

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

SECTOR 13 — CHART INFORMATION

SECTOR 13

NEW ZEALAND—OFF-LYING ISLANDS

Plan.—This sector describes the off-lying islands, which include the Kermadec Group, the Chatham Islands, the Bounty Islands, the Antipodes Islands, Campbell Island, the Auckland Islands, and Macquarie Island. The arrangement is in the order of the islands given above.

General Remarks

13.1 The term New Zealand generally applies to the three principal islands; the off-lying islands are referred to by name.

The New Zealand Government maintains a depot of provisions and clothing at the Kermadec Group, the Chatham Islands, the Bounty Islands, the Antipodes Islands, Campbell Island, the Auckland Islands, and Macquarie Island for the use of shipwrecked mariners.

Winds—Weather.—The climate in the Kermadec Islands is mild most of the time and slightly warmer than that in the N part of New Zealand. There is no frost, rainfall is plentiful but not excessive. In the winter, SW and W winds will prevail, and NE and E in the summer. Strong gales are experienced in winter.

Typhoons commencing at the SE and backing to the NE have been experienced in January and February, although they are rare.

Caution.—A voluntary code of shipping routes around the New Zealand coast, to reduce the potential for pollution of the marine environment, has been introduced. For further information, see Pub. 120, Sailing Directions (Planning Guide) Pacific Ocean and Southeast Asia.

The Kermadec Group

13.2 The **Kermadec Group** (30°00'S., 178°00'W.) are a rocky group lying about 445 miles NE from North Cape of New Zealand and 52 miles SSW of Curtis Island. They are a New Zealand dependency administered by the New Zealand Land and Survey Department for the preservation of inherent flora and fauna.

The principal islands are Raoul Island (Sunday Island); Macaulay Island and Curtis Island, the two central islands; the Herald Islets; and L'Esperance Rock (French Rock), which is the S islet of the Kermadec Group. The islands are volcanic. There is plentiful rainfall and the climate is mild and pleasant. These islands have been designated as wildlife sanctuaries, and landing is by permit only.

Caution.—The Kermadec Group is being uplifted. In recent times, Curtis Island and Cheeseman Island have been raised about 18m. There may be less water than charted in the vicinity of the islands.

The Kermadec Group and surrounding seas lie in an area of known volcanic activity. In 1979, a submarine volcano, with a depth of 117m, was reported in position 25°53'S, 117°11'W, about 200 miles NNE of Raoul Island.

Numerous depths less than 200m, possibly resulting from volcanic activity, are charted within 240 miles of Raoul Island. The shallowest of these depths may indicate or constitute hazards to shipping; they are 40m, reported 1959, and 22m, reported 1960, charted 10 miles apart, 90 miles NNE; 30m, reported 1983, 47 miles NNE; and a depth of 4m, existence doubtful, 110 miles S.

13.3 Raoul Island (Sunday Island) (29°16'S., 177°57'W.) is regarded as the most important in the Kermadec Group and the most habitable. It is about 15 miles in circumference, with its highest peak toward the E at 516m. There are four crater lakes or swamps, and at least two of them contain fresh water, which is not potable. The island is visited every 6 months by a supply vessel. New Zealand naval ships and aircraft land or parachute mail in on an irregular basis. In July 1937, a meteorological reporting station was established on a plateau 40m above sea level on the N coast of Raoul, just off Fleetwood Bluff and across the island from the former Denham Bay settlement. The only present inhabitants are New Zealand personnel on Raoul Island, who man this station which is maintained by the New Zealand Ministry of Transportation.

Denham Bay, on the W side of the island, is 3 miles across from Smith Bluff, which form the entrance points and recedes 1.2 miles.

Anchorage.—Anchorage is found in West Anchorage, in 21.9m, 0.5 mile outside the entrance points. Other anchorages close-in of Raoul Island are best seen on the chart, as well as the dangers that exist in and about Denham Bay.

The **Herald Islets** (29°15'S., 177°52'W.), comprised of two groups of islands and islets, are located 1 to 2 miles NE of Raoul Island. The islets are composed of mostly bare rocks and are the breeding places of sea birds. Meyer Island, 1.2 miles NE of Raoul Island, is the largest and is 67m high, and covered with bush. There is a small boat harbor on the W side of this island.

13.4 Macauley Island, the second largest of the Kermadec Group, is almost circular in outline, about 1.5 miles in diameter. It lies about 60 miles SSW of Raoul Island and is about 238m high. The soil on this island is mostly dark volcanic loam, covered with fine smooth grass.

The coasts are high, with sheer cliffs which can be ascended at the lava cascade, located on the NE side of the island. Macauley Island is uninhabited and is not regularly visited.

Anchorage.—Anchorage is obtainable when weather conditions are suitable, about 0.4 mile NNW of the NE extremity of Haszard Islet, and about 0.1 mile offshore, in depths of 38.4 to 51.2m. A close examination of Haszard Islet will indicate most sides are fringed by a reef and submerged rocks in places.

Caution.—Mariners are warned that when in shallow water in the vicinity of the Curtis Island and Macauley Island, compasses may be affected by local magnetic influences.



Macauley Island from NE



Curtis Island and Cheeseman Island from N

13.5 The **Curtis Islands** (30°30'S., 178°35'W.) are two remarkable rocky islands known as Curtis Island and Cheeseman Island, separated by Stella Passage, which is about 0.3 mile wide with a least depth of 18.3m. These islands of the Kermadec Group lie about 19 miles SSW of Macauley Island and are reported to lie about 5 miles S of their charted position. Curtis Island, the E and larger, is oval-shaped and about 0.5 mile in extent, giving a good radar return up to 28 miles. The island rises in sheer cliffs from parts of which steam issues. In the N part of the island there is a volcanic crater the floor of which is only 10m above sea level and is formed by a fragile crust over boiling mud; a stream of hot water flows from the crater through a breach in its N side into the sea. At the SE end of the island there is a large chasm. The volcano was active in 1899 and again, to a lesser extent, in 1936. In 1973, Curtis Island was found to lie 2.7 miles SSE of its charted position.

Landing by boat is possible on the NE side of Curtis Island, and landings have been made on the SW sides of both islands. Walking on Curtis Island is dangerous due to extensive burrowing by the large bird population.

Anchorage.—Anchorage may be obtained with suitable weather conditions at the N end of Stella Passage, between 0.1 mile N and 0.2 mile NW of the N extremity of Curtis Island, in depths of from 21.9 to 23.8m.

Caution.—Navigation of Stella Passage is not recommended.

13.6 **L'Esperance Rock** (31°26'S., 178°55'W.) lies 52 miles SSW of Curtis Island. It is about 70m high and covers 15 hectares; it is bare and desolate with very steep sides, and only useful as a landmark for Havre Rock, which is a danger.

Landing can be made by boat on the E side of L'Esperance Rock, but only in very good weather.

Havre Rock is located about 5 miles NNW of L'Esperance and is awash; it is reported the sea breaks over it in heavy weather, although there are conflicting reports as to whether this actually occurs. In any case, the mariner should give these rocks a wide berth and allow for the fact that the rock has been reported to lie 6.5 miles, bearing 311° from L'Esperance Rock.

Caution.—A dangerous reef was reported in 1955 in position 35°24'S, 176°17'W. This area should be avoided.

Breakers were reported (1960) in about 39°27'S, 162°27'W, about 620 miles ENE of the Chatham Islands.

The Star of Bengal Bank, with a least reported depth of 48m, lies about 64 miles SSW of L'Esperance Rock; a depth of 57m has been reported to lie about 40 miles SSW of the bank. Depths of less than 300m lie within 20 miles of the bank.

In 1983, depths of 48m and 57m were reported to lie about 5 miles S and 45 miles SSW of the bank, respectively.

The Chatham Islands

13.7 The **Chatham Islands** (44°00'S., 176°30'W.), two in number, occupy a space 55 miles N and S and 50 miles E and W. Chatham Island is the largest, with its NW extremity lying

about 370 miles ESE of Cape Palliser, the S extremity of North Island, New Zealand.

Pitt Island lies SE of Chatham Island and extends 8 miles in a N and S direction with numerous islets and rocks surrounding it.

The Chatham Islands are so remote from other land masses that heat and cold are both moderated by sea breezes; showers fall at least a few hours every week. In May, June, and July the climate is mild and agreeable, with the temperature ranging from 7° to 16°C during the day. Mist is frequent, but not of long duration. Prevailing winds are NE and SW.

The effect of the tidal currents may be experienced 10 to 15 miles from the Chatham Islands. The flood splits at the S extremity and travels N along the E and W sides to join again at the N end; similarly the ebb divides at the N extremity, and rejoins at the S end.

The coasts of the Chatham Islands have not been closely examined and should not be approached within 3 miles, except by vessels with local knowledge. As another precautionary measure, it is reported that obstructions to navigation may exist off Cape Young for a distance of about 4 miles.

Aspect.—The island is of irregular shape with a land area of 70,612 hectares indented on its E and W coast by Hanson Bay and Petre Bay, respectively. The island attains an elevation of 283m near its S end. The general aspect is that of beautiful rolling downs covered with grass and patches of fern and spotted by several lakes on the island. Prominent from the W approach to the island is Maunganui Hill, rugged and 179m high. Mount Dieffenbach, E of Maunganui, has a sharp peaked summit and is very conspicuous.

Petre Bay, on the W side of Chatham Island, is about 11 miles wide and extends about 10 miles to the NE. The entrance is between Durham Point, where a light is shown, and Somes Point. On the SE and N sides of the bay are situated the anchorages of Waitangi Bay and Port Hutt.

Red Bluff, 74m high, forms the N entrance of Waitangi Bay. A group of shoals, with depths of 11 to 12.8m, lie 1.2 miles NNE of Point Weeding; there is a 7.9m shoal 0.4 mile farther N. In heavy weather, the sea breaks on these shoals. A light is situated on the summit of Weeding Point.

13.8 Port Waitangi (43°57'S., 176°31'W.) is the administrative center of the Chatham Islands. The Resident Government Agent resides here. There is a T-head pier at the port, with an alongside depth of 5.8m at its head. There is a prominent shed situated at the root of the jetty. Landing on the beach is not practical and the anchorage is unsafe in W gales.

Tides—Currents.—The tide rises 2.2m at springs, and 0.9m at neaps. The time of HW or LW is roughly 42 minutes fast at Lyttelton.

Anchorage.—Anchorage may be obtained, in a depth of 8.2m, about 0.2 mile NE of Point Hanson, but a mariner should be wary of a high, breaking sea that rolls into this anchorage with a NW or W gale; the bottom is sand.

The River Nairn flows into the sea at the head of Port Waitangi. The meeting of the river and sea causes discoloration along the W side of the bay. There is a prominent road bridge at the river mouth.

13.9 The coast from Waitangi N is a sandy beach for 3 miles and is then broken by Red Bluff. This beach continues until the coast turns W, and from there to Somes Point, the shore is broken and rocky, the entrance to Port Hutt being 8.5 miles E of Somes Point.

Port Hutt (Whangaroa) is sheltered in all directions, but there exists a heavy sea at the entrance when it is under the influence of strong W and S winds. Maunganui Mount appears in line with Tawhirikoko Mount bearing about 310° from the entrance to Port Hutt. This is a useful aid when identifying this entrance, as there are bays E which, like Port Hutt, have sandy beaches at their heads.

There are several freezing establishments where blue cod is packed and sent to New Zealand markets in good condition. There is ship communication between Port Hutt and Lyttelton, New Zealand bimonthly, and more frequently during the first three months of the year.

The sea breaks heavily on the reefs and rocks, which extend about 0.2 mile from each of the entrance points. It is also reported that a patch of kelp usually stretches partly across the entrance from Napper Reef, but there is a depth of 20m where it lies. The outer edge of the kelp marks the deep water off Point Gordon, on the W side within the harbor.

A rock, which breaks with a W swell, lies in the W approach to Port Hutt. From this rock, the W entrance point of Ocean Bay bears approximately 030° and Matikitaki Hill bears approximately 342°.

Tides—Currents.—The mean spring range here is 0.7m.

Anchorage.—The anchorage is in depths of 8 to 9m, with Port Gordon bearing 180° and the island off Evans Point bearing 105°.

A large vessel should moor or anchor farther out, if intending to stay any time, as there is scarcely swinging room at single anchor, unless the anchor is dropped exactly in the center of the harbor.

13.10 Ocean Bay (43°50'S., 176°46'W.), located 3.5 miles W of Port Hutt, provides anchorage, in 7.3 to 10.9m, at its head from all W and S winds round to SE. The bottom is rocky and the holding capabilities may be unreliable.

Cuba Channel, the best approach to Port Hutt in Petre Bay from the W, is about 3 miles wide between Somes Point and West Reef. Depths of 31 to 65.8m were found when passing through the middle of this channel and it appears it is free of dangers.

West Reefs lie about 1.5 miles SW of Somes Point. Foul ground, which breaks, extends out to the E, SE, S, and SW. It should be noted that foul ground is reported to extend farther to the SW than charted. The mariner may observe the sea breaking on West Reefs from a distance of several miles.

The coast trending NE from Somes Point to Alison Point appears to be fringed with rocks and therefore should not be approached nearer than 1 mile. From the E of Alison Point off Waitangi West, there is reported to be good anchorage with offshore E winds. Although conditions here are ideal for anchorage, there is a submerged rock about 0.2 mile offshore about midway between Alison Point and Waitangi West. Between Alison Point and Mohau Point, 3 miles NE, the coast

indents forming a bay with foul ground extending about 2 miles WSW of Mohau Point.

Cape Pattison, at the foot of Maunganui Hill, is formed by a level beach backed by a sheer cliff, 30.5m high.

Foul ground lies up to 5 miles N, 6 miles NE, and 5 miles NNW of Cape Young. Several isolated patches, with depths ranging from 5.5 to 27m, lie roughly on a line extending from North West Reef, to The Sisters, and the N end of the foul ground protruding from Cape Young. The bay between Cape Pattison and Cape Young, 8.2 miles ENE, consists of a sandy beach and is backed by wooded hills. In the middle of this bay, four needle-shaped rocks, known as Nagatikitiki, lie about 0.1 mile offshore.

Caution.—Northwest Reef, the outer danger, whose position is doubtful, lies about 16 miles NW of Cape Young.

The Sisters (Rangitutabi), lying about 10.5 miles NW of Cape Young, consist of three small rocky islands, close together, flat-topped, with steep sides and covered with meager brushwood and frequented by birds.

A 12.8m patch, the charted position of which is approximate, lies about 3.5 miles S of the Sisters.

In 1981, a depth of 25m was reported to lie 12.5 miles ENE of Point Munning.

13.11 From Cape Young, the coast extends about 18.5 miles E to Munning Point, the NE extremity of Chatham Island. Again, as with other parts of the N Chatham Island coast, there is a broad beach backed by low wooded hills, but in this stretch of coast, there are numerous scattered rocks, which dry, off of which are regular depths of 36.6 to 45.7m, about 2 or 3 miles offshore.

Kaingaroa Light is shown from the summit of a hill 1.5 miles W of Munning Point.

Kaingaroa Bay (Skirmish Bay) (43°44'S., 176°16'W.) has its entrance obstructed by rocks. The Lure, the outermost danger, is a rocky patch which lies in a position bearing 303°, 1.5 miles from Pukerakei Light (43°44.1'S., 176°14.4'W.). This danger is covered, but occasionally the sea does break on it. Rocks, mostly visible, extend to the middle of the entrance from the W point and terminate in a sunken rock. A sunken rock, over which the sea breaks occasionally, lies about 0.2 mile NW of the E entrance point.

Range beacons at the head of Kaingaroa Bay, in line bearing 169.5°, lead into the harbor, passing close E of the 4m rock on the W side of the entrance. Facilities in the harbor are confined to a wharf, about 122m long, which projects into the harbor from a fish factory, situated 0.1 mile S of the W entrance point.

Munning Point is a low rocky point with wooded land behind it. Te Wakaru Islet is connected with the point by rocks, which dry at LW, with reefs extending nearly 1 mile seaward.

A depth of 23m has been reported about 17 miles NE, and a depth of 25m lies about 12 miles NE of Munning Point.

13.12 Okawa Point (43°46'S., 176°14'W.) lies 3 miles S of Te Wakaru, where the coast recedes to form a bay. At the head of the bay lies a sandy beach. Rocks, above and below-water, lie up to 1.5 mile off the beach which is backed by low wooded hills.

Hanson Bay, on the E side of Chatham Island, is formed between Okawa Point and Cape Fournier, 17 miles S. This bay has not been examined, but fisherman knowledgeable of this coast report there are no dangers 1 mile offshore. There are many reefs in the bay and frequently there is a heavy surf.

Anchorage.—There is anchorage in the N part of Hanson Bay, W of Okawa Point, but is subject to E winds that will set in suddenly. With SW winds, shelter may be obtained at Ouwenga, N of Cape Fournier.

Old Man Reef (44°01'S., 176°21'W.), on which the ground is foul, extends over 1 mile NNE from a position about 2 miles NW of Cape Fournier. Ouwenga, a village, lies close W of the reef.

Anchorage.—Anchorage can be obtained under the lee of this reef, in 10.9m, about 0.7 mile from the shore, sand and mud bottom. This anchorage is marked by leading lights, which when in line bearing 142°, guide the mariner W of Old Man Reef.

13.13 Cape Fournier (44°03'S., 176°20'W.) is a wooded hilly promontory, about 101m high, with reefs projecting nearly 2 miles E. Foul ground extends up to 2.5 miles E and 2 miles NE of Cape Fournier. Foul ground extends up to 3 miles off the coast between Cape Fournier, and Cape L'Eveque.

Bertier Islet (Forty Fours Islet) (Motuhara Islet) lies 22 miles E of Cape Fournier. It is a flat-topped islet, about 46m high, surrounded by four rocks, above-water, which lie no more than 0.2 mile E of the principal islet.

The S side of Chatham Island, between Cape Fournier and **Cape L'Eveque** (44°07'S., 176°35'W.), becomes abrupt and precipitous, with a mean elevation of about 183m and the land above the cliff taking on a level and wooded aspect.

From Cape L'Eveque, the coast turns sharply to the WNW and extends in that direction a distance of 7 miles to Durham Point.

Caution.—Dangers found in this stretch of the coast are a rock, with a depth of less than 2m, which lies 0.7 mile bearing 350° from the W projection of Gap Point (44°04'S., 176°40'W.) and foul ground, with rocks awash, extending about 1.5 miles offshore between Kiringe and the outer end of **Jenny Reef** (44°00'S., 176°43'W.).

13.14 Pitt Strait separates Pitt Island from Chatham Island and is apparently free from dangers, with the exception of **Sentry Reef** (44°12'S., 176°34'W.), an area of breakers about 4.5 miles E of Sentry Reef, another area of breakers about 6.7 miles SW of Cape L'Eveque, and those rocks lying off the W and SW sides of Pitt Island which are steep-to. Vessels should favor the S side when navigating Pitt Strait.

Pitt Island (Rangiauria Island) (44°17'S., 176°13'W.) lies about 12 miles SE of the S side of Chatham Island. At **Whihere** (44°17'S., 176°15'W.), the island is highest at 241m. The island is thickly wooded and has a very fertile soil. European fruits grow and thrive; wheat is also cultivated, but not in sufficient quantities for exportation. The island is surrounded by numerous islets and rocks. Moutapu Point is the N extremity of Pitt Island and is marked by a light.

Anchorage.—Anchorage is good 1 mile WSW of Moutapu Point in Flower Pot Bay, in a depth of 21.9m, sand, but the anchorage is only in an area about 0.3 mile from the head of the

bay. Elsewhere, the bottom was found to be rocky and extremely foul with kelp.

On the W side of the island there is good anchorage, in Waihere Bay with N and E winds, in 21.9 to 27.4m.

Good anchorage will be found in Whaihere Bay during E winds, with **Round Rock** (44°22'S., 176°20'W.) just shut in by the SW point of the bay. A vessel should exercise caution when leaving the anchorage on a change in direction of wind to avoid the reef off Rabbit Islet.

Anchorage is available off the NE coast of the island, close SE of Kokope Islet, 1 mile NW of Kahuitara Point, in a depth of 20m.

Glory Bay, located on the E side of Pitt Island, provides an anchorage formerly frequented by whalers, where vessels may ride well-sheltered from the effects of W gales.

13.15 From **Mangere Island** (44°16'S., 176°17'W.), on the W side of Pitt Island, a remarkable group of islets extends about 4 miles to the WSW; the first, closely adjoining Mangere Island, is known as Fort Islet. Sail Rock, the W extremity of this group, has an extraordinary resemblance to a boat with a gigantic lug sail.

In 1975, depths of 12.8 to 14.6m, marked by breakers in heavy weather, were reported to lie between 4 and 5 miles WSW of Sail Rock.

Northeast Reef lies about 1.2 miles E of Kahuitara, the E extremity of Pitt Island.

Star Keys (Motuhope) are a group of five islets with Round Islet, the largest, lying about 6.5 miles ENE of Kahuitara.

Eastern Reef (Ahuru) is about 10 miles SE of Round Island. Numerous shoals lie between Star Keys and the NE side of Pitt Island.

Rangatira Island (Southeast Island) lies 2.5 miles ENE of the S point of Pitt Island, with Passage Reef in the channel between. This unimportant island, which rises to 207m, is surrounded with rocks and reefs, the positions of which may only be approximate.

The Pyramid (44°26'S., 176°12'W.), a rock 172m high, is located S of Pitt Island.

Tides—Currents.—The tidal currents are felt at a distance of 10 to 15 miles from Chatham Island. The flood splits at the S extremity and runs N along the E and W sides to join again at the N end; similarly the ebb divides at the N extremity and re-joins off the S end.

The Bounty Islands

13.16 The **Bounty Islands** (47°41'S., 179°03'E.) are a bare and rugged group of uninhabited islands lying about 360 miles ESE of the entrance to Otago Harbor, New Zealand. A deep channel breaks up some 20 islets and rocks into an Eastern Group and a Western Group, facing N in shape. The islands range in elevation from 3 to 88m, showing marks of severe marine erosion.

There are no indentations which afford even moderate shelter over this group, which occupies an area of about 3 miles E and W and 2 miles N and S. These islands were reported (1973) to lie 3.4 miles, bearing 193° from their charted positions.

These islands have been declared a wildlife sanctuary. Landing is by permit only.

The principal island lies NE of the Western Group, standing 88m high, with an inlet on its E side and another on the W. At about 2 miles, bearing 233° from the summit of this island, is a rock nearly awash, and the sea breaks heavily on a reef which extends nearly 0.5 mile NE of the rock. Breakers have been seen 0.5 mile N of this reef.

Anchorage.—Anchorage may be obtained, in 42m, between the N part of the principal island of the Western Group and those W of it.

Caution.—Great care should be observed in approaching the Bounty Islands in thick weather, as the off-lying rocks do not always break.

Norman Rocks, a dangerous group of sunken rocks, lie about 3.5 miles NW of the Western Group; Rosario, a sunken rock, lies about the same distance SW of the same group.

The Antipodes Islands

13.17 The **Antipodes Islands** (49°40'S., 178°50'E.), about 115 miles S of the Bounty Islands and about 400 miles ESE of the entrance to Otago Harbor, New Zealand, are uninhabited. Its coasts are bold and precipitous, and appear to be entirely volcanic. The surface forms a rough and undulating plateau and slopes up from the NE and S cliffs towards the W; the highest point is Mount Galloway, 402m high, on the top of which a lake is said to lie.

The large island is about 5 miles in length, N and S and tapering to its N extremity. There are no openings in the coast of the main island, except Ringdove Bay and Depot Anchorage.

These islands have been declared a wildlife sanctuary. Landing is by permit only.

Depot Anchorage (49°40'S., 178°50'E.) is an open bay between North Cape and Reef Point, with anchorage in 18 to 29m. Holding ground is only fair due to the characteristics of the bottom. It is a thin layer of black sand covering rock.

Ringdove Bay (49°42'S., 178°50'E.), on the SE side of the large island S of Leeward Island, is reported to have good anchorage, in about 36.5m. There was smooth water in this bay when a heavy SW swell was running outside.

13.18 **Bollons Island** (49°38'S., 178°50'E.) is a double island rising to 152m, whose two sections are connected by an extraordinary arch. Bollons Island appears to be part of an extinct crater, broken down on its W side. This island was reported to lie 0.3 mile, bearing 165° from its charted position and that the coast line was inaccurate. There is a deep channel between Bollons Island and the main island, but it is reported to be inaccessible except in the finest weather.

The main island is surrounded by hazards. A reef, having a rock about 1.5m high near its extremity, extends about 0.5 mile from the SW side of the island; South Islet lies at the S extremity. The Windward Islands lie off the NW point. Ordes Lees Islet lies close off the middle of the NW side of the principal island.

Tides—Currents.—The mean HW interval in the Antipodes Islands is 3 hours 20 minutes. The mean range of tide is 1.4m, and the spring range is 1.6m.

Two streams of fresh water were found, one emptying into the sea on the NE side of the island and the other emptying into the sea on the NW side of the island.

Campbell Island

13.19 Campbell Island (52°33'S., 169°13'E.) is about 440 miles S of the entrance to Otago Harbor and about 148 miles SE of the Auckland Islands. This island is mountainous and, like the Auckland Islands, it is of volcanic origin. The coasts of the Campbell Islands are bold and the rocks and islets are of fantastic forms. The hills are steep and rugged, rising to elevations of 198 to 570m, the highest point of which is in Mount Honey, located S of Perseverance Harbor.

This island is a wildlife sanctuary. Landing is by permit only.

The weather on the island is temperate. Snow never lies on the ground for more than 3 days. In December and January, the temperature averages 26°C. In July, the weather is mild, with temperatures not falling below 3°C in the valleys.

Gales are frequent on the island and continue with persistence. They generally originate from the N with a falling barometer, veer to the W and WSW, and become very severe.

The current generally sets E.

Northeast Harbor indents the E side of the island; South Harbor indents the E side of the island. The other shores are scattered with islets and rocks affording no shelter.

Northeast Harbor (Penquin Bay), located 4 miles N of South Harbor, may be identified by Cossack Rock, a small round island 0.2 mile E of the N entrance point of the harbor. The harbor extends SW for 2 miles and increases in width toward the head, terminating in two creeks, where a fine valley with a large stream flows into the sea.

Anchorage.—Anchorage is obtained in all parts of Northeast Harbor, in 10 to 25.6m. East winds seldom blow in Northeast Harbor.

13.20 Smooth Water Bay, which is unsurveyed, lies between a point about 0.7 mile S of the S entrance of Northeast Harbor and East Cape, about 1.7 miles SSE.

East Cape is a dark, sheer bluff, about 91m high. From this bluff to Erebus Point, the NE entrance point of South Harbor, the coast is foul.

South Harbor (Perseverance Harbor) (52°33'S., 169°09'E.) is entered between Erebus Point and South Point, where there is a 0.5 mile wide opening. The harbor extends about 4.5 miles W to Garden Cove at its head. The shores on either side are steep and rise abruptly to heights between 244m and 274m. Mount Lyall, the highest hill seen from the harbor on the N side, reaches to an elevation of 413m. The hills have a more desolate appearance than those of the Auckland Islands, being less wooded, and, although trees exist in sheltered places, they nowhere attain so great a height as in those islands.

Range beacons lead into the harbor. The first two, in line bearing 299.5°, lead through the entrance and N of Terror Shoal; the second two beacons, in line bearing 262°, lead to the anchorages. The inner limit of the anchorage is reached through two beacons in range 015°.

Lights are shown from the two entrance ranges. In the outer part of the harbor the water is too deep for convenient anchorage, but in the inner part which is almost land-locked, there is

abundant room for a number of vessels to anchor in very fine sand and silt cover, with a fine mud base.

A New Zealand Government meteorological station, with a small jetty for boats, is situated in the N part of the harbor.

13.21 South coast of Campbell Island.—Jacquemart Islet, about 183m high, lies about 0.5 mile SSW of the S extremity of Campbell Island, which is also the W entrance of Monument Harbor. Breakers mark the S end of Jacquemart Islet.

La Botte (52°37'S., 169°09'E.), an above-water rock with a similar rock S of it, lies between the W entrance point of Monument Harbor and Jacquemart Islet.

The coast in the vicinity of Monument Harbor and Southeast Harbor presents a desolate and storm beaten appearance; these bays afford no shelter.

13.22 Northwest coast of Campbell Island.—North West Bay lies between Currejolle Point and the W extremity of Campbell Island, about 6 miles SW.

Currejolle Point, the NW extremity of Campbell Island, is a vertical promontory, about 244m high, joined to the island by a low neck. An island lies close-by the point where strong tide rips occur in the passage between.

Caution.—Dangers consist of above-water rocks which extend out from the coast at the foot of Mount Azimuth and beyond. Dent Island, rising up to 183m, lies about 1.7 miles ENE of the W extremity of the island.

The Auckland Islands

13.23 The Auckland Islands (50°40'S., 166°10'E.) are located about 250 miles SSW of Bluff Harbor, New Zealand. The islands form a group, 28 miles long, nearly N and S and about 16 miles broad, separated by narrow channels. The land is mountainous, culminating in the S at a height of 668m at Adams Island.

These islands have been designated as wildlife sanctuaries. Landing is by permit only.

The weather in these islands is temperate. Snow never lies on the ground for more than 3 days. In December and January, the temperature averages 26°C. In July, the weather is mild, with temperatures not falling below 3°C in the valleys.

Gales are frequent on the islands and continue with persistence. They generally originate from the N with a falling barometer, veer to the W and WSW, and become very severe.

The current generally sets E.

The E part of the main island is deeply indented; the W side is unbroken, having no openings except the narrow separation of Adams island; in fact, the W side of the main island forms a continuous perpendicular wall from 61 to 243m high.

13.24 Northeast side of Main Island.—Bristow Rock, an off-lying sunken rock lying N of Enderby Island, lies directly in the shipping lane rounding the N end of the group. This rock only breaks occasionally and with a heavy swell; the position is somewhat doubtful.

Heavy overfalls occur within the vicinity of the rock.

Enderby Island (50°30'S., 166°18'E.) is a government reserve forming a tableland of about 480 hectares, covered with

scrub; the remainder consists of fluctuating swampy terrain attaining an elevation of 46m.

Tides—Currents.—The tide runs off the N point of Enderby Island can extend out to the NE for as many as 12 miles. The mariner not familiar with these waters could be made uneasy by this appearance. The flood current sets NNE; the ebb current sets S.

Anchorage.—Anchorage is on the S side of the island, 1.7 miles from its E extremity, but should be used only as a temporary anchorage, being protected from all winds except those from the SE. The holding ground is of tenacious clay.

13.25 The entrance to **Port Ross Harbor** (Sarah's Bosom Harbor) (50°32'S., 166°14'E.), at the NE end of the Auckland Islands, is located between Enderby Island on the N and Ewing Island on the S. In the approach to Port Ross, the N end of Ewing Island, in range with Butterfield Point, the W extremity of Enderby Island, leads outside the reef that connects Dundas Islet and Green Islet. This reef, covered in parts at HW, generally shows breakers extending 1 mile NE.

The entrance to Port Ross is 1 mile wide, with depths of 20 to 36.5m. The harbor extends nearly 7 miles to the SW; a depth of 12.8m is found about 1 mile from its head. This large inlet contains several bays, surrounded by basaltic rocks, which are easy of approach.

As previously stated, the E coast of the Auckland Islands is heavily indented. Trending S and all open to the E are Chamber Inlet, Granger Inlet, and Griffith Inlet, between Kekenno Point and Smith Harbor. Northeast of these inlets, a danger exists in **Blanche Rock** (50°37'S., 166°20'E.). Breakers were seen when passing Blanche Rock. Kelp has been reported to lie up to 2.2 miles SE of the island.

13.26 Smith Harbor (Saddle Hill Inlet) indents the coast about 7 miles S of Kekenno Point. It extends W and S for 1.5 miles. At the entrance of Port Ross, with strong W winds, squalls of great violence blow down from the hills.

A remarkable feature marking the N part of Port Ross is Deas Head, formed of basaltic columns rising to 91m.

Shoe Islet (50°32'S., 166°14'E.) lies in the middle of Port Ross off the entrance to Terror Cove. The islet is very prominent, picturesque, bold, steep-to, and highly magnetic.

Banaba Island (Ocean Island) (50°32'S., 166°16'E.) lies about 0.7 mile W of Ewing Island and is connected by shoal water with Tucker Point, the SE point of the harbor. The island has been reported to give good radar returns up to 23 miles.

Laurie Harbor, at the head of Port Ross, is more secure than either Erebus Cove or Terror Cove, and is almost landlocked. Good water may be obtained from a waterfall in the stream on the SE side of the harbor, which is about 2 miles long in a SW direction, with an average breadth of 0.4 mile to its head. It has a least depth of 0.2 mile and forms a good harbor for small vessels.

The anchorage is in the inner part, in depths of 5.5 to 16.5m, landlocked and safe. The head of the inlet, as depicted on the chart, is no more than 0.1 mile off the N shore of Norman Inlet.

13.27 **Norman Inlet** (50°44'S., 166°10'E.) extends about 4 miles W, where the entrance with a depth of 36.5m is rather difficult to distinguish from seaward, but a flat-topped, steep-

sided hill, bearing 256°, will bring the mariner to it. The land on both sides of this inlet is high.

Shag Rock (50°43'S., 166°13'E.), a large black flat rock, about 3.1m above water, lies 0.7 mile N of this entrance. Halfway up the inlet, a bank of kelp 0.3 mile in breadth, on which a depth of 21.9m was obtained in the fairway, stretches straight across the harbor. This bank has 10.9m within 50m of the S side and 14.6m at the same distance from the N side.

A vessel may anchor on this bank; there is also a perfectly landlocked anchorage, in depths of 12.8 to 21.9m, at the head of this inlet, where there is a width of about 0.2 mile.

Hanfield Inlet (50°44'S., 166°14'E.) consists of two arms separated by Middle Head. There is anchorage in North Arm, in 12.8m, about 0.2 mile NE of Middle Head; in South Arm, anchorage is available, in 21.9m, about 0.5 mile above Middle Head. The holding ground S of Middle Head is not good.

The E side of the Auckland Islands to Carnley Harbor continues with a succession of small inlets. The important inlets have been stated along this part of the coast.

Archer Rock (50°50'S., 166°17'E.) is a conspicuous steep, isolated rock, standing about 15.2m high, located in the center of a wide bay, N of Cape Bennett, 3 miles NNE of the E entrance of Carnley Harbor.

13.28 **Carnley Harbor—East entrance.**—The E entrance of Carnley Harbor extends about 6 miles W to the S extremity of the Musgrave Peninsula. It opens between Cape Farr, the E extremity of Perpendicular Head, and Gilroy Head. At the Musgrave Peninsula, an irregular inlet runs N and NW into Auckland Island, the W branch of which forms Musgrave Harbor and the E North Arm; the latter is a fine basin which will accommodate several vessels. The E entrance to Carnley Harbor is exposed to a heavy ocean swell with an outgoing current. The land on both sides is high and precipitous and, when the wind is not blowing either directly in or out, it often comes from all quarters in violent gusts. Within the E entrance points, there is a depth of 47.5m; no anchorage is available until 6 miles inside.

Adams Island (South Island) (50°53'S., 166°04'E.) is the southernmost of the Auckland Islands, rising to an elevation of 668m above the sea in Mount Dick on the SW side of the island. The S coast of this island is composed of sheer cliffs with only one small indentation, Fly Harbor, near its E end; this harbor affords shelter inside of a remarkable bar of kelp which crosses the harbor at its entrance.

Caution.—Mariners are warned that in the vicinity of Carnley Harbor, the compass may be affected, when in shallow water, by local magnetic forces.

13.29 **Carnley Harbor—West entrance.**—The narrow entrance opening between South West Cape and Embrasure Point is also known as the SE entrance point to Western Arm. This channel is only suitable for small vessels; there is a large whirlpool, in the narrowest part, W of Monumental Island. At this point in the passage, the channel is only about 90m wide and depths will vary from 6.4 to 23.8m, causing a dangerous rip, inside of which the water is smooth.

13.30 **West side of Main Island.**—The stretch of coast from South West Cape to **Black Head** (50°31'S., 166°08'E.), its

N extremity, forms a continuous perpendicular wall of cliffs, which for miles reaches an elevation of not less than 183m and will rise about 866m.

From Bristow Point to North West Cape, the coast forms Deep Bight, where remarkable pointed rocks form along a coast line which is foreboding and desolate.

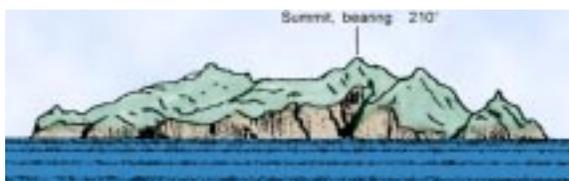
Caution.—Sugarloaf Rocks, an above and below-water danger, lies about 1.2 miles E of the E extremity of Disappointment Island.

Several pinnacle islets and rocks, some of the rocks awash, have been seen in the N part of Deep Bight between Disappointment Island and the main island, NE and E.

13.31 Disappointment Island (50°37'S., 166°01'E.) lies just outside the line between Northwest Cape and Bristow Point. The island, 315m high, presents the appearance of three sugarloaf hills when seen from a distance. The island is high, rocky, and generally inaccessible.

A strong current sets between Disappointment Island and the main island; the passage, although it has depths of 73.2m, is only suitable for boats even in excellent weather.

Disappointment Island is reported to lie 0.3 mile S of its charted position relative to the main island.



Disappointment Island

Macquarie Island

13.32 Macquarie Island (54°45'S., 158°40'E.) lies about 340 miles SW of the Auckland Islands, the nearest major island. The island, with an area of 46 miles, lies with **North Head** (54°28.4'S., 158°58'E.), its N extremity, 795 miles SE of Tasmania. Macquarie Island is under the government of Tasmania and are sometimes known as the Subantarctic Islands of New Zealand.

Macquarie Island is about 18 miles long in a N-S direction, with a maximum width of 3 miles, and rises to its maximum elevation at Mount Hamilton, 433m high, near Point Hurd, the S extremity.

The general appearance of the island is barren in the extreme and it is almost surrounded by rocky ledges and reefs, making landing difficult; the coast is dangerous for a vessel to approach closely.

Macquarie Island does not have any well-defined bays for good anchorage, but there are a few open roadsteads in which shelter can be obtained under the lee of the hills.

This island is continually struck by high winds, with overcast skies and frequent precipitation, in the form of either rain or snow. The wind is W and NW most of the year, at about 20 knots.



N end of Macquarie Island from SE, distant 4 miles

The island is often obscured by mist or very low clouds and caution is advised when approaching land as soundings are unreliable.

The Australian National Antarctic Research Expeditions (ANARE) established a scientific station at Buckles Bay. The station includes auroral geophysical observatories and has radio and meteorological facilities. Emergency accommodations are available for 20 people. A doctor and medical facilities are available. Six out-stations provide shelter for a limited number of people. The stations contain radio for communications with ANARE at Buckles Bay, but a listening watch is not maintained unless the huts are known to be occupied.

North Head is the N extremity of the island. Wireless Hill is the summit of the peninsula of which North Head is the extreme and on the neck of the peninsula is the previously-described meteorological station. The station is conspicuous, with its brightly covered buildings and a group of 18m high radio antennas.

Elliott Reef, a line of above and below-water rocks, extends N of North Head, where apparently there are no known dangers more than 0.3 mile outside the outermost rock.

Hasselborough Bay, on the N end of the island, is about 0.7 mile deep and affords shelter from E or SE winds, but rocks and shoal water extend in most places for a distance of 0.3 to 0.4 mile from the shore. A vessel must steer up the middle of the bay for the two small hummocks on the low isthmus and should anchor, in 22m, 0.4 mile WSW of Anchor Rock and not proceed farther into the bay.

13.33 Buckles Bay (54°29'S., 158°58'E.) is a small cut on the SE side of the isthmus connecting Wireless Hill to the main part of the island. Kelp extends about 0.3 mile offshore, but except for the kelp, the bay is apparently clear of dangers.

A set of range lights, in line bearing 296°, reportedly stands 0.5 mile SSW of Wireless Hill. In 1983, when requested, the rear light showed a flashing red characteristic, while the front light showed a flashing green or white light. Authorities disagree as to the best anchorage available in the bay. In 1979, a vessel 134m in length anchored on the alignment and about 0.6 mile off the beacons. The vessel reported that soundings approaching the anchorage shoaled regularly after crossing the 200m curve. Anchorage S of the range line is not recommended.

Besides Wireless Hill, the Expedition Hut, painted red and white stripes, is a good landmark for making the anchorage.

Tides—Currents.—In Buckles Bay and along the E side of the island, the current sets to the S with a flood tide and to the N with an ebb tide, at a maximum rate of 1.5 knots.

This part of the coast will provide sheltered anchorage in good weather.

There is anchorage with shelter from W winds near **Nuggets Point** (54°31'S., 158°58'E.); landing can be made only in calm weather. Sandy Bay (Ballast Bay) will afford anchorage sheltered from W winds.

13.34 Waterfall Bay (54°40'S., 158°55'E.) will provide temporary anchorage in good weather.

Lusitania Bay lies on the E side of the island, 4 miles N of Hurd Point, the SE extremity of the island. On the beach are the remains of two large red iron boilers which afford a good mark.

The S coast of Macquarie Island rises sharply in a series of three mountains with sheer cliffs surmounting **Hurd Point** (54°46'S., 158°53'E.).

Southeast Reef lies 0.5 mile SE of a small islet located close off Hurd Point. There are heavy tide rips off Hurd Point and Southeast Reef. A number of above and below-water rocks, lie within 1.2 miles of the island. Two submerged rocks, the existence of both of which is doubtful, are charted 3 miles S of Hurd Point and 1.2 miles SW of **South-West Point** (54°45'S., 158°48'E.). A rock, which breaks, has been reported to lie about 1.5 miles S of South West Point.

On the S coast, the bays are scattered with rocks and are futile as anchorages; however, in 1982, a vessel anchored, in a depth of 26m, 0.5 mile WSW of Hurd Point.

Caroline Cove (54°44'S., 158°49'E.), located near the S end of Macquarie Island, affords shelter for small craft during E winds, but is exposed to W winds; the cove is burdened with rocks, but there is a 75m wide channel leading to a deep basin.

13.35 Sandell Bay is entered between Cape Toucher, 3.5 miles N of Caroline Cove and Davis Point, 1.5 miles farther NE.

Bauer Bay opens and is entered 3.5 miles S of Handspike Point (54°29'S., 158°54'E.).

Langdon Bay and Half Moon Bay indent the coast 1.5 and 3 miles N, respectively, of Bauer Bay.

Caution.—The Bishop and Clerk Islands consist of a chain of barren islets and rocks lying about 21 miles SSW of Macquarie Island. The highest island of this group, near the S end, is about 43m high. These islands, extending in a N and S direction, are connected with Macquarie Island by a submarine ridge which extends farther to the S. Depths of less than 18.2m have been reported to lie within 1.5 miles of the Bishop and Clerks Islands' charted position.

These islets and rocks, including Judge Island (54°21'S., 159°01'E.), lie 8.5 miles N of North Head. A submarine ridge also connects these islands with Macquarie Island.

A rock, awash, lies in approximate position 54°18.5'S, 159°02.1'E. Another rock, awash, lies in approximate position 54°19.1'S, 159°1.8'E. A third rock, awash, lies in approximate position 54°20.3'S, 159°01.4'E.

A depth of 34m is reported to lie 5.7 miles SW; depths of 37m and 60m are reported to lie 6.5 miles and 7 miles SSW, of the Bishop and Clerk Islands.

Judge Island and the Bishop and Clerk Islands were reported (1982) to lie 1.2 miles further SW than charted.

