 miles in extent, with depths of less than 5m, that lies in the middle of Tiparra Bay. A limestone ledge, 0.1 mile long in a N S direction and about 20m wide, that just dries, lies on the SW end of the reef 5 miles NW of Cape Elizabeth. A light is exhibited from the drying ledge.

**Tiparra Reef Light**

Two patches ,which almost dry, lie on the reef NNE and N of Tiparra Reef Light. Unless the wind force is very high, there is only a slight break on the drying ledge. Some of the shallow parts may show white where the sand is clear of weeds.

When navigating seaward of Tiparra Reef, vessels should keep in depths of not less than 12.8m. The entire S shore of the bay is fronted by drying sand flats. The bight in the SE part of the bay is backed by salt swamps. A sand hill, 30.5m high, is located close to the coast about 4 miles ENE of Cape Elizabeth. Although this hill is partly covered with bushes, it may be identified by a bare space on its side; when viewed from the N part of the bay, this hill appears like a point. A drying rocky ledge extends off a point about 0.75 mile NNE of the 30.5m sand hill, and a sandy beach lies between this drying ledge and Middle Point.

**7.87 Middle Point** (34˚05'S., 137˚33'E.), almost 6 miles NE of Cape Elizabeth, is a rocky projection with a smooth grassy summit. The small town of Port Hughes lies on Middle Point.

The coast up to 2 miles NNE of Middle Point consists of sandy red cliffs fronted by rocky ledges that dry. Because of the rolling character of the country in this vicinity, the buildings of the Moonta mines, about 3 miles inland, can be seen from a W direction. A 32m hill stands close to the coast almost 1.5 miles NNE of Middle Point; Port Moonta lies close N of this hill. A sandy beach extends NNW for about 2.5 miles from Port Moonta to the inner end of Warburton Point.

**Warburton Point** (Warburto Point) (34˚01'S., 137˚30'E.), about 4.25 miles NNW of Middle Point, is a rocky projection that extends about 1.5 miles W from the mainland. It is 6.1m high and is fringed by mangroves along each of its sides. The point is marked by a light.

A shoal, with depths of less than 5m, extends about 1.75 miles S, almost 3.5 miles W, and 2.5 miles NW from Warburton Point. The S part of this shoal has been reported to be extending S.

A shoal, with a depth of 5.5m, lies about 4 miles SW of Warburton Point.

The tidal currents in the vicinity of Cape Elizabeth, Tiparra Reef, and Warburton Point are irregular and rapid. Off Cape Elizabeth, the flood sets NW and the ebb SW, at a rate of 2 knots. Over Tiparra Reef, the flood sets NNE and the ebb SSW, at a rate of 2 knots; outside the reef, the currents set in a more N and S direction. In Tiparra Bay, the currents generally follow the direction of the shore; the inshore currents are not as strong as those outside the bay.

**Anchorage.—**Vessels may anchor about 0.5 mile off Port Hughes, in depths of 7.3 to 9.1m, or about 1 mile off Port Moonta in the same depths.

During SW gales, good anchorage can be taken, in a depth of 8.2m, mud, in the S part of Tipara Bay, with the N end of Cape Elizabeth bearing 238˚, and the 30.5m sandhill about 4 miles ENE of that cape bearing 092˚.

**Directions.—**A vessel approaching from the W should not bring Cape Elizabeth to bear more than 128˚ until at least 1 mile S of Tiparra Reef Lighthouse. Course can then be steered for Port Hughes Jetty or the anchorage.

Small craft approaching from the S, having passed W of the buoy off Cape Elizabeth, may enter the bay in a least depth of 7.3m, with the 30m sandhill 4 miles ENE of Cape Elizabeth bearing 084˚. Local knowledge is essential.

Vessels of light draft may use the entrance between the bank extending from Warburton Point and Tiparra Reef; the 30m sand hill is a good mark on which to steer. Care should be taken to avoid the detached 5.5m patch 4 miles SW of Warburton Point.

If passing through Tiparra Bay, using the inner route to Wallaroo, pass W of the beacon off Cape Elizabeth, 2 miles E of Tiparra Reef Lighthouse, and 0.5 mile W of the W extremity of the 5m bank extending from Warburton Point. The depths on this track are not less than 7.3m.

**7.88 Port Hughes** (34˚05'S., 137˚33'E.) is a small township and fishing port which lies on Middle Point. Moonta, an old copper mining center and the center of a large wheat growing area, lies 3 miles inland from Port Hughes. Port Hughes Jetty extends 412m from Middle Point and has a depth of 6.1m alongside its head. The jetty is closed to commercial shipping.

**Port Moonta** (34˚04'S., 137˚33'E.), another fishing port, located 1.5 miles NNE of Port Hughes, has a jetty 503m long, with a depth of 2.1m alongside.

The coast between Warburton Point and Hughes Point, about 6.25 miles NE, consists of a low, sandy beach partly fringed by mangroves. Rocky ledges and drying sand flats front this section of coast. These drying flats extend as far as 1.5 miles offshore at Bird Reef, a rocky ledge located on the outer edge of these flats about 2.25 miles NNE of Warburton Point. East of Bird Reef, the flat narrows and its outer edge lies close offshore at Hughes Point. Bird Reef is awash at HW.

Bird Islands, between Bird Reef and the coast, are low and covered with mangroves. Bird Islands have been reported to be a good radar target at distances up to 22 miles.

**7.89 Walrus Rock** (34˚00'S., 137˚30'E.), a dangerous rocky patch with depths of not more 0.3m in places, lies almost 1 mile NNW of Warburton Point. Although there are strong tide rips over the rock, the sea does not break over it in ordinary weather. A small rock, with a depth of 1.2m, lies almost 1 mile NW of Walrus Rock. The outer edge of the large shoal, with depths of less than 5m, that extends from Warburton Point, lies up to 2.5 miles offshore NW of that point. The outer edge then follows a general NE trend of the

coast until the shoal terminates in a narrow spit about 2 miles W of Hughes Point.

A small 5m patch lies about 2.5 miles WSW of Hughes Point.

**Hughes Point** (33˚ 56'S., 137˚ 36'E.), about 6.25 miles NE of Warburton Point, is a red cliffy projection, 7.6m high; a 15.8m hill rises close to the coast about 0.25 mile SW of the point. Hughes Point cannot be distinguished as a point, and appears only as a small red patch on the coast, until viewed from a position near the anchorage off Wallaroo.

**Wallaroo Bay** (33˚ 55'S., 137˚ 35'E.), is formed by a bight in the coast which lies between Point Hughes and Point Riley, about 3.5 miles to the N. The town of Wallaroo lies on the SE shore of this bay.

**Point Riley** (33˚ 53'S., 137˚ 36'E.), 13.7m high, is a cliffy projection fringed by rocky ledges that extend about 0.25 mile offshore. This point is not easily made out until well in, either N or S of it, because the land which backs it is much higher than the point.

**7.90 Wallaroo** (33˚ 56'S., 137˚ 37'E.)(World Port Index No. 54280), which contains the town and port facilities for the loading of bulk cargo, lies in the SE part of Wallaroo Bay. It is a small commercial port and a first port of entry. Alongside berthing facilities are provided for handling ocean-going vessels.

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**Winds—Weather.—**There are no prevailing winds from August to November; the wind shifts around the compass every 3 or 4 days. After a day of calms, or land and sea breezes, the former from the E, and the latter from the SW, the wind may shift to the N, accompanied by a clear sky, a falling barometer, and the land on the opposite side of Spencer Gulf coming into view because of the mirage effect.

If the wind shifts to the NW, and the sky becomes overcast, and the barometer does not rise, a gale may be expected. When the barometer begins to rise, the wind shifts to the W or SW and the sky becomes clear.

When the wind shifts to SW or W and then back to NW again, some heavy weather, which sometimes lasts two or three days, can be expected.

The N wind is very hot, even in the winter, and the shift of the wind to the W sometimes brings heavy squalls accompanied by thunder and lightning. If the wind shifts from N to SW, and does not shift back, and the barometer suddenly rises, the weather remains fine.

From November to March the prevailing winds are from the S or SW, sometimes continuing for weeks on end in Spencer Gulf, with land and sea breezes inshore. The SW wind is sometimes very fresh, but occasionally it is interrupted by a day or two of hot winds from the N. The barometer is a very good guide, and rises rapidly as a gale shifts to the SW and the wind soon subsides.

**Tides—Cur rents.—**The mean range of the tide is 0.8m; the spring range is 1.5m.

Outside a line drawn between Hughes Point and Point Riley, the flood sets to the NE and the ebb sets to the SW; a W gale causes a N setting current of long duration, and stops the S setting current altogether. The tidal currents are barely felt at the anchorage NW of New Jetty, but a strong W wind causes a set to windward.

**Depths—Limitations.—** A broad flat, with depths of less than 9.1m, fronts the bay to a distance of about 4 miles from its head; the seaward edge of this flat is fairly steep-to. The outer edge of this flat forms a bar, with a least depth of 8.2m in the fairway of the channel over it. East of this bar, the depths increase slightly and there are depths of over 9m about 1 mile W of the head of the bay. The 5m curve lies from 0.15 to 0.4 mile off the shores of the bay.

The dredged approach channel to Wallaroo is approximately 4 miles long, with a depth of 8.5m. It is marked on its seaward side by Entrance Lighted Beacon, then by lighted beacons, mostly in pairs.

**Moonta Shoal** (33˚ 54'S., 137˚ 36'E.), with a depth of 4.6m, lies to the N of the fairway, about 1.5 miles SW of Point Riley.

**Riley Shoal** (33˚ 54'S., 137˚ 35'E.), with a least depth of 3.6m, lies about 1 mile WSW of Point Riley. The shoal is composed of hard sand, and its shallowest part appears white because of the absence of weed, which covers the sandy bottom in other parts of the bay.

The depths for some distance seaward of Point Riley are very irregular. Depths of 4.1 to 6.4m lie between Riley Shoal and Point Riley. A rocky shoal, with a depth of 4.9m, lies 0.75 mile NW of Point Riley; a detached 5m patch lies about 0.2 mile SW of this shoal.

Wallaroo Jetty has three berths on either side, extending over a length of 440m. Depths alongside ranged from 9.4m at the outer berths to 7.3m at the inner berths.

Vessels up to 65,000 dwt, with lengths up to 200m, can be accommodated.

Vessels normally enter only during daylight hours. Vessels with a draft of less than 8.5m must have an underkeel clearance of 0.6m; vessels with a draft greater than 8.5m must have an underkeel clearance of 0.75m.

**Aspect.—**Two lighted beacons, in range bearing 120˚ 30', stand W of Wallaroo Jetty.

A square chimney, 43m high, built of light-colored bricks, and which is the E of several chimneys at the Wallaroo smelting works, is prominent; rising higher than the surrounding country, it may be seen over Warburton Point. During the mirage, which is frequent with N winds, it has been seen distinctly from a position off Cape Elizabeth, a distance of 15 miles.

The large grain silos, near the root of Wallaroo Jetty, are conspicuous.

**Pilotage.—**Pilotage is compulsory for merchant vessels. The pilot will board about 1.5 miles W of Channel Entrance Beacon.

Pilots should be requested from the harbormaster at least 2 hours in advance; if the pilot is required outside normal working hours, the request should be made at least 4 hours in advance. The pilot vessel is equipped with radiotelephone.

**Regulations.—**Vessels should send thier ETA 24 hours and 4 hours prior to arrival.

**Signals.—**Australian weather forecast signals for severe gales are displayed at Wallaroo.

**Anchorage.—**Good secure anchorage can be taken, in a depth of about 9m, about 0.75 mile NW of the outerend of Wallaroo Jetty. Although the bay is open, the force of the sea is well broken at the anchorage; with suitable light the bottom shows very clearly in the approaches, the weeds on the bottom appearing like rocks with white sand between them.

The quarantine anchorage is defined by a line between Point Hughes and Point Riley.

**Directions.—**When approaching from the S, proceed to round Tiparra Reef at a distance of about 3 miles keeping in depths of not less than 12.8m. When the 43m chimney at Wallaroo bears 112°, steer for it on that bearing to the pilot boarding station. A vessel using the inner passage, through Tiparra Bay should pass W of the beacon off Cape Elizabeth, avoiding the rocky patch and dangerous wreck off that cape, then about 2 miles E of the light on Tiparra Reef, and then about 0.5 mile W of the W extremity of the 5.5m shoal that extends W from Warburton Point. The depths along this track are not less than 7.3m.

**Caution.—**A high pressure system in the Bight of Australia may cause tides to be lower than predicted; a low pressure system may cause tides to be higher than predicted.

**7.91** The coast extends NE for 3.75 miles from Point Riley to Myponie Point (Tickera Point), which is marked by a clear grassy space that looks like the face of a cliff. The coast then extends NE for 3.25 miles to the S point of Tickera Bay. The entire stretch of coast between Point Riley and Tickera Bay is rocky and bordered by limestone cliffs.

**Tickera Bay** (33°46'S., 137°42'E.) is a slight indentation with a smooth sandy beach fringed by sand flats. A red cliff, 13.4m high, with some huts to the S of it, is located about midway along the shore of the bay.

Anchorage, sheltered from winds S of SW, may be taken about 1 mile offshore in Tickera Bay, in a depth of 5.5m, with the huts bearing 174°. This anchorage is partially protected on its W side by a spit, with depths of less than 5m, that extends about 2.75 miles NNW from the S part of the shore of the bay.

The coast for 12 miles NE of the 13.4m cliff at Tickera Bay is formed by a sandy beach; from there to Mundoora Arm, the S arm of the Hamilton Lagoons, the coast is low. This section of coast is fronted by a flat which dries up to 2 miles offshore.

**Webling Point** (33°37'S., 137°52'E.), about 21 miles NE of Point Riley, is thickly covered with vegetation. A reddish bank, 15.2m high, stands close N of the point, which is higher than any of the land to the N of it.

The **Hamilton Lagoons** (33°35'S., 137°55'E.) consist of two inlets, named Mundoora Arm to the S and Fisherman Bay (Mundoora Bay) to the N. Both lagoons, which nearly dry, are surrounded by swampy land except on their E sides, which are thickly wooded.

The entrance of Fisherman Bay is plainly visible from seaward, there being a red cliff on its N side and a small mangrove islet about 1 mile W of it; the channel of this bay dries.

Mundoora Channel, leading to the jetty at Port Broughton, is marked by beacons. It has been dredged to a depth of 3m, over a width of about 20m. An artificial reef of automobile bodies, with a least depth over it of 4.5m, lies 1.25 miles NW of the channel entrance and is marked by a buoy.

Anchorage, with good holding ground, can be taken about 2 miles W of Port Broughton Light, in depths of 10.1m.

**7.92 Port Broughton** (33°36'S., 137°55'E.) lies on the E side of Mundoora Arm, just inside the entrance. Port Broughton Jetty, which is about 366m long, has a T-head with depths of 2.4m alongside; there is a turning basin, 90m in extent, off the jetty. The jetty is now closed to commercial shipping and used only by fishing craft.

**Directions.—**When approaching from the S, pass about 4 miles W of Point Riley and steer for a position 5 miles WNW of Port Broughton Light, keeping in depths of more than 11m.

**Barn Hill** (33°35'S., 138°08'E.), bearing 101°, leads up to the entrance of Mundoora Channel. The coast between the entrance of Fisherman Bay and Wood Point, a low sandy projection about 12 miles N of Webling Point, consists of a sandy beach backed by low swampy land. The sand flat that fronts this coast dries up to 4 miles seaward of Wood Point.

**Aspect.—**The summit of a hill, which can be seen from Spencer Gulf, stands 25.5 miles E of Point Riley; a range of hills, reddish brown in color during the summer months, extends about 30 miles N from this hill.

Barn Hill rises to an elevation of 356m about 11 miles E of Webling Point; this conspicuous hill has a flat top, is barren, and has a saddle with a small peak close N of it. With the exception of Barn Hill, the other hills are too far inland to be easily identified.

**Middle Bank** (33°38'S., 137°34'E.), with a least known depth of 5.2m, extends about 13 miles N from a position about 10 miles NNW of Point Riley.

A light is exhibited from a structure standing about 16 miles NNW of Point Riley and marking the center of the bank. The S extremity of the bank is marked by a lighted beacon standing about 10 miles NW of Point Riley. There are general depths of 6.1 to 8.2m over most of this bank with the least depths near the center of the E side, NE and SE of the light.

**Middle Bank Light**

A 7.3m shoal lies about 2 miles NW of the N extremity of the bank. A line of shoals, with depths of 8.5 to 10m, lies in a N-S direction from 6.5 to 8.75 miles NNW of Middle Bank Light.

It should be noted that several patches were reported to lie N and NW of Middle Bank, but were found to be non-existent or inaccurately charted during recent surveys.

To the E of Middle Bank, a shoal spit, with depths of less than 9.1m, extends about 14.5 miles NE in the direction of Wood Point from a position about 5.25 miles ESE of Middle Bank Light; it has depths of 8.5m near its S end.

An 8.5m patch and a 9.1m patch lie about 2 miles S and 1 mile ESE, respectively, of the S end of the shoal spit; these patches lie in the track of vessels approaching Port Broughton.

The channel between Middle Bank and the above shoal spit is obstructed by an 8.2m patch that lies 1 mile NW of the S end of the spit. Use of this channel is not recommended by deep-draft vessels.

**7.93 Point Jarrold** (33° 16'S., 137° 49'E.), about 8 miles NNW of Wood Point, is a low sandy projection. The sand and mud flats that border the coast between Wood Point and Point Jarrold dry up to 1.75 miles seaward of Point Jarrold.

The coast extends NNE for 3.5 miles from Point Jarrold to a mangrove point which is the S point of Germein Bay. This section of coast consists of mangroves backed by low partially flooded land; drying sand and mud flats extend up to 1.5 miles offshore.

The sand and mud flats that front the coast between the entrance of Port Broughton and the entrance of Germein Bay are fronted by shallow water. The 10m curve extends in a general N direction from a position about 7.75 miles W of Wood Point to a position about 5 miles NW of Jarrold Point.

**Yarraville Shoals** (33° 17'S., 137° 36'E.), about 4.75 miles long and 2.75 miles wide, lies centered about 10.5 miles W of Point Jarrold. These shoals, with depths of less than 11m, have a least depth of 6.4m and are marked by a lighted beacon.

**Musgrave Shoal** (33° 15'S., 137° 39'E.), about 1 mile NE of Yarraville Shoals, is almost 3 miles long and 0.75 mile wide. This shoal has a least depth of 5.2m in its central part.

**Eastern Shoal** (33° 08'S., 137° 46'E.) lies with its S end about 1.5 miles ENE of Musgrave Shoal and extends about 10.5 miles NE. Depths over this shoal range from 5.8m at the S end to a drying patch near its NE end. The shoal is marked by lighted beacons at its N and S ends.

A detached shoal, with depths of less than 5m and with a 1.8m patch near its center, lies about 6.5 miles N of Jarrold Point and is marked by a pile beacon.

A similar shoal, with a least depth of 3.3m, lies centered about 8.5 miles N of the same point and is marked by a buoy on the N side.

A detached shoal, with a least depth of 1.5m, lies centered about 3.5 miles ESE of the lighted beacon on the N end of Eastern Shoal and is marked by a beacon.

A clear channel, about 3 miles wide and with depths of 11 to 20.1m, lies between Eastern Shoal and Fairway Bank to the NW. The channel is marked by lighted buoys.

**7.94 Germein Bay** (33° 05'S., 137° 55'E.) lies between a mangrove swamp fronted by sand and mud, extending NE of Point Jarrold and Ward Spit, a drying shoal which extends 5.5 miles W from Ward Point (33° 01'S., 137° 57'E.). Ward Spit is marked by a light exhibited from a structure about 6.5 miles WSW of Ward Point and a lighted beacon situated 2.75 miles E of the light structure.

The approaches to the bay and the bay itself are fouled by numerous shoals, banks, and shallow depths.

Port Germein lies in the N side of the bay; the dredged channel that leads to Port Pirie is in the SE part of the bay.

**Cockle Spit** (33° 04'S., 137° 56'E.), a detached shoal with depths of less than 5m and with a central part which dries, lies in the middle of Germein Bay. Cockle Spit is marked on the N side by a light exhibited from a structure about 2.75 miles SSW of Ward Point and on the S side by a beacon.

The S shore of Germein Bay consists of thick mangroves with partially-flooded land behind; it is bordered by drying sand and mud flats, which dry for a distance of 1 mile.

**Mount Ferguson** (33° 06'S., 138° 02'E.), a rounded grassy hill, isolated by a swamp, rises to an elevation of 41m on the E shore of the S part of the bay. The low country behind the hill is thickly wooded for about 3 miles inland and rises to the Flinders Range. Mount Ferguson shows up well against the dark vegetation that covers the slopes of the Flinders Range, near The Bluff, 700m high, 6 miles inland. A light is exhibited in the vicinity of Mount Ferguson.

From a position 1 mile NE of Mount Ferguson, a sandy beach and drying sand flat curves round the NE part of the bay to Ward Point.

**7.95 Germein** (33° 02'S., 138° 00'E.), a town and a former port, lies 5 miles NNW of Mount Ferguson. A jetty extends from the shore abreast of the town. Lighted beacons stand 1.5 miles W and 1.25 miles WSW of the jetty head, which is marked by a light.

**Channels.—**Two channels lead into Germein Bay. The N channel, which is lighted, is the principal fairway. It passes between the N end of Eastern Shoal and Ward Spit, where there is a least depth of 6.4m in the fairway, over a width of about 2 miles, this being the least depth to within 2 miles of Port Germein Jetty. From a position between Eastern Shoal and Ward Spit, the channel leads N of Cockle Spit, and then directy to Port Germein Jetty. A fish haven, with a least depth of 3m, lies 1 mile SSE of the head of Port Germein Jetty.

A channel, with a controlling depth of 6.4m, leads SSE from a position about 1.75 miles W of the head the jetty, passing between Cockle Spit and the shoal water extending from the E shore of the bay, to the entrance of the dredged channel leading into Port Pirie.

The Port Pirie Entrance Lighted Beacon stands about 1.5 miles E of the light marking the N side of Cockle Spit.

The S channel, for which local knowledge is necessary, passes between Eastern Shoal and the two shoals to the ESE, then S of the 1.5m shoal that lies WSW of Cockle Spit, and S of the beacon marking the S side of Cockle Spit.

Anchorage can be taken, in depths of 5.5 to 7.3m, S of Ward Point, with the outer end of Port Germein Jetty bearing 084°, distant 1.5 miles. Larger vessels may anchor on the same bearing, distant about 2.5 miles. Anchorage may also be found about 1.5 miles NW of the lighted beacon marking the N end of Eastern Shoal.

Vessels proceeding to Port Pirie, but wishing to anchor off the port first, should anchor as above, or off the entrance of the dredged channel into Port Pirie, taking care to anchor clear of the fairway in the approach to that channel.

**Directions.—**In the approach to Germein Bay, after a few days of fine weather, the water becomes clear and the shoals can be seen, but during and after foul weather the disturbed

mud and sand obscures the bottom and the deepest water is often the most discolored.

Allowance must be made for the tidal currents, which set obliquely across the N channel, the flood setting NE and the ebb SW, at a rate of 1.5 knots at springs.

Entering Germein Bay by the N entrance, pass midway between the lighted beacon marking the N end of Eastern Shoal and Ward Spit Light, and then steering a mid-channel course toward Port Germein Jetty.

If bound for Port Pirie, after passing Cockle Spit, steer to pass between the lighted beacon standing 1.25 miles WSW of the Port Germein Jetty head and the Port Pirie Entrance Lighted Beacon, then steer to pass between the lighted beacons marking the dredged channel to the port.

Local knowledge is essential for entering by the S channel; it is also necessary for the approach to Port Pirie.

At night, the white sector of Port Germein Jetty Light covers the fairway between Ward Spit and Cockle Spit.

**7.96 Port Pirie** (33°11'S., 138°01'E.) (World Port Index No. 54290), the principal port for the mines at Broken Hill, some 250 miles NE, lies on the W side of a tidal inlet at the SE end of Germein Bay. The chief exports are ores, concentrates, and grain. Port Pirie is a first port of entry.

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**Winds—Weather.—**Prevailing winds are from the NNE to NW. During January and February, freak thunderstorms, with winds of 40 to 50 knots, may occur.

**Tides—Cur rents.—**Neap tides rise 1.7m; springs rise 2.7m. Strong W or N winds can affect the tides.

**Depths—Limitations.—** The channel leading to Port Pirie from the E side of Germein Bay is dredged to a depth of 6.4m, and is marked by pairs of lighted beacons throughout its length, numbered from seaward. A tide gauge on Lighted Beacon No. 7, on the W side of the channel displays depths above chart datum.

Three sets of ranges indicate the approach into the channel, harbor, and swinging basin. The speed of vessels in the harbor S of Lighted Beacon No. 43 shall not exceed 4 knots.

Berths are all on the W side of the harbor and are numbered from 1 to 11, commencing at the inner end.

Berth No. 1 is 152m long, with a depth of 7.3m alongside. This berth is used for general cargo.

Berth No. 2, which handles grain, is 183m long, with a depth of 8.2m alongside. Vessels up to 183m feet in length can be accommodated.

Berth No. 3, a 198m long T-head jetty with dolphins at each end, and a depth of 7.3m alongside, is the oil berth.

Berth No. 4, a 107m long harbor craft berth, has a depth of 5.8m alongside.

Berth No. 5 through Berth No. 10, inclusive, consist of a 1,043m long continuous wharf which has been dredged to a depth of 8.2m throughout. Berth No. 5, Berth No. 6, and Berth No. 7 are bulk berths; Berth No. 5 and Berth No. 6 are equipped with ore loaders.

An overhead power cable, with a vertical clearance of 54m, crosses the channel between Berth No. 7 and Berth No. 8.

Berth No. 8, Berth No. 9, and Berth No. 10 are smelting factory berths; coke is discharged at Berth No. 10.

Berth No. 11, 46m long, with a depth of 3.7m alongside, is the acid loading berth.

Vessels of up to 42,500 dwt can be accommodated within the port. The maximum length of vessels is 183m, with a maximum beam of 30.5m. An underkeel clearance of 0.9m is required.

A small craft basin, dredged to a depth of 2.1m, is situated at the S end of the main berths.

**Pilotage.—**Pilotage is compulsory. The pilot boards about 2 miles W of the lighted beacon marking the N end of Eastern Shoal.

Requests for pilots should be sent to the harbormaster at least 2 hours in advance; if the pilot is required outside of normal working hours, the request should be sent at least 4 hours in advance. The pilot vessel is equipped with VHF radio.

**Regulations.—**Vessels should send their ETA at the lighted beacon marking the N end of Eastern Shoal 24 hours and 4 hours in advance.

Vessels bound for Port Pirie and requiring to discharge solid ballast must do so in False Bay. Clean water ballast may be discharged in the harbor.

**Caution.—**Vessels with a length greater than 180m can enter or leave during daylight hours only. Vessels with a length of 180m or less can enter or leave at any time.

## Spencer Gulf—Upper Part

**7.97** The upper part of Spencer Gulf extends about 36 miles N from Lowly Point, on the W side, and Ward Point, on the E side.

**Port Augusta** (32°30'S., 137°46'E.), described in paragraph 7.102, lies about 4 miles S of the head of the gulf. There is a least depth of 8.8m in the fairway of the channel for a distance of about 10 miles N of the entrance of this part of the gulf. Farther N the channel narrows, and there is a least depth of 9.1m in the fairway for a distance for about 15 miles farther N to near the N end of Bluff Reach. North of Bluff Reach, the channel again narrows and there is a least depth of 4.9m in the fairway, which is only 61m wide in places, as far as Port Augusta. About 3 miles N of Port Augusta, the channel dries, and a salt swamp extend farther N for a considerable distance.

**Tides—Cur rents.—**The tidal currents, which turn at about the time of high and low water, generally set in the direction of the channel at a rate of 1.5 to 2 knots. However, S of Douglas Bank, the flood sets NW across the channel and the ebb sets SE. In the vicinity of East Sands, the currents also set across the main channel.

**Anchorage.—**Anchorage can be taken in any part of the upper reaches of the gulf S of Douglas Bank according to draft. The most convenient anchorage lies off the E shore, in a depth of 11m, where the current is less than in the deeper water along the W shore.

Anchorage is recommended in Backy Bay, in depths of 7.3 to 11m, with Lowly Point bearing 179°, distant 3 miles.

From May to September, when strong N and W winds are frequent, better shelter can be obtained, in depths of 10 to 11m,

near the head of the bay, with Backy Point bearing between 050° and 072°, distant about 1 mile. In this position the current is negligible.

During strong SE winds which prevail from December to March, a vessel seeking anchorage for the night or awaiting a tide should anchor in the lee of Ward Spit, in a depth of 11m, when N of the entrance.

Vessels are warned of the existence of a 4.9m shoal 5 miles NE of Lowly Point and an 8.8m shoal about 4 miles ENE of Lowly Point.

**Variations in sea level.—**Significant changes in normal sea level occur in the N part of Spencer Gulf with the passing of a deep depression across the Great Australian Bight from Cape Leeuwin to Tasmania. The sea level is lowered with the onset of N winds, as the barometer starts falling; but, as the wind backs to the NW, an increase in level occurs. There will be a gradual build-up if the wind remains steady. A strong, gusty NW wind, with such a depression, backing to WSW at about the time of low water, will cause the highest storm surge, and heights of from 0.6m to 1.5m above predictions may be expected. These high levels will continue until the wind backs further and the barometer starts to rise. Unless the depression's passage is blocked, the wind usually backs rapidly to the SSE within 12 hours, and, with a rapidly rising barometer, the sea level returns to normal in about the same time.

**Caution.—**A submarine gas pipeline crosses the gulf from a position about 0.5 mile S of Douglas Point (32° 51'S., 137° 49'E.), on the W shore of the gulf, to a position on the E shore of the gulf close NW of Mount Mambray (32° 52'S., 137° 56'E.).

**7.98 West shore.—**Lowly Point Shoal (32° 59'S., 137° 48'E.), with a least depth of 3.1m, lies almost 1 mile NNE of Lowly Point.

The coast between Lowly Point and the head of Fitzgerald Bay (Backy Bay), about 5.5 miles NNW, is bordered by low whitish cliffs and stony beaches, with mangroves after the first 3 miles; between 1 and 4 miles from Lowly Point, the whitish cliffs are backed by a ridge of hills, about 100m high.

The 5m curve lies within a distance of 0.25 mile of this coast, to within about 1 mile of the head of Fitzgerald Bay. A hard sand flat, which dries, extends about 0.5 mile from the head of the bay; shallow water extends about 0.25 mile beyond the flats.

A shoal, with a least depth of 7.6m, lies about 3 miles N of Lowly Point Bight.

A 4.9m shoal lies 5 miles NE of the point.

**Backy Point** (32° 55'S., 137° 47'E.), about 5 miles N of Lowly Point, is a bold, rocky, black projection, 54m high; it may be approached to a distance of 0.1 mile, but there is a race off it.

Between Backy Point and Crag Point, about 1.5 miles NNE, the coast is bold, broken, and rocky; it is backed by grassy hills, the highest of which is 103m, about 1 mile NNW of Backy Point.

Depths of 10.1 and 10.4m lie about 0.75 and 2.25 miles, respectively, SE of Backy Point. Two small bays lie within a distance of 2.25 miles NNE of Crag Point. Both bays are fouled by hard, drying sand flats. Depths of less than 5m lie within 0.5 mile seaward of these flats.

**Douglas Point** (32° 51'S., 137° 49'E.), about 2.5 miles NNE of Crag Point, is rocky, and backed by a low black cliff. Douglas Hills, which stand NW of the point, are separated by rocky ravines. A hill, 199m high, with a stone cairn on it, stands 2 miles NW of Douglas Point.

The coast for 3.25 miles N from a position 2.5 miles N of Douglas Point consists of thick mangroves with low land behind them; a drying, hard sand flat extends up to 0.5 mile offshore.

**Douglas Bank** (32° 48'S., 137° 50'E.), with a least depth of 2.2m, lies about 2.75 miles N of Douglas Point. It is steep-to on its W side, but the depths increase gradually to 11m about 0.5 mile off its E side and 0.75 mile off its S side. A shoal area, having depths of less than 10m, lies 1 mile W of the S end of Douglas Bank.

A clear channel, about 0.5 mile wide between the 10m curves, lies W of Douglas Bank, but the principal channel lies off its E side.

Backy Point bearing 202° leads SE of Douglas Bank; the N extremity of Two Hummock Point bearing 340° leads NE of the bank.

**Two Hummock Point** (32° 45'S., 137° 48'E.) stands about 6.25 miles N of Douglas Point. It is a low, broad projection with alternate rock and sandy beach. South Hummock stands on the point and North Hummock, 29m high, stands about 0.75 mile NNW of South Hummock. A third hummock stands 1.25 miles WSW of South Hummock. A drying sand flat fronts Two Hummock Point to a distance of almost 0.5 mile.

A shoal, with a depth of 5m, lies 0.3 mile E of Lighted Beacon No. 4, which marks the outer edge of the sand flat fronting Two Hummock Point.

**Two Hummock Spit** (32° 46'S., 137° 49'E.), with depths of less than 5m, extends about 1 mile SE from Two Hummock Point. A shoal, with a least depth of 6.4m, lies almost 0.75 mile ENE of the N extremity of Two Hummock Point.

**7.99 East shore.—**The summits of Flinders Range lie from 8 to 12 miles E of the E shore of the upper part of Spencer Gulf. The land is mostly low between the coast and the foot of this range. The most conspicuous summits are Mount Remarkable, Mount Brown and Devil's Peak; **Mount Brown** (32° 30'S., 128° 00'E.), the highest of the these summits, rises to a height of 968m, about 30 miles N of Ward Point. On a clear day this peak is visible for about 60 miles. Other peaks of considerable elevation stand along the ridge of this barren rocky range, which terminates at Mount Arden.

The coast for almost 3 miles N of Ward Point is covered with thick mangroves, but for 7 miles farther N, to the mouth of Mambray Creek, the coast consists of low sandy beach backed by scrub-covered level land.

Mount Mambray, 34m high, stands 0.75 mile SE of the mouth of Mambray Creek and is covered with thick scrub.

The coast for about 1 mile N from Mambray Creek is covered with thick scrub; farther N, a salt swamp extends to the S side of Yatala Harbor.

Mount Gullet, 64m high, stands 3 miles N of Mount Mambray; it is thickly-covered with scrub and has a broad base with a round flat top. Mount Mambray and Mount Gullet are the only conspicuous features near this coast.

The coast between Ward Point and Yatala Harbor is fronted by a hard sand flat, which dries up to 1.5 miles offshore as far N as Mount Gullet; farther N the sand flat dries to a distance of about 2.5 miles W of a projecting mangrove point on the S side of Yatala Harbor, and depths of less than 5m extends as much as 1.25 miles farther seaward in places.

The depths on the E side of the upper part of the gulf are irregular and range from 5.5 to 12.8m; there is a 3.9m patch about 2.5 miles NW of Ward Point.

**Yatala Harbor** (32°45'S., 137°53'E.), a shallow bight entered between the mangrove point about 3 miles NNW of Mount Gullet, and a position about 1.75 miles NE, is lined with mangroves and almost completely obstructed by a flat of sand, mud, and weeds.

The anchorage or navigable part of Yatala Harbor, is a shallow basin about 2 miles in extent. The soundings shown on the chart are taken from very old surveys and at that time, the harbor appeared to be shoaling.

Mount Grainger, 78m high, is a round black-colored hill, covered with bushes, which stands about 2.75 miles N of the above-mentioned mangrove point on the S side of Yatala Harbor.

**Red Cliff Point** (32°42'S., 137°50'E.) lies 3.25 miles WNW of Mount Grainger; a red cliff, 18.3m high, stands about midway between Mount Grainger and Red Cliff Point.

## Approaches to Port Augusta

**7.100 Flinders Channel** (32°43'S., 137°48'E.) is that part of the fairway which extends up to 5 miles N from Two Hummock Point.

**Middle Bank** (32°43'S., 137°49'E.), with depths of less than 9.1m and with a least depth of 1.9m, extends about 1.25 miles NNW from a position about 1.25 miles NE of the N extremity of Two Hummock Point.

There is a clear channel, with depths of 11 to 18.3m, on either side of Middle Bank, but the W channel is preferred. It is also the more direct channel.

The low mangrove coast between Two Hummock Point and Mangrove Point, about 3 miles to the NW, is bordered by a hard drying sandbank.

**Blanche Harbor** (32°42'S., 137°46'E.), with depths of 1.8 to 3.6m, lies W of a drying spit which extends 1 mile N from Mangrove Point. Two narrow channels lead into this harbor which is available only to small craft.

**West Sands** (32°41'S., 137°46'E.), a drying sandbank that extends almost 1.5 miles NNW from a position about 1.25 miles N of Mangrove Point, fronts the entrance of Blanche Harbor. A spit, with depths of less than 5m, extends about 0.25 mile E from the S end of West Sands; the NE side of West Sands may be passed at a distance of 0.25 mile, in depths of at least 12.8m. A beacon marks the N end of West Sands.

**Caution.—**An obstruction, with a depth of 7m over it, lies in Flinders Channel, about 0.5 mile N of the beacon.

The E side of Flinders Channel is bordered by drying sandbanks that cover most of a large bay formed between Red Cliff Point and Point Paterson, almost 5.75 miles NNW. Dense mangroves border the shores of this bay up to 3 miles N of Red Cliff Point, but from there to Point Paterson the shore is low and swampy.

**East Sands** (32°40'S., 137°48'E.), a large drying bank almost 3 miles long, fronts the S and middle parts of the bay between Red Cliff Point and Point Paterson; it borders the E side of the N part of Flinders Channel and the S end of Bluff Reach. East Sands is fairly steep-to abreast Flinders Channel, but at the S end of Bluff Reach, shallow water extends about 0.5 mile from it. A shallow bank extends from the NW end of East Sands.

**Bluff Reach** (32°39'S., 137°46'E.) is the continuation N of the fairway from Flinders Channel. It extends as far as Commissariat Point, which lies about 6.5 miles N of Mangrove Point.

**Caution.—**At night, a vessel should not enter this reach because there are no lighted aids to mark the channel N of Beacon No. 9, which stands 3.75 miles N of Mangrove Point. A tide gauge on this beacon indicates the height of the tide above chart datum. The W shore of this reach consists of a stony beach fringed by mangroves and backed by Bluff Range, a range of flat-topped hills.

**The Bluff** (32°37'S., 137°44'E.), the highest hill of this range, rises to a height of 301m about 5.5 miles NNW of Mangrove Point. About 4 miles NNW of The Bluff, the range turns sharply inland.

The Sisters, two peaks which stand out well when viewed from the SE, stand on a detached ridge in the vicinity of this sharp turn. A drying sandbank fronts the beach and shoal patches lie off the W side of the reach. The E side of Bluff Reach is bound, in most places, by drying sandbanks.

**7.101 Port Paterson** (32°35'S., 137°48'E.), entered between Point Paterson and Snapper Point, about 3 miles NNW, is fouled by very extensive drying sand and mud banks. The shores of the port are mostly swampy.

Port Paterson can be approached through a channel lying between the drying banks near the N end of Bluff Reach. This channel is available only to vessels with local knowledge.

**Snapper Reach** (32°35'S., 137°47'E.), a continuation of the fairway N from Bluff Reach, extends as far as Curlew Point, almost 3.75 miles N of Commissariat Point. The channel, with depths of 5.2 to 9.2m, is closely bound by banks on each side that dry at half tide. The channel is not less than 0.2 mile wide in most places, but near its N end it narrows to a least width of about 0.1 mile.

**Snapper Point** (32°34'S., 137°47'E.), about 3 miles NNW of Point Paterson, is the W extremity of a mass of thick mangroves.

**Curlew Point** (32°32'S., 137°46'E.), almost 1.25 miles NNW of Snapper Point, is fronted by Curlew Island a short distance to the E. This mangrove island lies on a drying bank; a sandy knoll that covers only at high water lies on the N end of this bank.

A power station wharf is situated on the E bank of the channel, about 0.4 mile E of Curlew Island. Four dolphins are located on the W side of the wharf. Two overhead power cables, with a least vertical clearance of 45m, span the channel in the vicinity of Curlew Island.

**7.102 Port Augusta** (32˚ 30'S.,137˚ 46'E.)(World Port Index No. 54310), which lies in the upper reaches of Spencer Gulf, exports copper concentrates, barytes, and salt products. Port Augusta lies on the E bank about 3 miles N of Curlew Point; Port Augusta West lies on the opposite bank.

**Tides—Curr ents.—**The mean tidal rise at Port Augusta is 3m at springs and 1.8m at neaps.

When the wind shifts from W to S and blows strongly, the water level may rise as much as 1m. With a strong N wind, the water level may be lowered by as much as 0.5m.

**Depths—Limitations.—** Abreast Snapper Point, the upper gulf narrows to a width of 0.75 mile between the mangroves on either side, and the gulf assumes the appearance of a river. The mangroves on both shores are backed by swampy land, which is flooded at springs.

The navigable channel through this part of the upper gulf is narrow and intricate. The dredged approach channel is no longer maintained.

There are general depths of 6.4 to 7.9m in the SW half of the port area and general depths of 4.9 to 5.8m in the NE half of the port area. The channel limits between Curlew Point and Port Augusta are well-marked by buoys and beacons.

Commonwealth Wharf, which fronts the town, is in ruins.

A T-head jetty, used only by fishing vessels, extends from the shore at Port Augusta West. There is a depth of 3m alongside the T-head.

A causeway crosses the upper gulf N of Commonwealth Wharf and obstructs navigation above the port.

The port is closed to commercial shipping.

**Pilotage.—**Pilotage for Port Augusta is compulsory. The request for pilotage should be made 24 hours in advance and the vessel's ETA at Eastern Shoal North End Lighted Buoy confirmed 4 hours prior to arrival with the Port Pirie harbormaster. The pilot boards about 1 mile W of the lighted beacon on the N end of Eastern Shoal.

**Regulations.—**Vessels must have an underkeel clearance of 0.6m.

**Caution.—**Visibility along the approach channel to Port Augusta may be reduced by smoke. Vessels should exercise caution when such conditions exist.

## General Directions for Spencer Gulf

**7.103** Large vessels bound for Spencer Gulf from the W are advised to keep at least 5 miles S of South Neptunes. The Gambier Isles may be passed on either side, care being taken to clear the foul ground about 5 miles SE of Wedge Island. From there, a middle course may be steered to reach a position 34˚ 09.0'S, 137˚ 09.6'E, about 14 miles W of Cape Elizabeth.

If proceeding from Port Lincoln to Lowly Point from near Boston Point, a vessel should steer to pass S of Berlin Rock, making allowance, if necessary, for the northgoing current; then steer to pass between Sir Joseph Banks Group and the mainland, and then steer to pass midway between Shoalwater Point and Wallaroo Bay.

Between Sir Joseph Banks Group and Shoalwater Point, during the northgoing current, a vessel may be set considerably N of her course, and may get too close to the banks between Franklin Harbor and Shoalwater Point. Frequent sounding is the best guide both by day and night and while off this part of the coast, depths of not less than 14.6m should be maintained. If less depths are found, a S course should be taken immediately.

After very hot days, Tiparra Light may be so elevated by mirage that the fact of it being in sight cannot ensure a vessel of being in safety, although, in ordinary weather, it would not be visible if passing too near Shoalwater Point.

Large vessels entering the gulf from Investigator Strait should pass S of Althorpe Islands and, having rounded the S isle, should not bring it to bear more than 115˚ until Royston Head (35˚ 11'S., 136˚ 51'E.) bears 040˚, when course may be altered N, clear of the shoals lying up to 7.5 miles NW of Althorpe Islands, and the dangers in their vicinity.

At night, Cape Borda Light, described in paragraph 8.2, should be brought to bear 184˚ before proceeding into the gulf, keeping on this bearing while passing between Wedge Island and Yorke Peninsula.

From mid-channel on the W side of Middle Bank, which is marked by a lighted beacon, to Lowly Point, it is advisable to pass W of Yarraville Shoals and then steer to the NE. The lighted beacon on the S end of Eastern Shoal is a good guide, although the W channel is preferred for larger vessels.

When in sight of Lowly Point, Mount Brown kept in range 021˚ over the point, leads up the gulf in depths of 18.3 to 14.6m, between Eastern Shoal and Fairway Bank.

**Return to paragraph 7.97**

**Table of Contents**