



Additional chart coverage may be found in CATP2, Catalog of Nautical Charts.  
**SECTOR 1 — CHART INFORMATION**

# SECTOR 1

## WEST COAST OF SOUTH AMERICA—OFF-LYING ISLANDS AND DANGERS

**Plan.**—This sector describes the off-lying islands, dangers, and banks that are widely scattered W of the coasts of Colombia, Ecuador, and Chile. The sequence of the description is from N to S.

### General Remarks

**1.1** The waters W of the coasts of Colombia, Ecuador, and Chile contain a number of off-lying islands, dangers, and banks, most of which are not marked by navigational aids. The islands, volcanic in origin, are in general precipitous and steep-to, but detached dangers lie close off many of them. Isla de Malpelo, about 200 miles off the Colombian coast, lies closest to the coast. Isla de Pascua, about 2,000 miles off the Chilean coast, is the westernmost of the off-lying islands described herein. The Archipelago de Colon and the Archipelago de Juan Fernandez are the principal island groups; the Archipelago de Colon is the largest group.

### Off-lying Islands, Banks, and Dangers West of Columbia

**1.2 Isla de Malpelo** (3°59'N., 81°36'W.), lying about 200 miles off the W coast of Columbia, consists of a sheer and barren rock with three high peaks; a light is shown from the N peak. In clear weather the island is visible from a distance of 30 miles and is reported to be a good radar target at 30 miles. From some directions the island resembles a crown. Strong currents in the vicinity cause the appearance of breakers, but the island is believed to be steep-to, with depths of 46 to 110m less than 1 mile offshore.

North Rocks, consisting of four above-water rocks and a rock awash, lie close NNW of the N end of the island. South Rocks, two above-water rocks, lie close S of the S end of the island. A number of above-water rocks lie close off the S and SE end of the island.

A landing place is situated on the E side of the island, about 0.3 mile SSW of the N extremity, but the swell makes it difficult.

It was reported that a meteorological station was established on the island.

Anchorage can be taken off the NE end of Isla de Malpelo, in a depth of 46m, rock, during light to moderate seas, although anchorage is not recommended due to the presence of submerged pinnacles, the rocky bottom, and a lack of soundings.

**Caution.**—The island was reported (1992) to lie 2 miles NW of its charted position.

Malpelo Nature Reserve is a circular area of radius 6 miles centered on 3°58.5'N, 81°34.8'W. Fishing and any other activity identified by Colombian authorities is prohibited in the area.

Depths of 128 and 134m were reported about 70 and 73 miles, respectively, NNW of Isla de Malpelo.

**Rivadeneira Shoal** (4°15'N., 85°10'W.), position doubtful, was reported to lie about 215 miles W of Isla de Malpelo. The least depth over the shoal was 3m.

**Isla del Coco** (5°32'N., 87°04'W.), about 340 miles WNW of Isla de Malpelo, is described in Pub. 153, Sailing Directions (Enroute) West Coasts of Mexico and Central America.

### The Archipelago de Colon

**1.3** The **Archipelago de Colon** (Galapagos Islands) (0°00'N., 90°00'W.) is the group of islands and islets forming the archipelago that lies on and near the Equator, between 500 and 700 miles W of the coast of Ecuador. The entire group comprises an area of about 2,966 square miles and is a military reservation.

It is reported that there are airports on Isla Baltra and at the naval base on Isla San Cristobal. All vessels, including private yachts, desiring to call at any of the islands or to enter their waters must obtain clearance from the Ministerio de Defensa National, Quito, Ecuador, or from an Ecuadoran consul before sailing to the islands. Upon arrival at the archipelago, vessels must clear with the local authorities at Bahia de Naufragio, Isla San Cristobal or at Bahia de la Academia, Isla Santa Cruz, before proceeding to any of the other islands.

**Area to Avoid.**—To avoid risk of damage to the environment and economy, all vessels greater than 500 grt and all fishing vessels should avoid the area bounded by:

- a. 4°04.8'N, 81°43.5'W.
- b. 4°04.8'N, 81°28.2'W.
- c. 3°52.2'N, 81°28.2'W.
- d. 3°52.2'N, 81°43.5'W.

It was reported (1992) that a vessel was detained and a severe fine imposed for approaching within 200 miles of the islands.

**Winds—Weather.**—Although the island group lies on and near the Equator, the climate is tempered by the cool Peru Current.

The Southeast Trade Wind is the prevailing wind in the Archipelago de Colon and blows between SE and SW. From April to December, the trade wind blows with great regularity and gales are unknown. Calms are frequent from January to April, with occasional light squalls from the NW. Heavy rollers occasionally break upon the N shores during the rainy season, but no wind of any consequence accompanies them.

The greater part of the islands are, in general, embraced in a dry zone which rises to about 244m. The period of January to April is the rainy season for the low grounds, but even during this period rainfall cannot be relied on. At the higher levels light rain occurs throughout the year, and rainfall is greater from June to November when thick mists are prevalent.

Thick fog has been reported at sea near the Archipelago de Colon in April and September.

In the vicinity of the islands, bioluminescence (phosphorescence) has been observed.

**Tides—Currents.**—The currents in the vicinity of the Archipelago de Colon are strong, with rates of 1 to 2.5 knots. They generally set W and NW. There is a marked difference in the temperatures of the bodies of water moving within a few miles of each other. On one side of Isla Isabela the temperature of the sea 0.3m below the surface was 26°C, but on the other side it was less than 15°C. These differences are due to the cool Peru Current (Humboldt Current) coming from the S along the coasts of Chile and Peru, which, at the archipelago, joins a warmer body of water moving from the Gulf of Panama.

Near Cabo Blanco, the Peru Current leaves the coast and sets WNW and W toward the archipelago, passing this group on both the N and S sides. The breadth of the current stream on the meridian of the Archipelago de Colon is 400 to 500 miles. Beyond the archipelago the current widens rapidly and is lost in the Equatorial Current near 108°W.

**Aspect.**—There are six principal islands, nine smaller islands, and a number of islets and rocks. The formation of the entire archipelago is volcanic. In general, the higher islands have one or more principal craters toward their centers with several smaller ones on their flanks. There are as many as 2,000 craters, some rising to 1,524m at their centers, among the islands. There is a marked difference between the S and N sides of the islands. The S sides are covered with luxuriant vegetation. The N sides consist in general of bare lava, from the crevices of which springs a thick undergrowth. The low lands are generally parched and rocky; however, the larger islands are fringed with dense mangroves which are backed in places by impenetrable thickets. The trees on the islands seldom grow over 9.8m high.

Water is found on many of the islands during the rainy season. An adequate supply of water can be obtained at Isla San Cristobal, but it must be boiled for drinking purposes.

**Note.**—Several lighted beacons and markers are situated on the islands and islets to assist small craft with local knowledge in entering the coves, craters, and narrow fairways.

**Regulations.**—The Government of Ecuador has established a special Area to be Avoided around the Archipelago de Colon, with special traffic routing measures for vessels passing within 200 miles of this island area.

The Ecuador Ship Reporting System is mandatory and applies to all vessels navigating within 200 miles of Ecuador and Archipelago de Colon. [For further information, see Pub. 120, Sailing Directions \(Planning Guide\) Pacific Ocean and Southeast Asia.](#)

The Autonomous Temperature Line Acquisition System (ATLAS), a successive chain of mooring buoys, with quick flashing orange and white colored lights, are placed along the equatorial belt of the Pacific from the Archipelago de Colon to New Guinea. Vessels are to give them a wide berth of 6 miles.

**Caution.**—Mariners should exercise caution in the waters adjacent to the islands due to numerous unconfirmed reports of depths less than 200m in much deeper water.

**1.4 Isla Darwin** (Isolote Culpepper) (1°39'N., 92°00'W.), a small, rocky and barren islet, is the NW islet of the Archipelago de Colon. An arched rock, 31m high, lies about 0.3 mile E of the S end of the islet. A reef extends 0.2 mile SE from the rock.

The island was reported (1996) to lie 1 mile N of its charted position.

**Isla Wolf** (Isla Wenman) (1°22'N., 91°49'W.), rocky and barren, lies about 18.5 miles SE of Isla Darwin. It actually consists of three islets and a large above-water rock which lie close together and are separated by narrow passages; when sighted from the offing they appear as one islet.

The group of islets is formed by the crater of an old volcano, the W side of which is broken away and submerged, so that the islet is in the form of a crescent with concave sides W.

A light is shown from the NE extremity of the largest islet.

**1.5 Isla Pinta** (0°35'N., 90°45'W.), about 7 miles long and 4 miles wide, lies about 77 miles SE of Isla Wolf. The island has an active volcano near its center that rises to a height of about 762m.

Shoal water, on which breakers have been reported, extends 0.5 mile N from the N end of the island. Rocas Nerus, below-water rocks, extend about 0.3 mile N from a position on the N shore about 0.8 mile E of the above shoal area. A depth of 8.2m lies about 1.3 miles NNW of Cabo Chalmers, the SW extremity of Isla Pinta.

A depth of 131m was reported to lie 6 miles N of the N extremity of the island. A depth of 140m was reported to lie 7 miles NNE of the N extremity of the island. A depth of 264m was reported to lie 34 miles WNW of the island.

Anchorage can be taken, in depths of 12.8 to 27.4m, rock and sand, about 1.5 miles NNW of Cabo Chalmers (0°33'N., 90°47'W.). The anchorage lies 0.3 to 0.4 mile off high, sheer cliffs which on closing show a narrow sloping shelf of rock with patches of black sandy beach at their base.

A vessel approaching the anchorage from the S can round Cabo Chalmers (0°33'N., 90°47'W.) about 1 mile offshore and anchor 0.2 to 0.3 mile N of a conspicuous green patch near the base of the highest cliff.

**Isla Marchena** (0°20'N., 90°28'W.) lies 15.5 miles SE of Isla Pinta. Numerous above and below-water rocks lie up to 0.3 mile offshore and a dangerous rock lies in an approximate position about 3 miles off the NE side of the island.

Anchorage can be taken, in a depth of about 31.1m, sand, 1 mile WNW of Punta Montalvo (0°23'N., 90°28'W.). The anchorage lies off a small cove with a black beach marked by a rocky point W and high rocks E. Fishing vessels frequent the anchorage.

**Isla Genovesa** (0°20'N., 89°57'W.), a flat island, lies about 25 miles E of Isla Marchena. A crater lake lies near the center of the island. Bahia Darwin, marked at its head by a pair of lights, indents the S side of the island. The entrance of the bay, about 0.5 mile wide, is shallow and encumbered by reefs. Small craft with local knowledge can enter the bay via a constricted channel and anchor on a small ledge in the NE part of the bay, where there are depths of 7.3 to 16.5m, sand.

**1.6 Isla San Cristobal** (0°50'S., 89°25'W.) lies at the E extremity of the Archipelago de Colon. Numerous above and below-water rocks and dangers lie close to the shores of the island which is a good radar target at 25 miles. Most of the inhabitants reside in and about Bahia de Naufragio, a town situated near the SW end of the island.

A radiobeacon is situated on the S side of the island, about 6 miles ESE of the town.

The E side of Isla San Cristobal, between Punta Pitt (0°43'S., 89°14'W.) and Punta Naufagio (0°55'S., 89°38'W.), is rock-fringed and contains no harbors or anchorages. Roca Este, drying, and **Roca Ballena** (Roca Whale), awash, are off-lying dangers shown on the charts of this coast. There is an above-water rock (Estefania) and adjacent shoal patch lying almost 3 miles NNW of Punta Pitt. The former gives a good radar return up to 15 miles.

Anchorage can be taken, in a depth of 36.6m, in Bahia de Agua Dulce (0°56'S., 89°30'W.), an open roadstead exposed to heavy rollers. The anchorage lies 0.4 mile off a waterfall, at the base of which fresh water is available. The water should be boiled or otherwise treated before drinking.

**1.7 Bahia de Naufragio** (Puerto Baquerizo Moreno) (0°54'S., 89°37'W.) ([World Port Index No. 15345](#)) is the bay and town that is entered between Punta Lido, from which a light is shown, and Punta Malamocco, about 0.8 mile apart, is a port of entry for the Archipelago de Colon. A radio station is situated near the head of the bay.

**Tides—Currents.**—The flood and ebb tidal currents set NE and SW, respectively, with a velocity of up to 1.8 knots.

**Depths—Limitations.**—Shoals and reefs fringe the harbor and coast around the bay. Depths of less than 5.5m exist 0.5 mile offshore. Reefs, above and below-water, lie in the inner harbor and approaches to the harbor. Arrecife Schiavoni, with a least depth of 0.3m, lies in the entrance and helps protect the bay from NW weather. A dangerous wreck lies on shoals close E of the reef. Arrecife Schiavoni and nearby reefs are not visible on a bright day with a calm sea except for the light-colored water over them. With a swell, the sea breaks heavily on the reefs and across the S entrance of the bay. A lighted buoy marks the NE extremity of the shoal water.

**1.8 Rocas Dalrymple** (0°51'S., 89°38'W.), 19m high and steep-to, lies in the N approach to the bay. A light, with a racon, is shown from a concrete block on the highest rock. Rocas Dalrymple is a good radar target; it is also a landmark on a N approach to the harbor.

**Aspect.**—Two piers are available here, but their alongside depths have not been reported. The piers stand 229m NE and 137m W, respectively, of Puerto Baquerizo Moreno Light (0°54'N., 89°38'W.). The pier W of the light is reserved for Naval and harbor vessels only.

A prominent grey stone building, housing the Governor of the Islands and the Naval headquarters, stands 0.2 mile WNW of a conspicuous church standing at the head of the bay. The Naval base extends from the grey building WNW to another prominent building standing on Punta Malamocco.

A radio mast exhibiting fixed red obstruction lights lies 91m SW of Puerto Baquerizo Moreno Light.

**Anchorage.**—Anchorage can be taken, in a depth of about 11m, with a lighted, metal framework tower bearing 157°, distant 0.4 mile, and Punta Lido (0°53'S., 89°37'W.), bearing 007°. Small vessels may find better holding ground nearer the head of the bay. Additional anchorage is available, in 29.3m, sand, about 0.5 mile NE of Punta Lido.

**Directions.**—Caution must be exercised when approaching the bay, particularly from the W. From a position about 0.5 mile S of Rocas Dalrymple, steer a course of 165° with the rock astern, bearing 345°. When about 0.3 mile W of Punta Lido, and when the light at the head of the bay bears 165°, change course to 165° and proceed to an anchorage.

**1.9** The W side of Isla San Cristobal is fringed by rocks, reefs, and shoals extending as far as 1.3 miles offshore. These are numerous, small coves indenting this low, dark-colored coast. Isla Lobos (0°51'S., 89°34'W.), a good radar target, lies close offshore. A detached 3m patch lies 1.2 miles W of Isla Lobos. Punta Bassa (Manglecito) (0°49'S., 89°32'W.), a salient feature, is low, dark, and reported to be a good radar target. Breakers extend up to 0.5 mile N of the point. Anchorage can be taken about 1.5 miles SW of the point, in depths of 11 to 32.9m.

**Bahia Stephens** (0°48'S., 89°30'W.), an open bay on the NW side of the island, can be identified by Roca Kicker (Roca Peteadora) (0°46'S., 89°31'W.), a sheer, high rock shaped like a church with a high, square tower. The rock is a good landmark on approaching the bay, which is clear of dangers except for several shoal patches lying 1.2 miles off the NE entrance point. Punta Finger (0°45'S., 89°28'W.) is a conspicuous dark-colored cliff topped by a pinnacle rock which is located at the NE extremity of Bahia Stephens.

Anchorage can be taken, in depths of 18.3 to 21.9m, good holding ground, about 0.5 mile offshore.

**Caleta de la Tortuga** (0°42'S., 89°22'W.), an open roadstead, lies 1.5 miles SW of Cabo Norte (0°41'S., 89°21'W.), the N extremity of Isla San Cristobal. Cerro Pan de Azucar (0°43'S., 89°21'W.), about 220m high, and another hill rising 0.2 mile SW, are good landmarks when approaching the roadstead.

**Anchorage.**—Anchorage can be taken in the roadstead, in depths of 21.9 to 27.4m, sand, about 0.5 mile offshore.

**1.10 Isla Espanola** (1°23'S., 89°40'W.), the S island of the Archipelago de Colon, is 195m high, rugged, and covered with brushwood. Its coasts are bold and rocky. The island gives a good radar return at 21 miles. Rocks and reefs, above and below-water, lie 0.2 mile off the island, except in the vicinity of Isla Gardner, which is encircled by foul ground. There is a 7.3m detached patch 0.6 mile N of the N extremity. Isla Gardner (1°20'S., 89°39'W.), an islet, gives a good radar return up to 16 miles.

**Bahia Gardner** (1°21'S., 89°38'W.), lies S and W of Isla Gardner. A reef, with an islet at its N end, extends N from Isla Espanola leaving a passage about 137m wide and with a least depth of 5.5m N of the islet. A rock, with a depth of 3.7m, lies in the bay about 0.4 mile from the SW end of Isla Gardner. Local knowledge is required.

Anchorage can be taken in the bay, in depths of 9.1 to 18.3m. Vessels can anchor about 0.8 mile W of the summit of Isla Gardner, in 36.6m. There is anchorage with the N extremity of Isla Gardner bearing 075°, and the S extremity 116°, in a depth of 34.7m.

**Arrecife Macgowen** (1°07'S., 89°54'W.) lies about 20 miles NW of Isla Espanola. It consists of rocks awash, 1.8m below the surface, which are dangerous as soundings give no warning

of their proximity. A pinnacle rock, with a depth of 2.1m, was reported to lie about 0.5 mile ENE of Arrecife Macgowen.

Banco Hancock, with a depth of 19.5m, is an isolated patch lying about 19 miles WNW of Arrecife Macgowen.

**1.11 Isla Santa Maria** (1°17'S., 90°25'W.) has several round-topped hills that are visible from any direction. Numerous above and below-water rocks lie on fringing shoals encircling the island. Islets lie up to 1.8 miles off the NE side and up to 5 miles off the E side of the island. Isla Enderby lies 2.5 miles NNW of Punta Ayora. Isla Campeon is located 1.3 miles W of Isla Enderby and just 0.7 mile off the N coast of Isla Santa Maria. Isla Caldwell, 114m in height, lies 2 miles SSE of Punta Ayora. Isla Gardner, 227m in height, lies 2.9 miles SE of Isla Caldwell. Isla Watson lies 0.9 mile SW of Isla Gardner. An isolated rock, awash, lies about 8 miles SE of the E extremity of the island.

**Bahia Playa Prieta** (Black Beach Anchorage) (1°16'S., 90°30'W.) affords good anchorage, in depths of 18.3 to 36.6m, sand, about 0.3 to 0.5 mile off the head of the bay. There is some swell, but reefs lying SW give some shelter. Vessels must not anchor in depths less than 18.3m in order to avoid a rock, with a depth of 1.8m, that lies 0.1 mile offshore. The summit of Isla Santa Maria, bearing 118°, leads S of the rock and to the anchorage.

Landmarks approaching the anchorage include a high rock lying 0.2 mile offshore and 0.5 mile S of the anchorage, and a brownish sandy beach inshore; a light is shown from the NE point of the bay.

**Bahia del Correo** (Post Office) (1°14'S., 90°25'W.), indenting the N coast of Isla Santa Maria, is mostly foul, but affords sheltered anchorage, good holding ground, with easy access. There are depths of 12.8 to 14.6m in the center of the bay, about 0.5 mile ENE of the W entrance point. Landing can be effected at a sandy beach in the SE part of the bay.

**1.12 Isla Santa Cruz** (0°38'S., 90°19'W.) is featured by a prominent mountain rising near the center of the island. It is volcanic. Rocks and foul ground fringe the island; several above-water rocks and islets lie up to 3 miles offshore.

**Bahia Academy** (0°45'S., 90°18'W.) indents the S coast of the island E of Punta Estrada (0°45'S., 90°18'W.). The shores of the bay are foul for 0.5 mile offshore and depths generally are less than 5.5m. Isla Coamano (0°45'S., 90°17'W.) lies on foul ground about 1.5 miles E of Punta Estrada. There are several shoal patches lying up to 1.5 miles S and SE of the Punta Estrada. A light, frequently extinguished, is shown from the Isla Coamano. Another light is shown near a stone landing jetty, about 1 mile NNW of Punta Estrada.

Landmarks include three research station buildings standing 2.2 miles N of Punta Estrada and a white sandy beach at the head of a small cove, 0.7 mile NW of the same point.

Pilotage, if required, can be provided by the Harbormaster; there is no formal pilot service.

Anchorage can be taken in Bahia Academy, in depths of 11 to 14.6m, about 0.6 mile from the landing jetty with Punta Estrada bearing 180°, distant about 0.7 mile. Vessels approaching the bay from the E or W should keep about 3 miles offshore. Puerto Nunez (0°43'S., 90°13'W.), a foul cove, affords

anchorage, in 6.4m, clear of the foul ground which extends up to 0.8 mile offshore.

**Rocas Gordon** (0°34'S., 90°09'W.), a group of three rocks, of which the largest is 61m high, lies 1 mile NE of Islas Plaza (0°35'S., 90°10'W.). A light is shown from the S side of the S island of Islas Plaza.

**Isla Baltra** (0°27'S., 90°16'W.), low and covered with brush, is separated from the N coast of Isla Santa Cruz, and from the E end by Canal de Itabaca (0°29'S., 90°16'W.), a shallow passage about 0.3 mile wide. Buoys mark the fairway, which is used by fishing vessels in transit. It is reported that most of the buoys have been removed and a pole beacon marks a rock near the W outlet of the fairway.

Isla Baltra accommodates a naval and air force base; because of this, the use of Isla Baltra is restricted.

The quay is controlled by the naval authority.

Local knowledge is required.

**Anchorage.**—Anchorage can be taken, in depths of 7.3 to 14.6m, sand and rock, at the E end of Canal de Itabaca. The steep-to S shore of the canal should be favored on entering to anchor.

**1.13 Caleta del Norte** (0°25'S., 90°17'W.) is the N of two small bays on the W side of Isla Baltra. Punta del Norte, the NW end of the island and bay, is reported to be a good radar target. Isla Seymour (0°24'S., 90°17'W.) is separated from the N end of Isla Baltra by a passage blocked by foul ground at its E end. Anchorage can be taken, in 16.5m, at least 0.2 mile off the head of Caleta del Norte.

**Caleta Aeolian** (0°27'S., 90°18'W.), the S of two bays, is entered S of Punta Naboia (0°26'S., 90°17'W.). A light is shown from a tower on the point and prominent lighted radio masts stand within the point. Seaplane ramps are situated at the sandy head of the bay. A wharf, 61m in length, with alongside depths of 6m, is situated nearby as is a radio station and airfield. Anchorage can be taken, in 16.5m, in the outer bay.

**Islas Guy Fawkes** (0°31'S., 90°32'W.) are a straggling group of islets lying off the NW side of Isla Santa Cruz. Isla Eden (0°33'S., 90°32'W.) lies at the S end of the group. Anchorage can be taken, in about 14.6m, 0.8 mile NNE of Isla Eden.

**Islas Daphne** (0°25'S., 90°22'W.) consists of three islets. The NE islet, 107m high with sheer sides, lies about 3.5 miles W of Isla Seymour. The cone-shaped SW islet lies 5 miles W of Caleta del Norte. The third islet is an above-water rock lying on a shoal, 0.7 mile E of the SW islet. When approaching from the NE, Isla Baltra and Isla Seymour appear to merge with the higher background of Isla Santa Cruz, and Islas Daphne is the first to be identified.

**Isla Santa Fe** (0°50'S., 90°04'W.) lying about 12 miles off the SE side of Isla Santa Cruz, is steep-to except on its N side where above and below-water rocks lie up to 200m offshore. A 12.8m patch lies 1.7 miles ENE of the NW extremity of the island.

**1.14 Isla San Salvador** (0°15'S., 90°45'W.), high and wooded, consists mainly of lava and has a conspicuous volcanic hill (Cerro Pan de Azucar) at the W side of the island. Isla Rabida (0°25'S., 90°42'W.), a small, barren island, lies 2.5 miles off the S side of the island. A group of small islets lies 4

miles E of Isla Rabida, and a chain of islets including a 4m patch lie off the SE end of Isla San Salvador.

**Bahia de Sullivan** (0°17'S., 90°34'W.), formed E and S by Isla Bartholome (0°17'S., 90°33'W.), is open to the NE and has a 7.4m rocky patch lying in its center. Small vessels can anchor in at least 20.1m, 0.3 mile off the head of the bay.

**Bahia de James** (0°14'S., 90°52'W.), an open bay, has sheltered coves within the NE and SE entrance points. Isla Albany, lying 0.5 mile off the NE entrance point, merges with Isla San Salvador from offshore. Cerro Pan de Azucar (a prominent volcanic cone), 395m high, is the best landmark on approaching the bay. Anchorage can be taken, in 13m, off a sandy beach with the center of Isla Albany bearing 346°, distant 1.7 miles. Large vessels should anchor about 0.4 mile farther out, in 27.4m, sand over rock. Depths of 9.1m or less exist up to 0.5 mile from the head of the bay.

**1.15 Isla Isabela** (0°30'S., 91°10'W.) is composed of six huge craters, all active, joined at their bases by lava, the most remarkable isthmus being Istmo Perry. The S end of the island is moist from the trade wind and has dense vegetation. The N part is dry and barren. There are few navigational aids or landmarks.

**Punta Albemarle** (0°10'N., 91°20'W.), the N end of Isla Isabela, is a good radar target. Foul ground extends 0.5 mile N of the point. Roca Redonda (0°14'N., 91°37'W.), a barren islet, lies 18.5 miles WNW of the point. Between Punta Albemarle and Punta Alfaro, the island is steep-to, but the latter point is fringed for about 1 mile offshore by shoals of less than 9.1m. An islet lies 2.2 miles NNW of Punta Alfaro (0°25'S., 90°57'W.).

**Bahia de Perry** (Cartago Bay) (0°35'S., 90°55'W.) indents the coast between Punta Alfaro and Cabo Barrington (0°36'S., 90°54'W.). The bay is fringed by mangroves, but anchorage can be taken, in depths of 12.8 to 23.8m, sand and rock. Roca Blanca (0°33'S., 90°52'W.), above-water, lies 4 miles NNE of Cabo Barrington.

**1.16 Cabo Woodford** (0°45'S., 90°47'W.) is the E extremity of Isla Isabela. Between this cape and Cabo Barrington, the coast is foul for at least 1.3 miles offshore. A rock about 6m wide, with a depth of 1.8m, was reported to lie about 6.5 miles ESE of Cabo Woodford.

The coast between Cabo Woodford and Cabo Rosa, the S extremity of Isla Isabela, is considered hazardous to approach as there are several islets and rocks scattered offshore. Landings are difficult due to breakers. The dangers include Islas Crossman (0°51'S., 90°48'W.), Isla Tortuga (1°01'S., 90°52'W.), Roca Burra (0°58'S., 90°52'W.), and Roca Union (1°02'S., 91°06'W.).

**Villamil** (0°57'S., 90°58'W.) is a village situated at the head of a bay, about 8 miles SW of Punta Veintimilla (0°55'S., 90°51'W.). Cerro Villamil is a conspicuous hill rising about 0.8 mile within the W shore of the bay and 1 mile SW of the village. A 46m long pier and a flagstaff are situated adjacent to the village. The E side of the bay is encumbered with shoals, rocks, and islets for 1.8 miles offshore. A light is shown from a tower on the W islet.

**Pilotage.**—Pilotage is not compulsory, but is recommended for the first visit; although there is no formal pilotage service, a member of the Harbormaster's staff can advise.

**Anchorage.**—Anchorage can be taken, in a depth of 12m, about 1 mile W of Villamil Light, but it is not recommended due to the heavy swell and breakers. Landing is possible in a cove about 4 miles SW of the village.

**1.17 Cabo Rosa** (1°03'S., 91°10'W.) is the S extremity of Isla Isabela. From the cape, the coast trends WNW for 17 miles then NW to Punta Cristobal (0°54'S., 91°31'W.), which can be identified by a mass of small craters behind it. Other than Caleta Iquana (0°57'S., 91°27'W.), the coast is quite regular in outline.

**Bahia Isabel** (0°37'S., 91°06'W.) indents the W side of Isla Isabela. Four islets are clustered about 0.5 mile offshore. Anchorage can be taken, in depths of 18.3 to 25.6m, sand, about 0.3 mile S of the southernmost islet. The area E of the islands is shoal with a foul bottom. Only small vessels should anchor in this area, and even then a tripping line is necessary.

Anchorage can be taken in a cove about 5 miles NE of Caleta Webb (0°48'S., 91°27'W.). Two small hills, covered with green brush with a sandy beach on each side, identify the anchorage. The cove has depths of 54.9m about 0.8 mile offshore, decreasing to 5.5m close inshore. Good anchorage can be taken about 0.5 mile offshore, in 32.9m.

**Caleta Tagus** (0°16'S., 91°22'W.), formed by an old crater, affords good anchorage, in depths of 11 to 29.3m, sand and gravel. The shores of the cove are steep-to and the entrance is clear of dangers. Anchorage is reported as being good in a cove near Punta Vincente Roca, about 17 miles NW of Caleta Tagus. There are depths of 11 to 36.6m, good holding ground of rock and sand in the cove, which is reported to have a large cave at the water's edge.

**1.18 Isla Pinzon** (0°36'S., 90°40'W.) is a small, high island lying in the passage between Isla Isabela and Isla Santa Cruz, about 11 miles NE of Cabo Woodford. A small, high islet stands about 5 miles SE of Isla Pinzon.

**Isla Fernandina** (0°25'S., 91°29'W.) lies close to the W side of Isla Isabela on the NW side of Bahia Isabel. The island is a high, large volcano that is barren, steep-to, and has a crater lake near its center. An extensive field of lava encircles the base of the volcano. Foul ground extends at least 0.5 mile off the SE side of the island.

A vessel anchored off the island's NE coast in Espinosa Bay, with Punta Espinosa (0°16'S., 91°27'W.) bearing 295° and the S point of the bay bearing 177°, in 34.7m.

## Off-lying Islands, Banks, and Dangers West of Chile

**1.19** Numerous off-lying dangers have been reported between longitude 100°W and the coast of Chile. The effect of seismic disturbances on the ocean floor within this area, which is not infrequent, may cause an existing islet or rock to become submerged. On the other hand, earthquakes thrust submerged peaks above, or nearly above, the ocean surface. Through the years, various surveys have failed to locate most of these

reported dangers. However, they are retained on the charts as a warning to navigators.

Included in these dangers are Sefton Reef (36°43'S., 83°15'W.), Yosemite Rock (32°04'S., 83°14'W.), Podesta Island (32°14'S., 89°08'W.), Emily Rock (29°38'S., 87°25'W.), a rock and adjacent shoal depths of at least 165m in 25°40'S, 85°00'W, and a depth of 155m which was reported in the position 43°13'S, 97°43'W.

**Isla San Ambrosio** (26°21'S., 79°52'W.) is high, steep, and about 2 miles long. The island consists of rough, burnt volcanic particles arranged in horizontal strata intersected by vertical veins of basalt, which appear from the offing as streams flowing from the summit. Fishermen frequent the island, and have established several houses on it. Three above-water rocks, the outermost about 0.5 mile offshore, lie E of the island; a conical rock lies close W.

Anchorage for small craft can be taken in a cove (Las Moscas) indenting the middle of the N coast of the island, where shelter from SE winds can be obtained, in a depth of 40.2m, rock. Landing can be effected at the head of the cove.

**Isla San Felix** (26°17'S., 80°07'W.), about 1.5 miles long, rises to Cerro San Felix (San Felix Hill) at its W end. The W and SW sides of this arid, volcanic island consist of steep, yellow cliffs sloping down to beaches on the NE side. An airfield is located in the central part of the island. Foul ground extends 0.3 mile off the E and NE sides of the island, and depths of 12.8 to 25.6m exist up to 1.5 miles E. A light is shown from the W side of the island.

Islote Gonzalez (Gonzales Island), high and inaccessible, lies 0.3 mile S of the SE end of Isla San Felix and is connected with that island by a submerged reef. Another reef extends NW from the islet almost to the S shore of Isla San Felix.

**Roca Catedral de Peterborough** (26°16'S., 80°08'W.) is the highest of a group of jagged rocks which lie about 1.3 miles NNW of Cerro San Felix. Depths of 11 to 30m have been obtained up to 1.8 miles N, NNW, and NW of these rocks.

Rada San Felix (San Felix Road), on the bank which connects Isla San Felix and Roca Catedral de Peterborough, affords anchorage, in depths of 20.1 to 36.6m, black sand, about 0.3 to 0.5 mile offshore. The tidal current sets SW and NE with a velocity of 0.5 knot, but may increase to 3 knots.

## The Archipelago de Juan Fernandez

**1.20 The Archipelago de Juan Fernandez** (33°37'S., 78°50'W.) consists of Isla Robinson Crusoe, Isla Santa Clara, and Isla Alejandro Selkirk. The islands are a base for a fishing fleet.

**Isla Robinson Crusoe** (33°38'S., 78°50'W.), lying about 360 miles W of Valparaiso, is about 10 miles long and irregular in outline. The E half of this populated island is wooded, with alternate craggy ridges and fertile valleys; the W half is flat, low, and bare. **Cerro El Yunque** (33°39'S., 78°51'W.), shaped like an anvil when seen from NE, is a wooded peak, the highest in a range of mountains and a prominent landmark. Isla Robinson Crusoe has been sighted by radar at 40 miles.

Alexander Selkirk was landed on Isla Robinson Crusoe in 1705 and lived alone for 4 years before being rescued. Daniel Defoe based his classical story Robinson Crusoe on this episode.

**Winds—Weather.**—The island has a humid but healthful climate. Between October and May, the weather is fair, although rain squalls occur during the evening and at night. Unsettled weather, with rain, calms, or fresh N winds occurs during the rainy season. There are strong N winds in winter. Fog is not frequent.

**Tides—Currents.**—Local currents off the island are most noticeable at the turn of the tide when they attain a velocity of 3 to 4 knots. The currents follow along the coast, but do not enter Bahia Cumberland.

**1.21 Punta Hueso Ballena** (33°40'S., 78°46'W.) is the high, cliffy E end of the island. The coast NW of the point, as far as Punta Loberia (33°37'S., 78°49'W.), consists of steep, rugged slopes with no offshore dangers.

**Bahia Cumberland** (33°37'S., 78°50'W.), entered between Punta Loberia and Punta San Carlos, about 1 mile WNW, is open, deep, and clear of dangers.

Landmarks approaching the bay include the buildings at Fort San Juan Bautista (33°37'S., 78°50'W.) and the caves S of the settlement. Other buildings S of Punta Loberia are conspicuous.

Weather conditions in the bay differ from the weather offshore as the terrain inland is such that wind squalls move off the land and into the bay with considerable velocity. The water in the bay then becomes turbulent and discolored, especially in summer (November-May).

Muelle Fiscal, which is 100m long and can accommodate vessels with a maximum draft of 4m, is situated 0.3 mile S of Punta San Carlos (33°37'S., 78°50'W.).

Anchorage can be taken by vessels over 100m in length about 0.4 mile E of the main light in the settlement, in a depth of 49.4m. Vessels less than 100m long can anchor, in a depth of 20.1m, sand, about 0.5 mile SSE of Punta San Carlos and clear of a sunken wreck lying 0.4 mile SE of the same point. It is advisable to use both bow anchors, with a good spread and a long scope of chain, to take care of sudden squalls and strong shifting winds.

**Caution.**—When approaching Bahia Cumberland from the W or N, it is easy to mistake Bahia del Oeste (Puerto Ingles) (33°36'S., 78°51'W.), but the hills are less steep and the terrain is lower than at Bahia Cumberland.

The coast between Bahia del Oeste and Punta Norte is high and cliffy; Cerro Alto (33°36'S., 78°52'W.) is a prominent feature. The W side of the island is rocky, with no anchorages or safe landing places. Punta O'Higgins, the S extremity of Isla Robinson Crusoe, lies 1 mile SE of Punta Isla (33°41'S., 78°57'W.), the SW extremity.

**Bahia Carvajal** (33°40'S., 78°56'W.), indenting the S coast directly N of Punta O'Higgins, affords anchorage, in a depth of about 27.4m, sand, with the point bearing 217° and the E entrance point of the bay bearing 042°.

**Bahia Tierra Blanca** (33°39'S., 78°55'W.) also affords anchorage, in depths of 28 to 30m. The bay is named after the light color of the surrounding hills.

**1.22 Isla Santa Clara** (33°42'S., 78°56'W.) is separated from the SW end of Isla Robinson Crusoe by a channel almost 0.8 mile wide. The island is barren and on a N approach shows

as a single peak. Rocks and islets lie off the W and S coasts. The sea breaks heavily all around the island making landing dangerous.

**Isla Alejandro Selkirk** (33°45'S., 80°45'W.), lying about 84 miles W of Isla Robinson Crusoe, is densely wooded and very mountainous. Many deep ravines lead to a steep-to, rugged coast on the E side of the island off which are tremendous depths. The S, W, and N sides of the island have sandy strips of beach which extend 0.1 mile offshore in places.

A very high peak rises at the SW side of Isla Alejandro Selkirk, and at the SW extremity there is a prominent rock with a hole through it. Landing is possible near the center of the E shore at Quebrada Sanchez, and at the foot of Quebrada Las Casas (33°45'S., 80°43'W.), where there is a boat slip and buildings of a former penal colony.

Anchorage can be taken about 0.3 mile ENE of Quebrada Sanchez (33°43'S., 80°44'W.), in depths of 40.2 to 49.4m. The ravine is recognized by a white patch on a hill near it. This anchorage is unsafe with E winds, but affords shelter from SW winds. Anchorage can also be taken, in depths of 31.1 to 50m, sand, off Rada de la Colonia (33°45'S., 80°43'W.).

## Isla Sala Y Gomez and Isla de Pascua

**1.23 Isla Sala Y Gomez** (26°28'S., 105°28'W.) is scarcely more than a heap of stones, less than 0.5 mile long NW-SE and about 0.3 mile wide. During a gale it would be hardly distinguished amidst the spray. The highest point, 30m high and marked by a light, is at the S end of the island. A submerged rock lies about 200m SW of the S point of the island. Anchorage can be taken about 0.3 mile off the N side of the island, in 56m, coral, and also 0.2 mile S of the S end of the W side in 33m, sand and shells.

Bajo Scott (Scott Reef), on which the sea breaks, lies about 1 mile NE of Isla Sala Y Gomez. It is about 91m long with depths of 30 to 35m close around.

With E winds, a W current, with a rate of about 1 knot, is experienced in the vicinity of Bajo Scott.

**1.24 Isla de Pascua** (Easter Island) (27°05'S., 109°20'W.) is grass-covered and cultivated. The inhabitants of this Chilean-governed island reside mainly at the islands SW side. There are numerous inactive volcanic craters and high, grassy hills. The highest crater, Mount Terevaka, is located near Cabo Norte (North Cape), the NW extremity of Isla de Pascua. Cabo Sur (South Cape), the S extremity of the island, is very high and prominent. The N and S sides of the island are high and steep, and there are only three or four sandy beaches along the entire rocky coast. Three high rocks, lying as far as 1 mile SW of the SW extremity of the island, serve as good radar targets.

**Winds—Weather.**—The weather is never good for more than a few days at a time at Isla de Pascua. Ships anchoring off the island should be ready to sail on short notice. There are abrupt and violent wind changes, usually in a counterclockwise direction.

From October to April, the Southeast Trade Winds blows constantly, except during the summer months when the winds are variable. The trade wind is strongest at the beginning and end of the period and is accompanied by showers.

In winter, W and SW winds are fairly frequent and are often accompanied by rain and heavy seas.

**1.25 Rada Hanga-Roa** lies on the W side of the island between Punta Cook (27°08'S., 109°26'W.) and Punta Roa, about 1.3 miles SSW. The shores of the bay are rocky, with shoals and foul ground extending at least 0.2 mile offshore. Landing is not very feasible. A very constricted boat channel leads to a pier in ruins, but local knowledge is required as there are dangers on the range line. Front and rear beacons named Barril and Trianguls, respectively, lead to anchorages in the bay when aligned 144°. Barril Beacon consists of a pyramid of earth and stone with a barrel and spar topmark painted in orange and white bands. Trianguls beacon consists of a triangular-shaped stone wall with a vertical iron column, surmounted by a triangular daymark painted in orange and white bands.

Landmarks include a church, monument, and a radio mast, all situated in the vicinity of Barril Beacon. A flagstaff, with white boards attached, is prominent N of the range beacons. Three notable white-colored crosses stand on the hill of Maunga Tuutapu (27° 08.7'S., 109° 24.1'W.).

Anchorage is available with the range beacons mentioned above in alignment bearing 144°, and the outermost rock off Punta Roa Bearing 206°. The berth offers depths of 25m, sand. In very good weather, anchorage can be had further in on the range line, with the rock bearing 220°, in a depth of 20m over a sand bottom.

Caleta Hanga-Piko is a cove about 0.2 mile S of Punta Roa. Its inner part forms a natural basin and is the landing place for all passengers and cargo for Hanga-Roa. Above and below-water rocks lie up to 0.2 mile WNW of the W entrance point. Small craft drawing less than 1.5m can enter the basin through a narrow channel between rocks. Local knowledge is absolutely necessary. Cargo is loaded and discharged during the day from a pier 80m long, with a least depth of 0.9m at its head.

This anchorage is recommended for small vessels, with winds from N through E to S, but is open to the W. A vessel moored here must be ready to put to sea at short notice, but may find that her anchor has fouled on the bottom.

Anchorage can be had off the cove, in a depth of 50m, with the red and white radio mast bearing 093°, and the NE of the three high rocks off the island's SW end, in alignment with the cliff-edge below the peak on the island's SW extremity bearing 180°. The bottom is rocky, and badly fissured.

Anchorage in Hanga-Roa is preferable, where the holding ground is better and three 30-ton lighters are available to assist with landing and embarking cargo.

**1.26 Anakena** (27°04'S., 109°20'W.), a cove on the N side of the island, is approached in depths of 7.3 to 14.6m, and has depths of 3.7 to 9.1m in the preferred E part of the cove. A level sandy beach provides the best landing on the island for small boats. There is very little sea or swell. A monument within the SE shore of the cove is a good landmark. There is a concrete quay.

Anchorage can be taken just within the cove entrance and in the middle of the E part of the bay. With winds from S to W, the cove affords the best anchorage on the N coast, with good holding ground. Anchorage is also available, in 21.9m, good

holding ground of sand, about 0.3 mile WNW of Punta Rosalia and with this point aligned with Cabo O'Higgins, bearing 109°.

**Bahia La Perouse** (27°05'S., 109°18'W.) is an open roadstead entered between Punta Angamos (27°05'S., 109°18'W.) and Punta Rosalia. The terrain in the area is low and landing can be effected W of Punta Angamos and in Rada Benepu, about 1 mile WNW of the same point.

Anchorage can be taken, in a depth of about 21.9m, rock and shells, 0.3 mile NW of Punta Angamos and off Caleta Ovali. East and SE winds raise a heavy sea in the bay, which is also exposed to N and NW winds. The anchorages are tenable with light N winds, and when the trade winds are blowing.

**Hutuiti Anchorage** (27°07'S., 109°17'W.) affords shelter from N and W winds in about 18.5m, 0.3 mile NE of Punta Yama (27°08'S., 109°17'W.). Several other inlets and coves along the SE coast of Isla de Pascua afford anchorage to small vessels and shelter from all but S winds, but the sea breaks heavily on this coast.

**Rada Vinapu** (Benepu) (27°10'S., 109°25'W.) is a cliff-ringed, open roadstead located about 3 miles NE of the island's SW extremity. Five small islets lie off the roadsteads SW entrance point.

**Anchorage.**—Anchorage, secure in N or W winds, but open to winds of other directions, is available in the E portion of the roadstead, clear of the tanker berth, but requires local knowledge. The holding ground is good, the bottom being sand.

**1.27 Vinapu Oil Terminal** (27°10'S., 109°25'W.) consists of an offshore oil berth situated at the seaward end of a buoyed submarine pipeline. The berth is able to accept vessels up to 150m in length, with a maximum draft of 8.5m.

Six silver-colored storage tanks stand at the terminal on the shore behind the berth and are prominent.

Pilotage is compulsory.

**Directions.**—Two range beacons, situated on a point about 0.7 mile NE of the oil tanks, mark the initial approach to the berth. The beacons consist of an orange pedestal, surmounted by a white daymark with a black triangle in its center, point down.

Vessels 120 to 150m in length approach on the alignment of the beacons mentioned above, in line bearing 018°; but vessels under 120m in length should steer for a prominent triangular patch of grass located about 137m NW of the front beacon on a bearing of 016°. Steer on either the beacons or the grass until a second set of beacons, identical to the pair mentioned above, situated about 137m S of the tanks, are in alignment bearing 284°. At this point, the starboard anchor should be let go. Veer about 5 to 6 shots of chain, turning the vessel to starboard. Let go the port anchor when, in large vessels, the ship's head is about 050°, or in smaller vessels when the rear range beacon S of the oil tanks bears 274°, and the front range beacon N of the tanks bears 020°.

With both anchors down, maneuver the vessel to pick up two wire stern lines suspended from a small white buoy; the mooring lines are laid out on the bottom from the shore and are suspended from the buoy by wire messengers. When secured, the vessel should be on a heading of 140°, with about 7 shots of chain out on each anchor, and its stern about 0.1 mile seaward of 10m depths. Smaller vessels should secure with the vessel's head between 127° and 137°. A boat is available to assist in picking up the stern lines and the cargo hose, that is rigged to the vessel's port side.

**Caution.**—It is normal to allow for a slight W set.