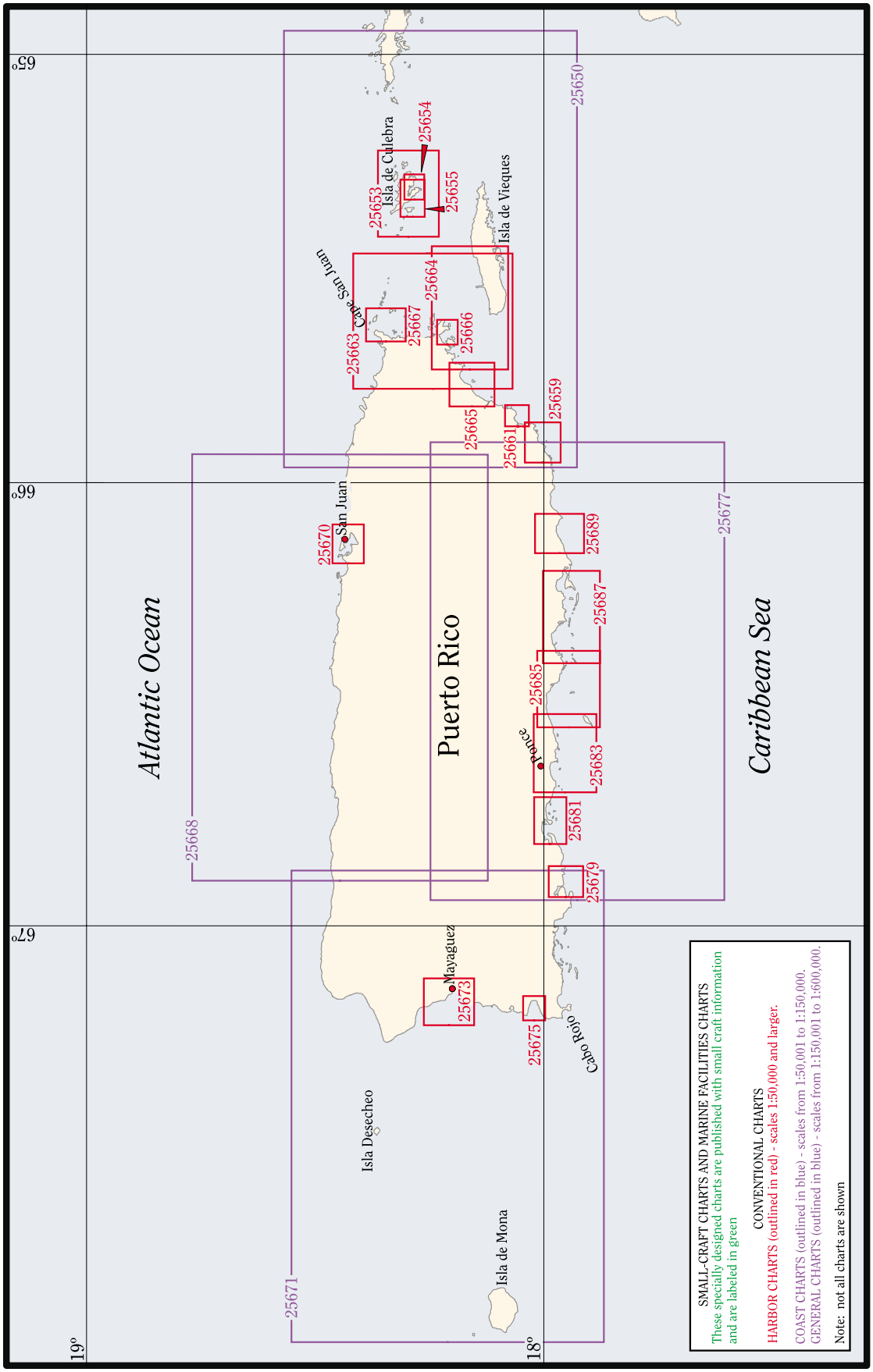
Atlantic Ocean
Puerto Rico
Caribbean Sea
San Juan
Ponce
Mayaguez
Cabo Rojo
Cape San Juan
Isla de Culebra
Isla de Vieques
Isla Desecheo
Isla de Mona
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65°
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19°
18°
SMALL-CRAFT CHARTS AND MARINE FACILITIES CHARTS
These specially designed charts are published with small craft information and are labeled in green
CONVENTIONAL CHARTS
HARBOR CHARTS (outlined in red) - scales 1:50,000 and larger.
COAST CHARTS (outlined in blue) - scales from 1:50,001 to 1:150,000.
GENERAL CHARTS (outlined in blue) - scales from 1:150,001 to 1:600,000.
Note: not all charts are shown

Puerto Rico

(1) This chapter describes the islands of the Commonwealth of Puerto Rico, which includes Puerto Rico, Mona, Vieques, Culebra, and a few smaller islands. Port information is provided for San Juan, Fajardo, Radas Roosevelt (Roosevelt Roads), Yabucoa, Laguna de Las Mareas, Bahia de Jobos, Ponce, Guayanilla, Guanica, Mayaguez, Arecibo, Isabel Segunda, Ensenada Honda, and other smaller ports.

(2) Nine hundred miles ESE of Key West, Fla., is the island of **Puerto Rico,** which was ceded to the United States in 1898. Puerto Rico is the smallest and easternmost of the **West Indies** group known as the **Greater Antilles;** the larger islands are Cuba, Jamaica, and Hispaniola. To the N of Puerto Rico is the Atlantic Ocean, and on the S is the **Caribbean Sea.**

(3) Puerto Rico formerly was administered under the Jones Act of March 2, 1917, which extended United States citizenship to all Puerto Ricans. On July 25, 1952, the island was formally proclaimed a Commonwealth, voluntarily associated with the United States. Puerto Rico is subject to the laws enacted by the Congress of the United States. Under the Constitution of Puerto Rico, the people of the Commonwealth elect a governor and a legislature for 4-year terms. The Legislature has an upper house, or senate, and a house of representatives. The people also elect a Resident Commissioner who speaks in the U.S. House of Representatives but does not vote.

(4) Puerto Rico, the big island, is about 96 miles long, W to E, and about 35 miles wide. The interior of Puerto Rico is mountainous and very rugged. The highest mountains are nearer the S and E coasts and have elevations up to 4,400 feet. There are many fertile valleys, and along the coasts are more or less narrow strips of lowland from which the higher land rises abruptly.

(5) The sea bottom is similar to the land. Close to the island are narrow banks from which the bottom pitches off rapidly to great depths. Under favorable conditions, the shoals frequently are marked by a difference in the color of the water.

Caution

(6) Mariners are advised that local fishermen commonly mark the position of their fish nets and fishtraps with plastic bleach bottles. Care should be taken to avoid destroying this fishing gear.

(7) Puerto Rico has several hundred streams, some of good size, but none are navigable for anything but small boats. The mouths of the streams generally are closed by bars except during short periods of heavy rainfall. From the location of the mountain divides, the streams on the S and E sides of the island are short and fall rapidly to the sea, whereas those on the N and W sides are longer and slope more gently.

COLREGS Demarcation Lines

(8) The lines established for Puerto Rico are described in **80.738**, chapter 2.

Vessel Traffic Management

(9) (See **Part 161, Subpart A**, chapter 2, for regulations requiring notifications of arrivals, departures, hazardous conditions, and certain dangerous cargoes to the Captain of the Port.)

Anchorages

(10) Under ordinary conditions, the first requirement for anchorage is shelter from the E trade winds. Anchorages are numerous except along the N coast. Strong N winds and heavy seas may occur from November to April. During the hurricane season gales may strike from any direction. The best hurricane harbors are Bahias San Juan, Guanica, Guayanilla, and Jobos, and Ensenada Honda (on Isla de Culebra).

Tides

(11) The periodic range of tide around Puerto Rico is only about 1 foot. The actual fluctuations in the water level consequently depend largely upon the winds and other meteorological conditions. The tide is chiefly semidiurnal along the N and W coasts of Puerto Rico, whereas it is more or less diurnal along the Caribbean coast.

Currents

(12) Along the Atlantic and Caribbean coasts of Puerto Rico, the currents are greatly influenced by the trade winds. In general, there is a W drift caused by prevailing E trade winds; the velocity averages about 0.2 knot and is said to be strongest near the island. A decided W set has been noted near the 100-fathom curve along the Caribbean coast from Isla Caja de Muertos to Cabo

Rojo. Offshore of Bahia de Tallaboa a current of 0.5 knot has been observed setting NE across and against the E wind. With variable winds or light trade winds it is probable that tidal currents are felt at times along the Atlantic and Caribbean coasts of Puerto Rico. Currents are weak in the passage N of Isla Caja de Muertos and Cayo Berberia.

(13) Predictions of the tidal current in Canal de Guanajibo and at three locations off the E coast of Puerto Rico may be obtained from the Tidal Current Tables. The times of slack water and of maximums of flood and ebb in the middle of Canal de la Mona are 2 to 3 hours later than in Canal de Guanajibo. The times of S and N currents in the passages E of Puerto Rico, as far as Isla Culebrita, are believed to be about the same as the times of W and E currents, respectively, in Pasaje de Vieques.

(14) In Canal de la Mona, on the NW end of the bank about 13 miles W of Punta Guanajibo, there is a current velocity of about 1 knot; slacks and strengths occur about 15 minutes later than in Canal de Guanajibo.

(15) In Sonda de Vieques, there are strong tidal currents over the shoals in the W part and around Isla Cabeza de Perro. In Pasaje de San Juan and Pasaje de Cucaracha, estimated velocities of about 2 knots have been reported. In the wider passages between Cayo Icacos and Cayo de Luis Pena, it is estimated that the current velocity is less than 1 knot. From Isla de Culebra the S current sets toward Punta Este, Isla de Vieques, around which tidal currents are strong.

(16) In Canal de Luis Pena, the SE current is deflected N of Bahia Tarja and thence sets toward the S end of Cayo de Luis Pena; the current is weak off the entrance to Bahia de Sardinas. The NW current sets directly through the channel. The current velocity is about 2 knots.

Weather

(17) Puerto Rico is a tropical, hilly island that lies directly in the path of the E trade winds. Bathed by waters whose temperatures seldom drop below 80°F, the coastal climate is mild year round, with a small daily and annual temperature range. The rugged topography does cause a wide variation over short distances in wind, temperature, and rainfall.

(18) The outstanding feature of the marine weather is the steadiness of the E trade winds. NE through SE winds blow about 80 percent of the time year round. Easterlies are particularly dominant in summer when the Bermuda High has shifted N. From November through April, northeasterlies are the secondary direction, but give way to southeasterlies in spring. The trade-wind regime is occasionally interrupted by cold fronts that have survived a journey from the United States and by easterly waves. As the cold front approaches, winds shift toward the S, and then as the front passes they gradually shift through the SW and NW quadrants back to the NE. The easterly wave passage is characterized by winds out of the ENE ahead of it, followed by an ESE wind.

(19) Gale-force winds are unlikely but can occur with a strong front, thunderstorm, or tropical cyclone. Summer gales usually blow from the E semicircle, while winter gales are more likely in the NE quadrant. Windspeeds of 17 to 33 knots blow about 30 percent of the time. In summer, the trades tend to strengthen during the day, and average windspeeds are highest during this season. Morning averages of 12 to 13 knots give way to 13- to 15-knot averages during the afternoon.

(20) Near the coast, a land-sea breeze effect helps exert a diurnal influence on the wind. If the pressure gradients are weak, a land breeze may develop during the night; northeasterly on the S coast and southeasterly on the N coast. The sea breeze develops during the morning hours and reinforces the trades on all but the W coast. Along the W coast, it opposes the trades and tends to weaken them.

(21) Seas in the area usually run less than 8 feet. Waters are roughest off the N and W coasts in winter and midsummer. For example, waves of 8 feet or more are encountered off these coasts 10 to 12 percent of the time in July. High seas are usually associated with strong winds out of the NE through SE blowing over a long fetch of water. Extreme wave heights are generated by hurricanes and can reach 40 feet or more in deep water.

(22) The tropical cyclone season extends from June through November. The most active period in this region is from August through the first half of October, although "off-season" storms occasionally brush the area. During the past 50 years, of the 25 tropical cyclones that have passed within 100 miles of Puerto Rico, 22 of them have occurred in August and September. Most tropical cyclones affecting this area develop E of the Lesser Antilles and move toward the W or NW. They usually pass N or S of the island; occasionally they pass directly over it as was the case of hurricane Georges in September 1998. In addition to strong winds and rough seas, these storms can bring torrential rains and flooding to the island. Georges raked the island from E to W causing at least $2 billion in damages, 12 deaths, destroyed at least 33,000 homes, and caused power and water loss to nearly 80% of the island.

(23) Another navigational weather hazard in these waters are thunderstorms. While they can occur in winter, they are most likely from May through November. At sea, they are encountered 2 to 7 percent of the time during this period, while shore stations report thunder

on an average of 5 to 15 days each month during the summer. In addition to strong gusty winds, heavy rains may briefly reduce visibilities to near zero. However, visibility problems are infrequent in these waters since fog is a rarity.

(24) (See page T-13 for **San Juan climatological table.**)

Routes

(25) Vessels bound from Straits of Florida (24°25'N., 83°00'W.) to San Juan can proceed by rhumb lines through the following positions:

(26) 23°34'N., 80°26'W.;

(27) 22°34'N., 78°00'W.;

(28) 22°07'N., 77°24'W.;

(29) 20°50'N., 73°43'W.;

(30) 19°45'N., 69°50'W.;

(31) 18°29'N., 66°08'W.

(32) From the E coast of the United States, the route to San Juan is direct by great circle.

(33) Distances from San Juan are 1,017 miles to Straits of Florida, 1,252 miles to Norfolk, 1,399 miles to New York, and 1,486 miles to Boston.

Pilotage, Puerto Rico

(34) Pilotage is compulsory for all foreign vessels and U.S. vessels under register when entering or leaving the harbors of Puerto Rico. Coastwise vessels having on board an officer licensed as a pilot for the waters of Puerto Rico and all pleasure yachts are exempt from pilotage unless a pilot is actually engaged. The pilot service at each port is under the supervision and direction of a Commonwealth Captain of the Port; ships' agents should notify his local office in advance so a pilot will be available at the expected time of arrival of a vessel. Pilots provide 24-hour service and board vessels from motorboats. Detailed information on pilotage procedures is given in the text for the ports concerned.

Towage

(35) Large tugs are available at San Juan, Puerto Yabucoa, and Bahia de Guayanilla; smaller tugs are available at some of the other ports. Arrangements for tugs should be made in advance by ships' agents. (See the text for the ports concerned as to the availability of tugs.)

(36) **Quarantine** is enforced in accordance with regulations of the U.S. Public Health Service. (See Public Health Service, chapter 1.)

Customs

(37) Puerto Rico collects no customs duties on merchandise entering the island from the continental United States or its dependencies. Merchandise entering from foreign countries is subject to the duties of the United States, which are collected at the ports of Puerto Rico by the U.S. Customs Service. Ports of entry are listed in the appendix. At least 24-hours' advance notice of arrival at a port should be given to the local customs officer.

(38) **Agricultural quarantine laws** are enforced by officials at Ramey Air Force Base, San Juan, Fajardo, Roosevelt Roads Naval Air Station, Ponce, and Mayaguez.

Immigration

(39) The United States immigration laws apply to Puerto Rico. Passports and visas are required.

Ports Authority

(40) The control of all the ports of Puerto Rico is vested in the Commonwealth Government whose authority is exercised through the Puerto Rico Ports Authority. Appointed Commonwealth Captains of the Port have administrative charge of the harbors; they collect the port fees and assign vessels to anchorage or to berths alongside wharves.

(41) At ports where commonwealth and federal officials are not stationed, inspectors usually come from the nearest represented port or from San Juan as required.

Wharves

(42) The ports of San Juan, Yabucoa, Laguna de Las Mareas, Ponce, Bahia de Tallaboa, Bahia de Guayanilla, Ensenada (Bahia de Guanica), Mayaguez, and Aguadilla all have wharves where large vessels can go alongside to load and unload cargo. At the other ports, the wharves are only used by small vessels.

Supplies

(43) All kinds of supplies are available at San Juan, Ponce, and Mayaguez. Gasoline, water, and marine supplies are available at most of the smaller ports. If necessary, supplies can be trucked from San Juan in a few hours.

Repairs

(44) San Juan is the only port where major repairs to large ocean-going vessels can be made. Available are a 691-foot graving dock and two marine railways for medium-sized vessels. Ordinary repairs to machinery can be made at Ponce and Mayaguez. Small vessels, motorboats, and yachts can be repaired at some of the marinas around the island.

Communications

(45) There are good highways to all the principal cities, and roads connect the smaller towns. Regular air service is maintained between San Juan, Ponce, and Mayaguez. Air service is also available from San Juan to

the Virgin Islands, the United States, and some foreign countries.

(46) Many steamship lines operate from San Juan, Ponce, and Mayaguez to the United States and foreign ports. Small inter-island vessels operate from most of the ports of Puerto Rico to the Virgin Islands and other West Indies ports.

(47) Telephone and telegraph communications are available through all the ports of Puerto Rico. Radio communication to all points, including ships at sea, is available through commercial systems. The Commonwealth Government maintains radio telegraphic service between San Juan and the islands of Culebra and Vieques.

Currency

(48) The monetary unit is the United States dollar.

Standard time

(49) Puerto Rico uses Atlantic standard time, which is 4 hours slow of Greenwich mean time. Puerto Rico does not observe daylight saving time.

Language

(50) Spanish is the official language of Puerto Rico, although many of the native people are bilingual; most of the island's geographic features have Spanish names. English is a required subject in the schools and is preferred for business purposes by a large part of the commercial community.

(51) **Spanish-English Geographic Glossary:**

(52) Agua-water
(53) Amarillo-yellow
(54) Anclaje, Ancladero-anchorage
(55) Arena-sand
(56) Arrecife-reef
(57) Arroyo-small stream
(58) Bahia-bay
(59) Bajo-shoal
(60) Banco-bank
(61) Barra-bar
(62) Blanco-white
(63) Boca-mouth, entrance
(64) Boqueron-wide mouth
(65) Cabeza-shoal head
(66) Cabezo-summit of hill
(67) Cabo-cape
(68) Caleta-cove
(69) Canal-channel
(70) Cano-creek, channel
(71) Castillo-castle
(72) Cayo-key
(73) Cerro-hill
(74) Cienaga-marsh
(75) Cordillera-mountain chain
(76) Costa-coast
(77) Desembarcadero-landing
(78) Embarcadero-wharf, quay
(79) Ensenada-bay, cove
(80) Escollo-shelf, reef
(81) Este-east
(82) Estero-creek, inlet
(83) Estrecho-strait
(84) Exterior-exterior
(85) Farallon-rocky islet
(86) Golfo-gulf
(87) Gran, Grande-great
(88) Interior-interior
(89) Isla-island
(90) Isleta-islet
(91) Istmo-isthmus
(92) Lago-Lake
(93) Laguna-Lagoon
(94) Laja-flat rock
(95) Largo-long
(96) Mar-sea
(97) Medio-middle
(98) Meridional-southern
(99) Monte, Montana-mountain
(100) Morro-headland, bluff
(101) Negro-black
(102) Norte-north
(103) Nuevo-new
(104) Occidental-western
(105) Oeste-west
(106) Oriental-eastern
(107) Pantano-marsh
(108) Pasaje-passage
(109) Peninsula-peninsula
(110) Pico-peak
(111) Piedra-stone, rock
(112) Playa-beach
(113) Pueblo-town
(114) Puerto-port, harbor
(115) Punta-point
(116) Rada-roadstead
(117) Rincon-inside corner
(118) Rio-river
(119) Roca-rock
(120) Rojo-red
(121) Septentrional-northern
(122) Sierra-mountain range
(123) Sonda-sound
(124) Sud-south
(125) Tierra-land
(126) Verde-green
(127) Viejo-old

Chart 25640

(128) **Canal de la Mona (Mona Passage)**, 61 miles wide between the W end of Puerto Rico and the E end of Hispaniola, is one of the principal entrances to the Caribbean Sea. Three small islands are located in the passage: Isla de Mona and Isla Monito about midway in the S part, and Isla Desecheo about 12 miles W of the extremity of Puerto Rico in the N part.

(129) On the W side of Canal de la Mona, a bank extends from Cabo Engano, the E extremity of Hispaniola, for 23 miles, with a least depth of 26 fathoms. Depths of 5 to 20 fathoms have been reported on the bank about 7 miles SSE of Cabo Engano (chart *25008). Strong tide rips and heavy swells, caused by the meeting of contrary currents, are visible for many miles and mark the position of this bank. On the E side of the passage, an extensive bank makes off from the W coast of Puerto Rico extending up to 15 miles offshore. The W coast of Puerto Rico is described later in this chapter.

(130) Tidal currents set generally S and N through Canal de la Mona. Varying nontidal flows, depending to a great extent upon the velocity and direction of the wind, combine with the tidal current. An average nontidal current of about 0.2 knot setting approximately NNW is generally experienced during all seasons. In summer, when the trade wind has slackened and blows more from the E and ESE, a strong countercurrent sets E off the S coast of Hispaniola. This countercurrent occasionally induces a N set in the passage.

(131) A 3.5-knot current, setting approximately WSW, has been reported in the passage N of Isla de Mona. Observations made on the NW edge of the bank about 13 miles W of Punta Guanajibo, Puerto Rico, gave a velocity of about 1 knot for both S and N strengths.

(132) The tidal currents also set with considerable velocity, especially near the shore S of Cabo Engano, where they have been reported to set with a velocity of 3.5 knots during the month of May, with ebb currents setting NE for 3 hours and flood currents setting SW for 9 hours. The duration of these currents has also been reported to be the reverse, and at other times to be of the usual duration of 6 hours.

(133) The passage presents little difficulty in navigation, except that caution must be used in the vicinity of Isla Saona off the SE coast of Hispaniola, which is low and foul. This island should be given a berth of at least 6 miles. Heavy squalls may be expected in the passage, particularly in the summertime.

Chart 25671

(134) **Isla de Mona** (18°05'N., 67°54'W.), 6 miles long E and W and 4 miles wide, lies in the middle of the S part of Canal de la Mona. Temporary anchorage and landing can be made in places on the S and W sides of the island during good weather, but on many days anchorage and landings are impracticable. The attendants for the Puerto Rico Department of Natural Resources and a State police detachment are the only inhabitants of the island.

(135) The island is composed of limestone and from E appears perfectly flat on top, breaking off abruptly at the water in a vertical whitish cliff about 175 feet high. On the NW and NE coasts are extensive caves that run in every direction but are so obstructed by stalactites and stalagmites in places that it is almost impossible to pass. They were used as hideouts by pirates for nearly three centuries. The W, S, and SE sides of the island are fringed with detached coral reefs through which boat passages lead.

(136) The 100-fathom curve lies about 1 mile offshore, except on the SE side, where it is about 1.7 miles off, and on the SW side, where it is only about 0.3 mile off. With a strong wind from any direction, the sea draws around the island and generally into all the anchorages. **Anclaje Sardinera,** on the W coast, is the best anchorage during SE winds, and **Anclaje Isabela,** just S of Punta Arenas, is good during NE winds. Boat landings can be made at Anclaje Sardinera and Playa de Pajaros.

(137) Isla de Mona and Isla Monito are within a **Designated Critical Habitat** for the Hawksbill Sea Turtle. (See **50 CFR 226.101 and 226.209**, chapter 2, for regulations and limits.)

Currents

(138) In Anclaje Sardinera the tidal currents set N and S with a velocity of about 0.5 knot. A northerly current with a velocity of 0.5 knot has been experienced off Playa de Pajaros.

(139) **Isla de Mona Light** (18°06'36"N., 67°54'30"W.), 323 feet above the water, is shown from a tower near **Cabo Noroeste** on the N side of the island. The structure of the former Isla de Mona Light on **Punta Este,** the E extremity of the island, remains.

(140) Vertical cliffs with deep water close to shore extend from Punta Este N and W to **Cabo Barrionuevo,** the NW cape of the island. Here a mass of rock, shaped like two saw teeth on top, projects from the base of the cliff. This feature can be observed from N and SW.

(141) **Playa de Pajaros,** about 1.5 miles SW of Punta Este, has a boat harbor with 3 to 8 feet of water inside the reefs. The S and main entrance has reported depths of 7 to 12 feet. The landing place, formerly used by Coast

Guard vessels, has 7 to 8 feet alongside, but with S winds a swell sets into the landing.

(142) The southernmost point of the island is surmounted by a large balanced rock. **Punta Arenas (Oeste),** the westernmost point, is a low, narrow ridge, covered with brush, which projects nearly a mile W of the cliffs; a reef extends 0.3 mile W of the point.

(143) **Isla Monito,** 3 miles NW of Isla de Mona, is a 213-foot high bare rock 0.2 mile in diameter. The passage between the two islands is deep and clear.

(144) **Isla Desecheo,** 27 miles NE of Isla de Mona and 12 miles W of Punta Higuero, is a 715-foot high wooded island a mile in diameter. The island is visible for more than 30 miles in clear weather and is one of the best landmarks for Canal de la Mona and the W coast of Puerto Rico. Isla Desecheo is a forest reserve and a native-bird reserve; it is uninhabited and has no anchorages along its shores.

(145) The U.S. Navy has advised that a survey (1974) of Isla Desecheo and adjacent waters revealed the presence of unexploded ordnance resulting from past usage as a target area. Mariners are urged to use extreme caution when in this area.

(146) **Punta Higuero,** the most W point of the mainland of Puerto Rico, is projecting and prominent with the land back of it rising abruptly to rolling hills which ascend gradually to **Pico Atalaya,** 6 miles inland to the SE. A light is shown from a 69-foot gray cylindrical tower at the end of the point.

(147) Steep-to reefs with less than 12 feet of water over them extend up to 0.4 mile offshore from Punta Higuero to beyond Punta Borinquen to the NE.

(148) **Bahia de Aguadilla,** 7 miles NE of Punta Higuero, is exposed N and W, but with ordinary E trade winds anchorage is smooth. There are frequent rough spells during the winter when the wind is from N.

(149) **Aguadilla** is on the E shore of the bay. Radio towers S of the town are prominent. The 1,208-foot-high naval communication tower (18°24.0'N., 67°10.6'W.) is the most prominent feature from offshore. The small white shaft of the Columbus Monument is about 1 mile S of city hall, but is completely obscured by palm trees.

(150) Large vessels load raw sugar and molasses at the conveyor pier with mooring buoys and dolphins 1.1 miles N of Aguadilla; depths of 40 feet or more are at the outer end of the pier.

(151) A U.S. Air Force fuel pier, with pipelines for handling aviation fuels, is 1.8 miles N of Aguadilla. In 1972, depths of 30 feet were reported alongside the platforms at the outer end of the pier. Depths of 6 feet and less were reported alongside the emergency crash boat basin finger piers that extend off the SE end of the fuel pier.

Pilotage, Bahia de Aguadilla

(152) Pilots for Bahia de Aguadilla are available at Mayaguez. See Pilotage, Puerto Rico (indexed as such) early this chapter.

Quarantine, customs, immigration, and agricultural quarantine

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

(154) **Quarantine** is enforced in accordance with regulations of the U.S. Public Health Service. (See Public Health Service, chapter 1.)

(155) Aguadilla is a **customs port of entry.**

(156) A U.S. Coast Guard air station is at Borinquen Airport, N of Aguadilla.

(157) A fish haven with an authorized minimum depth of 11 fathoms is about 1.8 miles NW of Aguadilla in 18°27'30"N., 67°10'06"W.

Charts 25671

(158) The **N coast** of Puerto Rico from Canal de la Mona to San Juan extends in an almost E direction for 60 miles. From Punta Borinquen for 27 miles to Arecibo, there are numerous rocky cliffs with sand beaches and dunes between them. The prominent features are the high hills in the interior and high cliffs along the coast. The hills that terminate a mile W of Arecibo are mostly smooth grassy slopes backed by conical wooded hills up to 800 feet high.

(159) Between Arecibo and San Juan, the coast is indented by several coves and bights, although none of them afford sheltered anchorage. The first 17 miles to nearly Punta Puerto Nuevo consists of sandy beaches and dunes with occasional rocky bluffs, then there are numerous hummocks and rocky bluffs with short beaches between them in the 16-mile stretch to San Juan. A line of breakers enclosing numerous rocks lies as close as 0.5 mile offshore. A range of conical hills is W of San Juan.

(160) In addition to the marine and aerolights near Punta Borinquen, the marine lights at Arecibo and San Juan, several stacks, radio towers, and towns are prominent from offshore along the N coast. All dangers will be avoided by staying a mile or more offshore.

Chart 25671

(161) **Punta Borinquen**, at the NW end of Puerto Rico, is steep-to with deep water within 0.5 mile of shore, but vessels should stay several miles offshore because of a small arms firing area in the vicinity of the light. The

extreme W part of the point is low, but it is backed by steep wooded slopes 0.5 mile inland.

(162) **Punta Borinquen Light** (18°29'48"N., 67°08'54"W.), 292 feet above the water, is shown from a 60-foot gray cylindrical tower. A 200-foot rock bluff begins 0.8 mile SW of the light and extends NE and E along the N coast of Puerto Rico.

(163) A boat landing may be made in calm weather in the sandy cove on the W side of **Punta Sardina,** 7.3 miles E of Punta Borinquen Light.

Chart 25668

(164) **Punta Penon**, 16 miles E of Punta Borinquen Light, is a slight projection with lower land between it and the foothills. A rocky islet lies W of the point and a chain of bare rocks and a small islet extend 0.8 mile E of it.

(165) **Puerto Arecibo,** 26 miles E of Punta Borinquen Light and 33 miles W of San Juan, is an open bight somewhat protected by the headland of **Punta Morrillos** on the E side with a 1,200-foot breakwater extending from it to **Roca Cocinera.** Only fishing vessels, pleasure craft, and a chemical supply barge use the port. **Arecibo** is along the SW shore of the bight.

(166) **Arecibo Light** (18°29'00"N., 66°41'54"W.), 120 feet above the water, is shown from a 46-foot white hexagonal tower attached to a dwelling on the hill close to the shore near the W end of Punta Morrillos. Radio towers and stacks are prominent around Arecibo.

(167) A dredged channel, marked by buoys, leads from the Atlantic Ocean to a bulkhead wharf on the S side of the breakwater of Puerto Arecibo. In May 2003, depths of 22.5 feet were available in the entrance channel and 9.2 to 14.0 feet in the basin off the wharf.

(168) The 600-foot bulkhead wharf had depths of about 22 feet alongside in January 1998, and much lesser depths at the upper or inner end.

(169) A pipeline on the wharf is used by barges to supply liquid chemicals to storage tanks of a chemical company. Gasoline can be obtained at the wharf in an emergency. Fishing vessels and small craft anchor S of the wharf.

(170) **Danger zones** for artillery and small-arms ranges extend up to 10 miles offshore in the vicinity of **Punta Puerto Nuevo,** 42 miles E of Punta Borinquen Light. (See **334.1450**, chapter 2, for limits and regulations.)

(171) A boat landing can be made in calm weather inside the rock islets that extend a mile W of Punta Puerto Nuevo. An aero radiobeacon (18°28.2'N., 66°24.8'W.), marked by a flashing red light, is prominent SW of Punta Puerto Nuevo.

(172) Several large dome-shaped structures are prominent on **Punta Salinas,** a narrow projecting point 3 miles W of San Juan. A large blue water tank, 1.9 miles inshore of the point, shows up well from offshore.

Chart 25670

(173) **Bahia de San Juan**, the most important commercial harbor in Puerto Rico, is about 60 miles E of Punta Borinquen and 30 miles W of Cabo San Juan. It is the only harbor on the N coast which affords protection in all weather. It is protected on the N by the relatively high land of Isla San Juan, and on the S, E, and W by the adjacent low mangrove swamps of the Puerto Rico mainland.

(174) The bay is about 3 miles long in a SE direction and varies in width from 0.6 to 1.6 miles, but the entire SW side is shoal. The SW shore is divided into two large bights by **Punta Catano,** the point which extends about 0.6 mile NE into the harbor.

(175) Metropolitan **San Juan,** the capital and principal port of Puerto Rico, includes Isla San Juan on the N side of Bahia de San Juan and the communities surrounding the bay. The principal commercial facilities are on the S side of Isla San Juan (Old San Juan). Container cargo terminals are on the N side of **Isla Grande** and at **Puerto Nuevo** in the SE part of the bay.

(176) The principal imports into the harbor include foodstuffs, textiles, building materials, machinery, fertilizers, and petroleum products. Exports include sugar, molasses, fruit, tobacco, coffee, petrochemicals, pharmaceuticals, and alcoholic products. Over half the commerce of Puerto Rico passes through San Juan. Most commercial and government activities are located here.

Prominent features

(177) **Isla de Cabras**, on the W side of the entrance to Bahia de San Juan, is low with cliffs 32 to 36 feet high at its N end and is marked by a light on its NW end. **Las Cabritas** are three small islands and rocks 0.1 mile NE of the island. The island is connected to the mainland by a causeway at **Punta Palo Seco.** A small stone structure of **El Canuelo** is on the S extremity of Isla de Cabras.

(178) **Isla San Juan,** on the E side of the entrance to the harbor, is generally bold and rocky, with a ridge 100 feet high extending along its N side. At each end of the island are large stone forts connected by a continuous high wall. **Fort San Cristobal** is on the summit of the ridge in the E part, and **Castillo del Morro** is on the extreme W point of the island at the entrance to the harbor and is protected by a breakwater. The city wall

extends from the castle along the channel side of the island to the Governor's Palace.

(179) **Puerto San Juan Light** (18°28'24"N., 66°07'24"W.), 181 feet above the water, is shown from a 51-foot buff tower on the summit of Castillo del Morro.

(180) The white marble dome of the capitol building, 1 mile E of the light, and a white church 0.4 mile farther E are prominent landmarks.

(181) Several tanks and towers are prominent on Isla Grande; an aerolight is shown from a small air traffic control tower about 750 yards SE of its NW end. Many radio towers, stacks, and tanks surround Bahia de San Juan.

COLREGS Demarcation Lines

(182) The lines established for San Juan are described in **80.738**, chapter 2.

Channels

(183) Bar Channel, the entrance channel to Bahia de San Juan, leads to the deep-draft anchorage SW of Isla Grande, via Anegado Channel; Federal project depths in Bar and Anegado Channels, and the deep-draft anchorage are 40 and 38 feet, respectively. San Antonio Channel, project depth 30 feet, leads from Anegado Channel between Isla San Juan and Isla Grande, to the commercial piers and the Navy berthing facilities on the S side of Isla San Juan, and to the Isla Grande marginal wharf and the Seatrain Lines container terminal on the N side of Isla Grande. The Army Terminal Channel leads S from Anegado Channel to the Army Terminal and turning basin, Puerto Nuevo Terminal bulkhead wharves, and to the oil piers at the S end of the harbor; project depths in the Army Terminal Channel and turning basin are 40 feet. Graving Dock Channel and turning basin, S of Isla Grande, leads from Anegado Channel; project depths in Graving Dock Channel and turning basin are 36 feet. Puerto Nuevo Channel, project depth 39 feet, in the SE part of the harbor, connects Army Terminal Channel with Graving Dock Channel. (See Notice to Mariners and latest editions of charts for controlling depths.)

(184) The entrance channel and the channels inside the harbor are marked by lighted ranges, lights, and lighted and unlighted buoys.

Caution

(185) When approaching the entrance channel (Bar Channel), with quartering and following seas which are especially predominant in winter, speeds of not less than 10 knots are recommended. This requirement for speed permits sufficient time to commence turning into Anegado Channel while maintaining ship control. An additional cause of confusion and groundings is that the N side Anegado Channel markers are not visible, virtually, until the turn into it should already have been commenced. Positive identification of channel marks is imperative.

(186) Vessels should proceed with caution when dredging is in progress in the channels. (See **162.260**, chapter 2, for regulations.)

(187) An unmarked channel leads to a landing pier at the NE end of the causeway between Isla de Cabras and Punta Palo Seco; depths of about 4 feet can be carried. The channel and pier are used by craft handling dangerous or explosive cargoes.

(188) **Cano de Martin Pena,** at the SE end of Bahia de San Juan, is a narrow slough that connects with lakes and lagoons which extend E for 7 miles. A channel with a reported depth of 3 feet extends 1.5 miles above the entrance. A fixed bridge at the entrance to the slough has a clearance of 21 feet. Two overhead cables about 0.5 mile above the entrance have a least clearance of 31 feet. Two fixed highway bridges 0.75 mile above the entrance have a least clearance of 22 feet. The bridges 1.5 miles above the entrance, the head of navigation, have a least width of 44 feet and a clearance of 7 feet.

Anchorages

(189) General and special anchorages are in Bahia de San Juan. (See **110.1, 110.74c, and 110.240**, chapter 2 for limits and regulations.) In 1965, a controlling depth of 26 feet was in Anchorage F, on the SW side of Anegado Channel with shoaling to 24 feet in the S 100 yards of the anchorage. A line of mooring dolphins, marked by lights, extends from Isla Grande to just outside the E end of Anchorage E.

Dangers

(190) **Bajo Colnas**, on the W side of the entrance to Bahia de San Juan, has depths of 18 feet and less extending 700 yards from Isla de Cabras. The shoal area is usually defined by breakers.

(191) **Bajo Santa Elena,** on the E side of the entrance, has depths of 7 to 18 feet extending 200 yards from shore.

(192) Inside the harbor, the areas outside the channel limits marked by buoys are shallow with depths varying from 4 to 18 feet with many shoals having less than 1 foot over them.

Tides

(193) The mean range of tide is 1.1 feet; the wind causes considerable variations in the depth. Daily predictions for Bahia de San Juan are given in the Tide Tables.

Currents

(194) The currents along the N shore of Puerto Rico are greatly influenced by the direction and strength of the winds. The prevailing E trade winds generally cause a W drift. In Bahia de San Juan a slight W flow prevails. When N seas set into the harbor entrance, an undertow and surge may be felt as far as San Antonio Channel.

Weather

(195) San Juan is located on the NE coast of the island of Puerto Rico in 18°28'N., 66°07'W. It is surrounded by the waters of the Atlantic Ocean and Bahia de San Juan. Santurce, directly to the E of Bahia de San Juan, is the urbanized section of San Juan. The surrounding terrain is level with a gradual upslope inland. Mountain ranges, with peak elevations of 4,000 feet, extend E and W through the central portion of Puerto Rico, and are located 15 to 20 miles E and S of the capital city. This mountain range has a decided influence on the rainfall in the San Juan area, especially summertime thunderstorms.

(196) The climate is tropical marine, slightly modified by insular influences when land breezes blow. Radiational cooling frequently causes land winds at night, consequently, somewhat lower nightime temperatures occur than would normally be experienced with sea breezes. This air drainage from the higher altitudes in the interior of the island to the coastal areas gives delightfully invigorating night temperatures, especially during December to March, inclusive. Minimum temperatures during this period are frequently 2° to 3° higher within the city than at Isla Verde Airport, which is located 6.5 miles E and slightly inland. By the same token, maximum temperatures are 1° to 2° lower in the city.

(197) San Juan has a small annual temperature range, which is a characteristic of all tropical marine climates. The difference between the average temperatures of the warmest and coolest months is about 5.8ºF in San Juan, and is representative of most of the coastal localities in the island. The average temperature at San Juan is 80.4ºF with an average maximum of 86.4ºF and an average minimum of 73.8ºF. The small seasonal variation in temperature is also true concerning the absolute range of temperature. For the San Juan-Isla Verde Airport area, the highest temperature of record is 98ºF recorded in October 1981 and lowest, 60ºF recorded in March 1959.

(198) San Juan's average annual rainfall is 53 inches, with fairly even distribution throughout the year. May is the wettest month averaging 5.97 inches and February is the driest averaging 2.26 inches. At Isla Verde Airport, about 12 miles W of this mountain range, the annual rainfall is about 64 inches. The heavier monthly amounts normally occur during the period from May to December, inclusive. Rainfall is generally of the showery type except for the continuous rains which occur in connection with the passage of tropical storms, or when the trailing edge of a cold front which has swept across the continental United States penetrates far enough S to have a definite effect upon Puerto Rico rainfall. This infrequently occurs from November to April. Sunshine is plentiful, with only an average of 5 days a year entirely without sunshine, although there is an average of 255 days a year with measurable precipitation. The average duration of the showers is not more than 10 to 15 minutes, although on many occasions, especially in the summer a series of intermittent showers will extend over a period of an hour or two. Being marine, the climate is naturally humid. Relative humidity averages about 85 percent in the nighttime and 65 percent near midday. Dense fogs never occur in the San Juan area.

(199) The E trade winds, aided by the daily recurrence of the land and sea breezes constitute the most characteristic feature of the climate for San Juan throughout the year. The wind is almost constantly from the ocean during daylight. Usually, after sunset the wind shifts to the S or SE, off the land. This daily variation in the circulation pattern of surface winds is a contributing factor to the delightful climate of the island. The seawater temperature about San Juan ranges from a minimum of 78°F in March to a maximum of about 83°F in September.

(200) Heavy N winds pile up heavy seas and breakers in the harbor entrance.

(201) Puerto Rico is in the tropical hurricane region of the E Caribbean where the season for these storms begins June 1 and ends November 30. Several hurricanes affect this area every season, usually passing the area to the N. In 1928, the National Weather Service's anemometer blew away after recording an extreme wind speed of 139 knots, the highest value in Puerto Rico to date. A hurricane caused considerable loss of life and great property damage in San Juan on September 26, 1932 and on August 12, 1956, Hurricane Betsy passed over Puerto Rico. Hurricane winds were felt at San Juan, but there was no loss of life reported, and property damage was not great. Hurricane Marilyn passed about 75 km E of the city in September 1995. While causing much damage in the nearby U.S. Virgin Islands, Marilyn provided wind gusts of 100 knots for the San Juan region. Hurricane Hugo passed very close to the city in September 1989 with 110-knot wind gusts. Since 1950, 11 tropical systems have come within 50 miles of San Juan. In most recent memory, hurricane Georges caused major damage as it crossed Puerto Rico from E to W in September 1998. Georges was discussed earlier in the chapter.

(202) Mild temperatures, refreshing sea breezes in the daytime, plenty of sunshine, and adequate rainfall make the climate of San Juan enjoyable and exceptionally favorable for tourists and visitors.

(203) The National Weather Service maintains an office at Isla Verde International Airport; **barometers** may be compared there.

(204) (See page T–13 for **San Juan climatological table**.)

Routes

(205) Owing to the swells and currents on the coast of Puerto Rico, especially during the winter northerlies, inbound vessels should steer for a point about 4 miles N of **Punta del Morro,** the NW point of Isla San Juan, before lining up on the entrance to Bahia de San Juan. This precaution permits early adjustments to course and speed while still having sea room to do so. A **187°45'** lighted range and lighted buoys mark the entrance channel into the harbor.

(206) From W, Punta Salinas (chart 25668) will appear as an island when first sighted and must not be mistaken for Isla de Cabras.

(207) The harbor is easy of access in ordinary weather, but it should not be entered at night without local knowledge. During winter northers, dangerous conditions may prevent entering the harbor. The bend inside the entrance can be difficult when the NE trades are blowing strongly, as they may force a vessel almost broadside to swells. Vessels outbound should avoid getting too close to Bajo Colnas; this is particularly so with long vessels in a strong N breeze.

Signal Station

(208) It is advised by the Puerto Rico Ports Authority that the signalling station at Fort San Cristobal (18°28.2'N., 66°06.7'W.) is manned around the clock. All vessels equipped with radiotelephone approaching to enter Bahia de San Juan shall, at a safe distance not less than 3 miles N of the sea buoy, use the call and reply VHF-FM channel 16 and the working channel 14 to call the signal station and obtain clearance to proceed inside the harbor.

(209) Vessels about ready to leave their berths and proceed out to sea shall, prior to departure, call the signal station on the regular call and reply channel, then switch over to the working channel to obtain clearance to depart.

(210) All vessels, particularly tugs with a tow, are cautioned to closely follow the procedure herein above indicated to avoid close quarters and risk of collision situations in the Bar and Anegado Channels.

(211) The Commonwealth Captain of the Port also maintains a visual signal station at Fort San Cristobal; communication is by International Code signals.

Traffic signals

(212) The alphabet flag **N,** when displayed from either yardarm of the signal mast at Fort San Cristobal, will govern entry and departure of vessels at Bahia de San Juan:

(213) (a) When flag N is displayed from the NW yardarm, all incoming vessels must remain a safe distance outside the entrance.

(214) (b) When flag N is displayed from the SE yardarm, all outgoing vessels must remain at a safe distance inside the harbor entrance or at the anchorages or berths.

Pilotage, Bahia de San Juan

(215) See Pilotage, Puerto Rico (indexed as such) early this chapter. Pilot services are generally arranged for at least 24 hours in advance through the ships' agents. If advance arrangements have not been made a minimum of 2 hours' notice is required.

(216) Pilots board vessels 3 miles off the harbor entrance from motorboats which are painted black with white tops and have the word PILOT or the letter "P" in white on both sides of the bow; 24-hour service is available.

(217) Vessels requiring pilot services are advised to navigate with caution and maintain a safe distance, never closer than 3 miles in a generally N direction from the harbor entrance, and hold that distance until boarded by the pilot. When small-craft warning signals are displayed, with heavy seas breaking outside, the harbor is difficult and dangerous to negotiate and the arrival of the pilot on board may be considerably delayed. Pilot boats communicate over the same frequencies as the signal station at Fort San Cristobal via individual walkie-talkie sets; i.e., call and reply frequency VHF-FM channel 16 and working frequency VHF-FM channel 14. When there are no English speaking people on board the pilot boat, messages may be relayed through the signal station at Fort San Cristobal.

Towage

(218) Tugs up to 6,000 hp are available for docking, undocking, and up to 9,000 hp for long-distance towing and salvage. Use of tugs is compulsory for docking and undocking vessels of 8,000 tons displacement and over unless equipped with bow or side thrusters.

Quarantine, customs, immigration, and agricultural quarantine

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

(220) **Quarantine** is enforced in accordance with the regulations of the U.S. Public Health Service. (See Public Health Service, chapter 1.) San Juan has several hospitals.

(221) San Juan is a **customs port of entry**.

Coast Guard

(222) A **marine safety office** is in San Juan. (See appendix for address.)

Harbor regulations

(223) The Commonwealth Captain of the Port enforces the local rules and regulations for Bahia de San Juan. His office is located on Isla Grande.

Wharves

(224) The port of San Juan has numerous wharves and piers of all types, most of which are owned by the Puerto Rico Ports Authority. Only the major deepwater facilities are described, and these are located on the S side of Isla San Juan, the N and S sides of Isla Grande, along the S side of Puerto Nuevo Channel, and alongside the Army Terminal Turning Basin at the S end of the harbor. The port has over 700,000 square feet of transit sheds, 1 million square feet of open storage, and 73 acres of marshaling yards. All the piers have freshwater connections, access to highways, and most have electrical shore power connections. Cargo is generally handled by ships' tackle; special cargo handling equipment, if available, is mentioned in the description of the particular facility. The alongside depths given for each facility described are reported; for information on the latest depths, contact the operator.

(225) **S side of Isla San Juan:**

(226) Pier 1 (26°27'50"N., 66°06'50"W.): 770 feet of berthing space E and W sides; 27 feet alongside; berthing for cruise ships; operated by Puerto Rico Ports Authority.

(227) Pier 3: 200 yards E of Pier 1; 905 feet long; 25 feet alongside W side, 37 feet alongside E side; berthing for cruise ships; operated by Puerto Rico Ports Authority.

(228) Wharf 5: immediately E of Pier 3; marginal wharf, 695 feet long; 30 feet alongside; general and bulk cargoes from interisland vessels; operated by Puerto Rico Ports Authority.

(229) Wharf 6: 300 yards E of Pier 3; marginal wharf, 955 feet long; 30 feet alongside; 43,600 square feet of covered storage; general and bulk cargoes; operated by Puerto Rico Ports Authority.

(230) Pier 7: N of Wharf 6; 472 feet long; 18 feet alongside; 15,000 square feet of covered storage; general cargo; operated by San Juan Dock Corp.

(231) Pier 8: 100 yards E of Pier 7; 400-foot face, E and W sides 590 feet long; 22 feet alongside face and E and W sides; 175,000 square feet of covered storage, 40,000 square feet of open storage; conveyors; general and bulk cargoes, containers; operated by Puerto Rico Ports Authority.

(232) Pier 9: 100 yards E of Pier 8; face 350 feet, E and W sides 600 feet long; 23 feet alongside W side, 22 feet alongside face, and 27 feet alongside E side; 133,000 square feet covered storage, 40,000 square feet open storage; general cargo and containers; operated by Puerto Rico Ports Authority.

(233) Pier 10: 50 yards E of Pier 9; W side 480 feet long; 27 feet alongside; bulk cargo, molasses pipeline; operated by Porto Rico Lighterage Co.

(234) Wharf 11: 150 yards E of Pier 10; marginal wharf, 580 feet long; 27 feet alongside; 100,000 square feet covered storage; general and bulk cargoes, containers; operated by Gulf-Puerto Rico Steamship Co.

(235) Wharf 12: joining Wharf 11 to the E; marginal wharf, 550 feet long; 29 feet alongside; 15,000 square feet covered storage, 37,000 square feet open storage; general cargo; operated by Puerto Rico Ports Authority.

(236) Wharf 13: joining Wharf 12 to the E; marginal wharf, 500 feet long; 27 feet alongside; 28,000 square feet covered storage, 55,000 square feet open storage; general cargo; operated by Puerto Rico Ports Authority.

(237) Wharf 14: joining Wharf 13 to the E; marginal wharf, 446 feet long; 26 feet alongside; 40,000 square feet covered storage; general cargo; operated by Puerto Rico Ports Authority.

(238) Frontier Base Pier: 300 yards E of Wharf 14; marginal wharf, 888 feet long; 27 feet alongside; cruise vessels and general cargo; owned by the U.S. Navy and operated by the Puerto Rico Ports Authority.

(239) **N side of Isla Grande:**

(240) Navieras de Puerto Rico Terminal (18°27'41"N., 66°06'12"W.): 1,320-foot marginal wharf; 25 feet alongside; trailer marshaling yard; two 45-ton cranes; container and trailer cargo; operated by Puerto Rico Ports Authority.

(241) Isla Grande Terminal Berths E, D, and C (Pan American Docks): immediately E of Navieras de Puerto Rico Terminal; 1,500-foot marginal wharf; 18 feet alongside; 32,000 square feet covered storage, 240,000 square feet open storage; general, bulk, and container cargo; operated by Puerto Rico Ports Authority.

(242) **S side of Isla Grande:**

(243) U.S. Navy Tender Pier (18°26'58"N., 66°05'28"W.): E side 950 feet long, 26 to 30 feet alongside; W side 450 feet long, 17 to 22 feet alongside; owned and operated by U.S. Navy.

(244) Pier 15: 150 yards E of Navy Tender Pier; 1,000 feet long; 30 feet alongside; 25-ton floating crane, four 45-ton mobile cranes; floating drydock, graving dock, machine and electrical shops, foundry; ship repair facility; U.S. Navy installation under lease to Puerto Rico Drydock and Marine Terminals, Inc.

(245) Pier 16 (18°27'01"N., 66°05'15"W.): marginal wharf, 600 feet long; 28 feet alongside; open and

covered storage; general and bulk cargoes, containers; operated by Gulf-Puerto Rico Steamship Co.

(246) **S side of Puerto Nuevo Channel:**

(247) Puerto Nuevo Docks and Trailership Terminal:

(248) Berths A and B (18°25'50"N., 66°06'22"W.): 1,000 feet long; alongside drafts limited to 29 feet by the Captain of the Port, San Juan; 102,000 square feet covered storage; general cargo; operated by Puerto Rico Ports Authority.

(249) Berth C, Puerto Rico Maritime Shipping Authority Roll-on/Roll-off Terminal: joining Berths A and B to the E; 600 feet long; 23 to 28 feet alongside; movable roll-on/roll-off ramps; marshaling yard; receipt and shipment of roll-on/roll-off cargo.

(250) Berths D, E, F, G, H, J, K, L, and M: 5,700 feet long; 26 to 31 feet alongside; 100,000 square feet covered storage; trailer marshaling yards; five 25-ton cranes serve Berths E, F, G, and H; general and containerized cargo; operated by Puerto Rico Ports Authority.

(251) Catano Navy Fuel Pier; immediately W of Berth A; E and W sides 350 feet long; 24 feet alongside; receipt of petroleum products, bunkering vessels, loading barges for bunkering vessels; operated by various oil companies.

(252) Army Terminal Pier: 150 yards W of Catano Fuel Pier; face 200 feet long, E and W sides 600 feet long; 20 feet alongside W side, 25 feet alongside E side; 50,000 square feet covered storage; 75-ton fixed crane, 20-ton mobile crane; roll-on/roll-off ramp; general cargo; operated by Puerto Rico Ports Authority.

(253) Caribbean Refining Co. Oil Pier: 200 yards W of Army Pier; 400 feet long; 34 feet alongside; receipt of petroleum products; operated by Borinquen Refinery.

(254) Puerto Rico Mills Wharf: 375 yards N of Caribbean Refining Co. Pier; offshore wharf, 600 feet with dolphins; 30 feet alongside; pneumatic unloaders and conveyor; receipt of grain; operated by Puerto Rico Mills, Inc.

(255) Master Mix Mills Wharf: 100 yards N of Puerto Rico Mills Wharf; offshore wharf, 400 feet with dolphins; 30 feet alongside; pneumatic unloaders and conveyor; receipt of grain; operated by Master Mix Mills, Inc.

(256) Caribe Feed Mills Wharf: 200 yards N of Puerto Rico Mills Wharf; offshore wharf, 200 feet with dolphins; 30 feet alongside; pneumatic unloaders and conveyors; receipt of grain; operated by Caribe Feed Mills, Inc.

(257) California Rice Growers Assn., Wharf: 300 yards N of Puerto Rico Mills Wharf; offshore wharf, 600 feet with dolphins; 30 feet alongside; pneumatic unloader and conveyor; receipt of grain; operated by California Rice Growers Assn., Inc.

Supplies

(258) All types of marine supplies are available at San Juan. Water can be obtained at all piers and at anchorage from barges. Bunker fuel oil is available at the Catano Navy Fuel Pier and at anchorage from barges. Gasoline and diesel fuels are available by tank truck.

Repairs

(259) San Juan is equipped to make major repairs to ocean-going vessels. A graving dock on Isla Grande is 691 feet long overall, with a docking space of 632 feet, with a width of 83 feet at the bottom and 96 feet at the top, and has a depth over the sill of 25 feet. The largest floating drydock, near the graving dock, has a capacity of 1,400 tons. The largest marine railway, at Punta Catano, can haul out vessels up to 1,400 tons, 225 feet in length, with a draft of 18 feet. Machine and electrical shops and a foundry are available.

Small-craft facilities

(260) The Club Nautico de San Juan, at the SE end of Isla San Juan, has limited nonmember berths with electricity, gasoline, diesel fuel, water, and ice.

(261) About 200 yards S of the club is a marina with berths, gasoline, diesel fuel, electricity, marine supplies, water, ice, a 70-foot marine railway, and a 70-ton lift for hull, engine, and electronic repairs.

(262) Small craft usually anchor NW of La Puntilla inside the harbor entrance and E of San Antonio Channel.

Charts 25668, 25650

(263) The **N coast** of Puerto Rico from San Juan to Cabo San Juan trends in an E by S direction for 30 miles. The shore is low and sandy except for occasional bluffs. The low land extends 2 to 4 miles inland and then the mountains rise to three prominent peaks toward the E part of the island. The coast is indented by many coves with reefs and rocky islets extending 0.5 to a mile offshore; breakers show at many of the reefs. All dangers will be avoided by staying 2 miles or more offshore.

Chart 25668

(264) The 7.3-mile stretch of coast from San Juan to **Punta Cangrejos** is bold and rugged with outlying rocks and reefs. A shallow inlet with least depths of 2 to 4 feet is W of the reef off Punta Cangrejos. The entrance to the inlet is marked by a lighted buoy and a private **146°30'** lighted range. The privately dredged entrance to **Laguna La Torrecilla,** in the NE part of the inlet, had a reported controlling depth of 7 feet in 1982. The channel is crossed by a fixed bridge with a clearance of

15 feet. A private yacht club is on the S side of the entrance to the lagoon and a public marina on the N side. Berths, electricity, gasoline, diesel fuel, water, ice, a launching ramp, and minor hull, engine, and electronic repairs are available.

Chart 25650

(265) **Punta Vacia Talega**, 12 miles E of San Juan, is a 60-foot-high brush covered ridge with low bluffs at the water's edge. **Rio Grande de Loiza,** 14 miles E of San Juan, shows as a wide gap in the trees. It is the largest river in Puerto Rico but cannot be entered because of the sandbar across the entrance.

(266) A rocky patch with a least depth of 2½ fathoms is 1.5 miles N of **Punta Picua,** 21 miles E of San Juan. The patch breaks in a moderate swell and is marked by a lighted buoy.

(267) Three tall apartment buildings are prominent at **Luquillo** just E of Punta Embarcaderos, 24 miles E of San Juan.

(268) **Sierra de Luquillo,** the mountains in the NE part of Puerto Rico, are prominent features in clear weather for this part of the coast. **Roca El Yunque,** the westernmost of the three closely connected peaks 5 miles inland and 10 miles from the E end of the island, is the highest and most prominent.

Chart 25667

(269) **Cabo San Juan**, the NE point of Puerto Rico, is a bluff hill 200 feet high. **Cabezas de San Juan,** two 100-foot clifflike heads, are at the N end of the cape. **Cabo San Juan Light** (18°22'54"N., 65°37'06"W.), 260 feet above the water, is shown from a cylindrical tower on the front of a white rectangular dwelling with a black band around the base on the highest part of the cape.

Charts 25667, 25663, 25650

(270) Beginning 1.5 miles N of Cabo San Juan, a chain of islands, islet, rocks, and reefs extends SE for 20 miles to Isla de Culebra. The chain is nearly steep-to on the N and S sides; the dangers will be avoided by giving both sides a berth of 0.5 mile. Several passages are between the groups of rocks and reefs, but they should be used only with extreme caution because many reefs with little water over them are near the limits of the channels.

(271) **Las Cucarachas,** a group of rocks up to 15 feet high, a mile N of Cabo San Juan, lie at the NW end of the chain. A light is shown from a skeleton tower, with a green and white diamond-shaped daymark, on a cylindrical concrete base on one of the rocks. A shoal with depths of 14 to 30 feet extends 0.9 mile NW of the light and a rock awash is 0.2 mile from the light in the same direction.

(272) **Pasaje de San Juan,** between Cabo San Juan and Las Cucarachas, is 0.7 mile wide and has depths of 32 to 65 feet. The passage is one of the principal channels leading into Sonda de Vieques.

(273) **Los Farallones,** a group of rugged bare rocks 30 feet high, are 0.8 mile E of Las Cucarachas. Deep water is close to the N and W sides of the rocks, but a shoal with several bare rocks extends to Cayo Icacos. A reef on which the sea breaks is 0.2 mile S of Los Farallones and continues about 0.4 mile W from the NW end of Cayo Icacos. The W end of the reef should be given a berth of 300 yards or more.

(274) **Pasaje Cucaracha,** between Las Cucarachas and Los Farallones, is 0.3 mile wide. Depths of 17 to 23 feet extend about 350 yards SE from Las Cucarachas, and a 23-foot spot is 200 yards W of Los Farallones. A **218°** course for Cabo San Juan Light will lead through the passage over a least depth of 36 feet. It is the best passage for sailing vessels entering the NW end of Sonda de Vieques with the usual E trade winds.

(275) **Cayo Icacos,** 1.3 miles E of Cabo San Juan and the second largest of the chain, is a 40-foot hummocky island covered with a scrubby growth. A small wharf and buildings of a former limestone quarry are near the SW point of the island. A prominent tower is in about the center of the island.

(276) **Cayo Ratones,** 250 yards E of Cayo Icacos, is 60 feet high; the E summit is a large bare ledge. A number of bare rocks are off its N side, and a reef awash is between the island and Cayo Icacos.

(277) **Cayo Lobos,** 0.5 mile ESE of Cayo Ratones, is 25 feet high with several bare rocks and islets up to 75 feet high off the N side. A chain of bare rocks and islets up to 30 feet high continues SE for 2.2 miles to Cayo Diablo. A 300-yard-wide channel with depths of 15 to 40 feet is between Cayo Ratones and the bare rocks NW of Cayo Lobos. A tourist resort and private landing field occupy Cayo Lobos. A concrete pier is on the W side of the island with a lighted gasoline sign located on the pier. A 7-foot-deep unmarked channel leads to the pier from about 0.25 mile W with shoal coral areas to the N and S of the channel.

(278) **Cayo Diablo,** 5 miles SE of Cabo San Juan, is low with a 40-foot grassy hummock at its E end. White beaches are on the N and S sides.

(279) Between Cayo Diablo and Cayo Lobito, 8 miles ESE, are two groups of rocks 2 to 15 feet high known as **Arrecife Hermanos,** and **Arrecife Barriles,** with numerous reefs either awash or with little water over

them in the chain. **Pasaje de Hermanos,** a 2-mile-wide passage 3.3 miles ESE of Cayo Diablo, has shoals of 15 to 30 feet and is not recommended for strangers. **Pasaje de Barriles,** a 1.5 mile-wide passage 6.7 miles ESE of Cayo Diablo and 1.3 miles W of Cayo Lobito, has depths of 36 to 48 feet and may be used by large vessels. Best water is on the E side of the passage. A 28-foot shoal is 1.8 miles W of Cayo Lobito.

Chart 25653

(280) **Cayo Lobito**, 13 miles E of Cabo San Juan, is the westernmost of the chain of islands extending for over 3 miles NW of Isla de Culebra. **Cayo Tuna** and a bare ledge are close to the NW end of the island. **Roca Columna** is a detached 75-foot bare pinnacle rock on the S end of the island.

(281) **Cayo Lobo,** a mile SE of Cayo Lobito, is a triangular island covered with scrub grass, the highest part being at the W end. The three points of the island are high with rocky bluffs.

(282) **La Pasa de los Cayos Lobos,** the 0.5-mile-wide passage between Cayo Lobito and Cayo Lobo, has depths of 60 feet or more.

(283) **Cayo Lobito Light** (18°20'06"N., 65°23'30"W.), 110 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on Cayo Lobito.

(284) **El Mono,** 0.5 mile SE of Cayo Lobo, is a small irregular 15-foot ledge with several heads. The 0.4-mile-wide passage between Cayo Lobo and El Mono has depths of 36 feet or more.

(285) **Las Hermanas,** 1.3 miles off the W coast of Isla de Culebra, consist of three islets. **Cayo Yerba,** the northernmost, 66 feet high, has a smooth grassy slope on the E side, and rocky bluffs on the W side. **Cayo Raton,** the southwesternmost and smallest, 46 feet high, is grassy on top and rocky on the sides; a low rock is close to its SE side. **Cayo del Agua,** the southeasternmost, is low in the middle and 39 feet high at its E part. The islet is rocky with many large boulders scattered over and near it. A shoal with 5 feet at its end extends nearly 0.1 mile W. The passage between Cayo Raton and Cayo del Agua should be avoided.

(286) **Cayo de Luis Pena,** off the W side of Isla de Culebra and the largest island of the chain, rises to a peak in about the center with the S and N ends joined to the island by low necks. **Punta Cruz,** the SW point of the island, has a prominent whitewashed cliff. The 0.3-mile passage between Cayo del Agua and Cayo de Luis Pena has depths of 30 feet or more.

(287) **Isla de Culebra,** 16 miles E of Puerto Rico, is about 6 miles long E and W. The island is fairly high, with broken and ragged terrain. **Monte Resaca,** a mountain about in the center, rises to 650 feet, and **Cerro Balcon,** about 1.5 miles ESE of it, is 551 feet high. The island is barren and brown in appearance. The N shore is steep-to, with the 20-fathom curve extending about 1.5 miles off and nearly parallel to it.

(288) Isla de Culebra is a former **Naval Defensive Sea Area and Airspace Reservation.** A **danger area** for aerial gunnery and bombing extends from off the S to off the N sides of the island. (See **334.1460**, chapter 2, for limits and regulations.)

(289) In December 1975, the U.S. Navy reported that it ceased all active gunnery and bombing exercises and weapons training activities within the danger area as of July 1, 1975, and September 30, 1975. The Navy further reported, however, that it will continue to use the observation post on Punta Flamenco from which to periodically conduct helicopter operations. In addition, the Navy advises that since Isla de Culebra and the islands in the vicinity were once used as naval sea and air weapons targets, unexploded ordnance remaining from previous target practice presents a hazard on the NW peninsula of Isla de Culebra, N of a line running between 18°19'55"N., 65°18'58"W., and 18°19'31"N., 65°14'34"W., and within the immediate offshore vicinity including Alcarraza, Cayo Botella, Cayo Lobo, Cayo Tiburon, Cayos Geniqui, Los Gemelos and Cabo del Pasaje. **Mariners are advised to exercise extreme caution in the area.**

(290) The principal industry of the island is raising cattle. Vegetables and some tropical fruits are grown in quantities sufficient only for local consumption. The rainy season lasts from June to October, but the rainfall is much lighter than in Puerto Rico. There are no freshwater streams, and rain water stored in cisterns forms the principal water supply. No freshwater is available for vessels. The principal harbor is Ensenada Honda, one of the most secure in the Leeward Islands.

(291) Isla de Culebra and the surrounding keys are within a **Designated Critical Habitat** for the Green Sea Turtle. (See **50 CFR 226.101 and 226.208, chapter 2, for regulations and limits.)**

(292) **Punta Noroeste,** the NW point of Isla de Culebra, is at the end of a prominent projecting ridge. A reef extends 200 yards NW from the high bare rock close to the point.

(293) A shoal area with several rocks extends 2.2 miles NW from Punta Noroeste. **Cayo Botijuela,** 2 feet high, and **Roca Lavador,** awash, are the northwesternmost rocks of the group.

(294) **Alcarraza,** 1.6 miles NW of Punta Noroeste, is a 144-foot bare round rock with perpendicular sides and a whitish appearance. **Pasaje Lavador,** between Roca

Lavador and Alcarraza, is a 0.5-mile-wide passage with depths of 45 feet or more.

(295) **Los Gemelos,** 1.1 miles NW of Punta Noroeste, consists of a 20-foot rock 50 yards in diameter with a low rock close to its SW side and another small rock 100 yards NW. **La Pasa de la Alcarraza,** between Alcarraza and Los Gemelos, is a 0.3-mile-wide passage with depths of 38 feet or more.

(296) **El Ancon,** 0.9 mile NW of Punta Noroeste, is a rock with 7 feet over it that breaks when there is considerable sea.

(297) **Piedra Stevens,** 0.6 mile NNW of Punta Noroeste, is a 30-foot rock 100 yards in diameter with a 27-foot shoal extending 100 yards S of it.

(298) **La Pasa de Los Gemelos,** between Los Gemelos and El Ancon on the W and Piedra Stevens on the E is a 0.5-mile-wide passage with depths of 45 feet or more; it is the safest passage NW of Punta Noroeste.

(299) **Canal Piedra Stevens,** between Punta Noroeste and Piedra Stevens, is a 0.3-mile-wide passage with depths of 35 feet or more.

(300) The **N coast** of Isla de Culebra has sandy beaches between rocky bluffs for 2 miles, then the shoreline becomes generally bold and rocky, with sand beaches in the coves and occasional coral reefs fringing the shore. A 23-foot shoal is 1.0 mile E by N of Punta Noroeste and a 17-foot spot is the same distance E of the point; otherwise depths of 30 feet or more are 0.4 mile off the N coast.

(301) A **danger area** for aerial gunnery and bombing extends 6.5 miles off the coast; limits and regulations are given in **334.1460**, chapter 2.

(302) **Bahia Flamenco,** 1.8 miles SE of Punta Noroeste, is constricted by reefs.

(303) **Cayo Matojo,** 3.2 miles E by S of Punta Noroeste, is a 20-foot-high island off **Punta Resaca,** a projecting point separating Bahia de Marejada and Bahia de Oleaje.

(304) **Roca Speck,** 100 yards off **Punta Manchita,** 4.8 miles SE of Punta Noroeste, is low and bare. **Punta Garay** is a projecting point 0.8 mile SE of the rock.

(305) **Cabeza de Perro,** the E point of Isla de Culebra, is a pointed rocky bluff. A break in the reef 0.3 mile N of the point leads to a boat landing. **Pela,** 0.5 mile SW of the point, is a 30-foot-high cay that presents a prominent bluff facing SE.

(306) **Cayo Norte,** 0.5 mile off the NE shore of Isla de Culebra, is somewhat oval in shape and covered with a thick scrubby growth. The highest peak, 338 feet high, is in the W part of the island. **Cayo Sombrerito,** a 59-foot rocky islet, extends about 300 yards N of the E end of the island.

(307) Several rocky islets and islands extend up to 1.0 mile NE from Cayo Norte. **Cayo Ballena** and **Cayo Tiburon,** the northwesternmost group, are 10 to 20 feet high with foul ground between. **Cayos Geniqui,** the southeasternmost group, are two connected islands; the 79-foot W island is flat and grass covered on top, the 82-foot E island is pointed on top.

(308) **Isla Culebrita,** 0.6 mile off the E coast of Isla de Culebra, is irregular in shape and about a mile in length. The island is formed by three hills with low land between them, and is covered with a scrubby forest growth. **Isla Culebrita Light** (18°18'48"N., 65°13'42"W.), 305 feet above the water, is shown from a stone-colored cylindrical tower with red trim on a flat-roofed dwelling on the summit of the island. A Coast Guard boat landing is on the W side of the island. The E end of the island is a bare high cliff. **Cayo Botella** is a grass-covered 30-foot island on an extensive coral reef that extends 0.5 mile NW of Isla Culebrita.

(309) The islands, islets, and reefs on the E and S sides of Isla de Culebra form a protected passage and several well-protected anchorages.

(310) **Canal de Cayo Norte,** between Cayo Norte and the Isla de Culebra, is a 0.5-mile-wide passage with depths of 28 feet or more through the middle.

(311) **Canal Tiempo,** between Cayo Norte and the reefs NW of Isla Culebrita, is a 180-yard-wide passage with depths of 30 feet or more. The narrow passage should not be attempted by strangers because of the 7- to 12-foot shoals on either side. The approach to Canal Tiempo can be made between Cayo Norte and Cayo Tiburon, or between Cayo Tiburon and Cayos Geniqui. The passages are at least 0.3 mile wide with depths of 30 feet or more.

(312) **Tierra a Medio,** between Isla de Culebra and Isla Culebrita, is a shoal area with depths of 13 to 29 feet that obstructs the S end of Canal de Cayo Norte.

(313) **Canal de Culebrita** and **Canal del Sur** are a continuation of the protected passage on the E and SE side of Isla de Culebra. The passages have a least width of 0.2 mile and depths of 26 feet or more. **Arrecife Culebrita,** extending nearly 3 miles SW from Isla Culebrita, protects the inside passage from S. The SW limit of the reef is marked by a buoy. **Cabezas Puercas** and **Cabezas Crespas,** shoal areas with depths of 2 to 28 feet and nearly awash in places, obstruct the SW part of Canal del Sur. A buoy marks the SW end of Cabezas Puercas, and a lighted buoy marks the E side of Cabezas Crespas.

Anchorages

(314) The best anchorage is in Canal de Culebrita in 60 feet of water with the extreme W end of Cayo Botella in line with the E side of Cayo Sombrerito, and the SE extremity of Isla Culebrita bearing 067°. Vessels can anchor closer under the lee of Isla Culebrita according to draft.

(315) **Puerto del Manglar,** at the SE end of Isla de Culebra, is a small but well-sheltered bay. The entrance is constricted to a width of 100 yards by reefs, but once inside vessels can anchor in depths of 18 to 37 feet near the middle of the bay; sand and mud bottom. The sides and head of the bay are shallow.

(316) **Bahia de Almodovar,** on the S side of Puerto del Manglar, is a small bight, well sheltered from all winds, where small boats can anchor in depths of 20 to 24 feet. The bight is entered from Puerto del Manglar over a 10-foot bar 0.2 mile NW of Pela.

Currents

(317) The current velocity is 1.5 knots between Cayo Norte and Cayos Geniqui and sets S and N, and 2 knots in Canal del Sur and sets SW and NE.

Routes

(318) To enter Canal de Cayo Norte from N, steer **132°** between Cayo Norte and Isla de Culebra until 300 yards off Punta Garay, then draw in toward the Culebra side to avoid the middle ground, heading **146°** between Tierra a Medio and Isla de Culebra. The fringing reef off Cabeza de Perro may be avoided by giving the shoal a berth of more than 300 yards.

(319) To enter Canal Tiempo from N, steer toward Cayo Norte and, having passed 150 yards W of Cayo Tiburon, bring the W extremity of Cayo Botella in line with Cabeza de Perro and steer **186°** until Cerro Balcon on Isla de Culebra bears **240°**, then make a sharp turn and head for Cerro Balcon on **241°**, passing midway between the 23-foot spot on the N side and the 12-foot spot on the S side of the channel; continue SW, swinging to get on course **146°,** passing 300 yards off Punta Garay.

(320) If going through Canal del Sur, after leaving Canal de Culebrita, steer about **224°** with Isla Culebrita Light astern, passing 150 to 200 yards off the NW side of Cabezas Puercas until WNW of Buoy 4, then either swing left to pass midway between Buoys 3 and 4, and thence to Sonda de Vieques, or continue on **237°** with Buoy 3 astern. A clear depth of 35 feet is on the course line, but vessels drawing more than 30 feet should attempt the passage only in calm weather because of frequent swells.

(321) **Bajos Grampus** comprises a group of small coral heads rising from a bank of 60 feet lying 2 to 4 miles from the SE extremity of Isla de Culebra. The S head, on which there is a depth of 23 feet, lies with Punta del Soldado in range with the S extremity of Cayo de Luis Pena bearing 293°. A lighted buoy is on the S side of Bajos Grampus. A 23-foot spot at the NW extremity of Bajos Grampus is 2.4 miles NNW of the buoy. Virgin Passage is discussed in chapter 14.

(322) **Canal de Grampus** is a channel between this W knoll and Arrecife Culebrita; it is a clear navigable unmarked channel about 0.6 mile wide. The tidal current sets diagonally across Canal de Grampus SW and NE.

(323) To pass S of Bajos Grampus, keep on or S of the line of Sail Rock and Signal Hill on St. Thomas Island until Cayos Geniqui show E of Cabo del Pasaje, the NE point of Isla Culebrita. Bajos Grampus will then be cleared, and the course can be shaped as desired.

Chart 25654

(324) **Ensenada Honda**, on the S side of Isla de Culebra between bluff **Punta Vaca** on the E and Punta del Soldado on the W, is the most secure anchorage in the area. The harbor is about 1.5 miles long and in some parts 0.5 mile wide, but of irregular shape with several small shallow bays indenting the shore. The land around the bay is hilly and partly covered with a scrubby forest growth.

Channels

(325) The entrance to Ensenada Honda is obstructed by shoals with depths of 4 to 26 feet, but the entrance channels are marked by buoys and unlighted ranges. The controlling depth into the harbor is 27 feet.

Dangers

(326) **Bajo Amarillo**, 0.8 mile E of Punta del Soldado, is a 0.3-mile-long shoal with a least depth of 7 feet. The SW end is marked by a lighted buoy.

(327) **Bajo Grouper,** 0.2 mile N of Bajo Amarillo, is 0.3 mile in length with a least depth of 4 feet. A buoy marks the E extremity of the shoal.

(328) **Bajo Camaron,** 0.2 mile S of Punta Vaca, has a least depth of 9 feet over the 0.2-mile-long shoal. A buoy is at the S end.

(329) **Bajo Snapper,** 0.3 mile W of Punta Vaca, has a least depth of 6 feet over the shoal about 300 yards in diameter.

(330) Many other shoals with depths of 18 feet or less are near the limits of the entrance channels.

Routes

(331) From S, bring the left tangent of Punta Vaca to bear **008°** before the S end of Cayo de Luis Pena closes behind Punta del Soldado and steer for Punta Vaca close up to Bajo Camaron; then swing on to the entrance range bearing **296°.** After passing Buoy 8, avoid approaching the 17-foot shoal on the W side of the channel too closely, and steer in on the inner range bearing **323°** until abeam of Buoy 12, then open the range to the W and anchor according to draft.

(332) From SE, bring Punta Vaca in range with Monte Resaca, bearing about **322°**, and continue on this course past the buoy marking Cabezas Crespas until the entrance range comes on; then continue as directed in the preceding paragraph.

(333) From W, when 0.5 mile S of Punta del Soldado Light, steer **064°** for about 1.3 miles until the left tangent of Punta Vaca bears **008°**, then head in on that course and follow directions above.

(334) **San Ildefonso** is on the NE side of Ensenada Honda. A house on a small hill above the wharf is prominent. The wharf is a concrete L-shaped boat landing pier extending about 100 feet offshore. Depths of about 12 feet are alongside.

(335) Only small boats can make a landing at the W end of Ensenada Honda. Vessels calling at Culebra use Bahia de Sardinas.

Charts 25653, 25654, 25655

(336) The 5.5-mile-long **SW Coast** of Isla de Culebra from Punta del Soldado to Punta Noroeste is indented by small coves and reefs, but the dangers are within 0.4 mile of the shore. The coves between Punta Melones and Punta Tamarindo Grande are sheltered by Cayo de Luis Pena.

(337) **Punta del Soldado,** the S point of Isla de Culebra, is wooded and terminates in a rocky bluff. A light is on the W side of the point.

(338) **Bahia de Sardinas,** 1.5 miles NW of Punta del Soldado, is the harbor for the towns of Culebra and Clark Village. The boat and ferry landing at **Playa de Sardinas** has a depth of 8 feet at the end. Fishing boats use the harbor.

(339) **Culebra,** locally known as **Dewey,** and **Clark Village,** both located on the neck of land between Bahia de Sardinas and the head of Ensenada Honda, are the only towns on Isla de Culebra. A local person is designated to handle insular immigration and customs traffic. Available supplies include gasoline in drums and groceries. Telephone and telegraph communications are available. A ferry service for both passengers and cargo operates between Isla de Culebra, Isla de Vieques, and the town of Fajardo; commercial air transport is available to Puerto Rico.

(340) **Punta Melones,** the NW point of Bahia de Sardinas, is low and narrow, terminating in a small pinnacle rock. A light is on the tip of the point.

(341) **Punta Tamarindo Grande,** 1.7 miles NW of Punta Melones, consists of a 75-foot hill with reddish bluffs at the end and a low neck behind it. Two low detached rocks are off its end.

(342) Cayo de Luis Pena and the chain of islands and reefs to the NW have been described previously in this chapter.

(343) **Canal de Luis Pena,** between the N end of Cayo de Luis Pena and Isla de Culebra, is a 0.3-mile-wide passage with depths of 21 to 65 feet. Strong currents and baffling winds render the passage hazardous for sailing vessels.

Anchorages

(344) Good anchorage with ordinary trade winds can be found between Cayo de Luis Pena and Isla de Culebra in depths of 30 to 79 feet. The rocky patch with depths of 42 to 53 feet, 0.6 mile W of Punta Melones, should be avoided in anchoring. A comfortable anchorage for small vessels in depths of 20 to 30 feet is in the entrance to **Bahia Tamarindo,** a mile NW of Punta Melones. A fair anchorage in depths of 40 to 55 feet is about 0.3 mile off the NW side of Cayo de Luis Pena.

Currents

(345) In Canal de Luis Pena the SE current is deflected N of **Bahia Tarja,** just N of Punta Melones, and thence sets toward the S end of Cayo de Luis Pena; it is weak at the entrance to Bahia de Sardinas. The NW current sets directly through the passage. The current velocity is about 2 knots.

Charts 25650, 25663

(346) **Sonda de Vieques** extends from the E coast of Puerto Rico to Virgin Passage between the chain of islands and reefs including Isla de Culebra on the N and Isla de Vieques on the S. The sound is about 20 to 22 miles long and from 8 to 15 miles wide. The E part is clear with depths of 7 to 17 fathoms, except for Bajos Grampus SE of Isla de Culebra. The W part has numerous shoals and reefs extending as much as 8 miles off the E coast of Puerto Rico.

(347) A **danger area** for aerial gunnery and bombing extends about 6.5 miles N and 4 miles SW of Isla de Culebra. (See **334.1460**, chapter 2, for limits and regulations.)

(348) **Explosives anchorages** are in Sonda de Vieques N of Isla de Vieques. (See **110.1 and 110.245**, chapter 2, for limits and regulations.)

(349) **Isla Palominos,** 3.5 miles SE of Cabo San Juan, is a small 165-foot-high island with a rounded grassy summit and surrounded by steep-to reefs up to 0.6 mile from shore. A lighted buoy is on the NE side.

(350) Good anchorage is afforded about 0.5 mile off the W side of the island in about 40 feet on the following bearings: Cabo San Juan Light 313°; Las Cucarachas Light

331°; and Punta Aguila, the extreme NW point of Isla Palominos, 037°. (See chart 25667.)

(351) **Bajo Blake,** 2 miles E of Isla Palominos, is 0.4 mile in diameter and has a least depth of 20 feet. The S side is marked by a buoy.

(352) **Bajo Hodgkins,** 7 miles SE of Isla Palominos, is a narrow 0.8-mile-long ridge with a least depth of 27 feet.

(353) The area between Bajo Hodgkins and the E coast of Puerto Rico is full of shoals and should be used only with local knowledge. Many of the shoals have rocks awash or reefs on which the sea breaks while others have rocks that show 1 to 15 feet.

Anchorages

(354) Deep-draft vessels can find good anchorage in 28 to 60 feet during ordinary weather in **Rada Fajardo,** in the NW end of Sonda de Vieques between Cabo San Juan and Isla Palominos.

Routes

(355) Vessels bound from San Juan to Isla de Culebra and E frequently enter Sonda de Vieques through Pasaje de San Juan and proceed S of the chain of islands and reefs to gain comparatively smooth water.

(356) A buoyed N-S route along the E coast of Puerto Rico is used by vessels with a draft of 22 feet or less. Large deep-draft vessels bound for the S coast of Puerto Rico usually enter Sonda de Vieques through Pasaje de San Juan and continue around the E coast of Isla de Vieques. Vessels from NE points use Virgin Passage and pass S of Isla de Vieques to go to ports on the S coast of Puerto Rico.

Charts 25650, 25664

(357) **Isla de Vieques**, 6 miles off the nearest point of the E coast of Puerto Rico, forms the S side of Sonda de Vieques. It is 18 miles long E and W and 3.5 miles wide near its middle. A range of hills extends the entire length of the island with a prominent hill at each end–**Monte Pirata** near its W end and **Cerro Matias Jalobre,** 3 miles from the E end. The island is wooded in places, especially its E half and around Monte Pirata.

(358) Principal products are horses and cattle. Vegetables and tropical fruits are grown for local consumption. The rainy season lasts from May to October, but the rainfall is less than in adjacent parts of Puerto Rico. The island is subject to drought; the principal watersource is rainfall stored in cisterns.

(359) Boats carrying supplies and passengers dock at Isabel Segunda on Bahia de Mulas on the N coast. When the trade wind is N of E a heavy surf runs and landing is difficult on the open N coast.

(360) **Naval restricted areas** extend 1,500 yards offshore around the W part of the island. (See **334.1480**, chapter 2, for limits and regulations.)

(361) **Explosives anchorages** are off the N and W coasts of the island. (See **110.1 and 110.245**, chapter 2, for limits and regulations.)

(362) **Pasaje de Vieques** is the strait lying between Puerto Rico and Isla de Vieques. **Radas Roosevelt** is the open-water portion of the passage lying within the shoals and banks N of the W end of Isla de Vieques and between that island and Puerto Rico. The current velocity is about 0.7 knot in the passage and floods SW and ebbs NE.

(363) **Punta Arenas,** at the NW end of Isla de Vieques, is low and covered with a scrubby growth, with a white spit at its end. The point changes shape continually; at times the outer coconut trees are in the water.

(364) At the W end of Isla de Vieques, S of Punta Arenas, there is a smooth anchorage with E winds but exposed to the S and W.

(365) **Escollo de Arenas** is a continuation NW of a shoal which fringes the N side of Isla de Vieques to a distance of about 1 mile and extends E nearly to Punta Mulas. The W edge of the shoaler part of the bank extends 3.3 miles NNW from Punta Arenas to its outer end, where it is marked by a lighted buoy. Spots with depths of 5 feet are on the bank for 0.8 mile N of Punta Arenas, and thence to the lighted buoy, the bank is steep-to with about 40 feet on each side. The bank sometimes shows by discolored water and rips.

Currents

(366) A strong SW set is noted frequently N of Escolla de Arenas. The bank itself is generally indicated by the tide rips.

(367) A 1.2 mile causeway extends from shore at **Desembarcadero Mosquito,** 3.9 miles E of Punta Arenas. A pier extends from the W side of the causeway about 350 yards from the seaward end. The causeway and pier are marked at the outer ends by Navy-maintained lights. In 1965, a depth of 37 feet was available on either side of the pier; however, there are spots with lesser depths in the approaches, and the chart is the best guide.

(368) **Arrecife Mosquito,** a reef awash, is 1.9 miles to the NE of Desembarcadero Mosquito. The reef is steep-to, and the sea always breaks on it. A shoal with a depth of 17 feet is about 0.5 mile WNW from the reef. During ordinary weather a fairly smooth anchorage is 0.3 mile S of Arrecife Mosquito, in 40 feet, sandy bottom. Several spots with a least depth of 9 feet are in the approaches to the anchorage, and vessels drawing more than that depth should use it only with local knowledge.

(369) **Arrecife Corona,** a reef awash, is about 0.3 mile long and about 0.3 mile E of Arrecife Mosquito. Several shoals are around the reef, including a 9-foot spot 0.2 mile S. **Bajo Merail,** a shoal with least depth of 2 feet lies 0.8 mile S of Arrecife Corona.

(370) **Caballo Blanco,** a low grassy islet, marked by a light, is 1.7 miles NW of Punta Mulas. Several shoals surround the islet, the outer of which are 0.6 mile N and 0.2 mile S. **Bajo Comandante,** a shoal about 600 yards in extent with a least depth of 7 feet, lies about midway between Caballo Blanco and the shore. There are spots with a least depth of 23 feet in the channel between Caballo Blanco and Bajo Comandante.

(371) **Bahia de Mulas,** 8 miles E of Punta Arenas and 10 miles W of Punta Este, is an open bight on the N coast of Isla de Vieques. **Isabel Segunda** (P.O. Vieques), the principal town on the island, is on the SE side of the bay.

(372) **Punta Mulas Light** (18°09'18"N., 65°26'36"W.), 68 feet above the water, is shown from a 32-foot white octagonal tower on a dwelling on a low bluff point on the NE side of the bay. An old Spanish brick fort and building is prominent on a hill 0.5 mile SE of the light. A depth of 12 feet can be taken to the 300-foot pier on the E side of the bay. Depths of 4 to 12 feet are along the pier.

(373) Small vessels and schooners anchor N and S of the pier at Isabel Segunda according to draft. Large vessels anchor 0.5 mile or more offshore in the bay. The outer anchorage is exposed, but the small-boat anchorage affords fair shelter during ordinary weather. With N winds a heavy sea makes into the bay causing small craft to drag anchor. The nearest hurricane anchorages are Ensenada Honda (Isla de Culebra) and Ensenada Honda (E coast of Puerto Rico).

(374) The approach to Bahia de Mulas is obstructed by numerous unmarked shoals with depths of 5 to 30 feet. The chart is the best guide.

(375) A local person is designated to handle insular immigration and customs traffic. Supplies and passengers are landed at the pier. Some cattle are exported. Available supplies include gasoline in drums and groceries. Telephone and telegraph communications are available. A ferry carries passengers and supplies between Isabel Segunda, Isla de Culebra, and Fajardo; the mail is delivered by airplane.

(376) A **danger area** of a bombing and target area is off the NE and SE coasts of Isla de Vieques. (See **334.1470**, chapter 2, for limits and regulations.) The NE corner and the W boundaries of the N and S parts of the area are marked by buoys.

(377) Schedules of all operations by the U.S. Marine Corps and the Navy on Isla de Vieques and vicinity are promulgated weekly and distributed to local authorities on Isla de Culebra, Isla de Vieques, and Fajardo by the Commanding Officer, Atlantic Fleet Weapons Training Facility, Roosevelt Roads, P.R.

(378) **Cabellos Colorados,** 3.1 miles E of Punta Mulas, is rocky and steep-to. **Puerto Negro** is a boat landing 4.8 miles E of Punta Mulas Light. It can be entered only by small craft with local knowledge. The entrance through the reefs is about 100 yards wide, with depths of 6 to 18 feet, and is generally indicated by breakers on either side. Anchorage space is limited; most of it is foul. **Punta Brigadier,** 0.6 mile W of the entrance, is marked by **Roca Roja,** a large bare rock close-in. **Punta Goleta** is the E entrance point.

(379) **Roca Cucaracha,** 3.4 miles WNW of Punta Este Light, consists of two small rocks, close together, about 3 feet high. The rocks are about 0.3 mile from shore, and the depths inside them are 6 to 14 feet.

(380) **Cano Hondo** extends 0.6 mile E of Roca Cucaracha to the reefs forming Bahia Salinas. It is open N and has depths of 18 to 42 feet. It has no sheltered anchorage except for small craft, which can anchor at its SE end. A narrow channel with a depth of 8 feet S of an islet about 15 feet high and 250 yards from shore leads from Cano Hondo to Bahia Salinas.

(381) **Bahia Salinas,** 1.6 miles W of Punta Este, has an anchorage with depths of 12 to 24 feet. It is the best landing along the N coast E of Bahia de Mulas. It affords good shelter for small craft with local knowledge, but should not be attempted by strangers. The bay is protected on the N by a reef 0.6 mile long, the highest part of which is awash. The entrance from E is between the reef and those reefs which fringe the shore. About 1.5 miles NW of Punta Este is a high bluff point with bare white cliffs to the E.

(382) **Punta Este,** the E point of the island, is moderately low and grassy, with rocky bluffs at the water. A light, 43 feet above the water, is shown from a tower with a red and white diamond-shaped daymark on the point.

(383) The S coast of Isla de Vieques is irregular and indented by sandy bays. **Bahia Salina del Sur,** 2 miles W of Punta Este, is 0.5 mile in diameter and affords a boat landing with the wind N of E. **Roca Alcatraz** consists of several rocks 10 to 15 feet high, 0.4 mile from the points at the entrance. A larger islet about 40 feet high, wooded on top and with a large bare rock close to its SE end, lies 0.3 mile off the W entrance point. Anchorage is in the W half of the bay in 18 to 24 feet, sheltered from winds N of E. The clearer entrance is between Roca Alcatraz and the island off the W point of the bay. For 1 mile W of the island, shoals with 18 feet and less extend nearly 0.5 mile from shore.

(384) **Ensenada Honda,** about 6 miles W of Punta Este, is 1.2 miles wide, and has several bare rocks and reefs awash. The bay is rough with SE winds, but with the

wind N of E it affords a good boat landing. Owing to the foul ground in the bay, it should be avoided by strangers. A reef bare at low water is off the entrance 0.8 miles ENE from **Punta Conejo,** the W entrance point. **Cayo Jalovita** and **Cayo Jalova** are small Islands on the E side of the harbor.

(385) In April 1978, three submerged rocks were reported to be about 1.4 and 1.9 miles SSW of Punta Conejo.

(386) **Bahia de la Chiva** is a shallow bight on the W side of Punta Conejo. **Isla Chiva,** about 30 feet high, is a cay in the entrance to the bight. A reef with 2 to 18 feet of water over it extends nearly 0.5 mile from shore 1.5 to 2.1 miles W of Punta Conejo. **Bahia Tapon,** a bight N of the reef, has depths of 2 to 3 feet.

(387) An offshore fueling line, marked by buoys, extends about 700 yards from the tank W of Bahia de la Chiva.

(388) A naval **restricted area** is off the S shore of Isla de Vieques. (See **334.1480**, chapter 2, for limits and regulations.)

(389) **Puerto Ferro,** 9 miles W of Punta Este, is a boat harbor with 6 to 8 feet of water at the entrance and 7 to 15 feet inside. Its entrance is 250 yards wide, with high land on both sides, and is prominent. A sunken rock lies about 0.5 mile inside the entrance in 18°06'21"N., 65°25'30"W.

(390) **Puerto Mosquito** is a boat harbor about 1 mile W of Puerto Ferro Light. Least depths in the narrow entrance are 2 to 3 feet. A sunken rock is on the W side of the entrance in 18°05'43.5"N., 65°26'32.5"W.

(391) **Ensenada Sun Bay,** 2.3 miles W of Puerto Ferro Light, is about 0.6 mile wide. It offers anchorage in 18 to 24 feet exposed to winds from SE to SW. A shoal extends 200 yards W from the E point of the bay, and a shoal with 17 feet over it lies W from the middle of the entrance. The depths in the S half of the bay are 17 to 27 feet. Several sunken rocks are about 100 and 250 yards W and SW, respectively, off the E entrance point.

(392) **Puerto Real,** on the S coast of Isla de Vieques 3 miles W of Puerto Ferro Light, provides good anchorage in ordinary weather. The port is somewhat protected by **Punta de Tierra** on the E and **Cayo Real** on the S; depths are 15 to 25 feet. A pier in the NE part of Puerto Real has 10 feet alongside and is marked on the seaward end by a private light. The radio tower lights 0.3 mile inshore are prominent.

(393) The principal outlying danger is a shoal covered 13 to 17 feet, with 30 to 50 feet around it, lying 0.7 mile from shore and 0.9 to 1.3 miles WSW from the S end of Cayo Real; its E end is marked by a buoy. A spot with 23 feet is about 0.4 mile SW from the S end of Cayo Real. A shoal with 15 feet of water is 0.2 mile from shore and 0.6 mile W from the N point of Cayo Real.

(394) Vessels can anchor in 35 feet about 550 yards W of Cayo Real. The approach to the anchorage is between the buoy marking the E end of the principal offshore danger and a 23-foot spot nearly 0.4 mile SW of Cayo Real.

(395) **Punta Vaca,** 3 miles W of Puerto Real, is the southernmost point of the island. Outlying rocks are a short distance offshore.

(396) A **267°31'-087°31' measured nautical mile** is off Punta Vaca; the front and rear markers are shown from poles.

(397) **Punta Boca Quebrada,** 2.9 miles WNW of Punta Vaca, is a low wooded point which terminates in a dry ledge outside of a white sand beach. From Punta Boca Quebrada the coast trends N for 1 mile to Punta Arenas.

Charts 25650, 25663

(398) The **E coast** of Puerto Rico extends 10 miles S from Cabo San Juan to Punta Puerca and then 22 miles SW to Punta Tuna. The coast is very irregular with projecting rocky bluffs separating the numerous small shallow coves and bays, and with grass-covered or mangrove hills within a mile of the shore. Reefs awash or bare at low water and shoals with less than 10 feet over them extend more than a mile offshore in places. A depth of 24 feet can be carried through a partially buoyed channel from 2 to 5 miles off the E coast, but entrance caution is necessary to avoid the shoals near the route. The principal ports on the E coast are Fajardo and the private oil-handling facilities at Puerto Yabucoa. Ensenada Honda is the site of the Roosevelt Roads Naval Station ship base.

Chart 25667

(399) **Playa Canalejo**, 0.2 mile SSE of Cabo San Juan Light, is a shallow indentation leading to the ruins of a small pier.

(400) **Punta Gorda,** 1.4 miles S of Cabo San Juan Light, is a conspicuous high head. A 360-foot hill, 0.4 mile WNW from the point, is the N end and highest part of a high ridge which extends SW nearly to Playa de Fajardo.

(401) A channel, marked by a light and daybeacons, leads to a small-boat harbor.

(402) **Punta Bateria,** 2.2 miles S of Cabo San Juan Light, is a rocky 70-foot cliff from which a grassy ridge makes inland.

(403) **Bahia de Fajardo,** 2.5 miles S of Cabo San Juan Light, affords good shelter for medium-draft vessels. It is somewhat protected on the E and S by two islands and surrounding reefs. Ferry service for both passengers and cargo operates between Playa de Fajardo, Isla

Fajardo Basin

de Culebra, Isla de Vieques, and the Virgin Islands. Commercial air transport is available to the Virgin Islands. Small interisland vessels trade in general cargo, building materials, and livestock.

Prominent features

(404) Cabo San Juan Light is the principal landmark in making the approach to Bahia de Fajardo. A hotel with two cupolas, each marked by a red light, just S of Punta Gorda, and two stacks of a sugar central, and a radio tower near Fajardo are prominent.

Channel

(405) The principal entrance to Bahia de Fajardo is from N through the unmarked channel W of Bajo Laja, although small vessels can enter from E and S with local knowledge. The N entrance has a controlling depth of 23 to 30 feet to Buoy 3, thence 11 feet to the public pier. The controlling depth from E is 17 feet to Buoy 3, and from S, 9 to 11 feet to the public pier.

Anchorages

(406) Large vessels anchor NE of Punta Bateria according to draft. During ordinary weather the protection is fair and the holding ground is good. Small vessels anchor inside the bay on either side of the entrance channel.

(407) The hurricane anchorages for large vessels are Ensenada Honda (Isla de Culebra) and Ensenada Honda, 10 miles S of Fajardo. Small vessels can anchor S of Isleta Marina.

Dangers

(408) The approaches to Bahia de Fajardo have reefs that usually show breakers and shoals with 7 to 18 feet over them. Inside the bay depths range from 3 to 24 feet.

(409) **Bajo Laja,** with least depths of 7 to 10 feet over it, lies on the E side of the N entrance and is unmarked.

(410) **Isleta Marina,** with surrounding reefs up to 0.5 mile, is on the E side of the bay.

(411) **Arrecife Corona Carrillo** and a long reef to the W obstruct the S entrance to the bay. **Bajo del Rio,** a bank with depths of less than 5 feet, extends more than 0.2 mile offshore along the S entrance to the bay.

Currents

(412) The current velocity is 0.3 knot in the SSE direction on the flood and 1.1 knot in a NNW direction on the ebb in the channel in Bahia de Fajardo.

Pilotage, Bahia de Fajardo

(413) See Pilotage, Puerto Rico (indexed as such) early this chapter. A local pilot is available.

Towage

(414) Tugs are not available at Fajardo.

Quarantine, customs, immigration, and agricultural quarantine

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

(416) **Quarantine** is enforced in accordance with regulations of the U.S. Public Health Service. (See Public Health Service, chapter 1.)

(417) Fajardo is a **customs port of entry.** A deputy collector of customs handles customs matters and acts as immigration inspector. The customhouse is on the waterfront at Playa de Fajardo.

Harbor regulations

(418) Local regulations are enforced by a Commonwealth Captain of the Port.

Wharves

(419) The landing facilities are at **Playa de Fajardo** on the SW side of Bahia de Fajardo. The westerly 300-feet public pier has 12 feet at the outer end and 8 feet alongside; two private lights are off the outer end of the pier. An 80-foot bulkhead pier with 12 feet alongside for the ferry boat is 100 yards W of the public pier.

(420) A privately owned pier 125 yards E of the public pier is 400 feet long with 5 feet at the outer end. The former limestone pier to the E is in ruins.

Supplies and repairs

(421) Water is available and gasoline can be trucked in. Groceries can be obtained from **Fajardo,** 1.5 miles inland. Limited facilities are available for repairs. The principal source of marine supplies is San Juan, 38 miles by highway from Playa de Fajardo.

Small-craft facilities

(422) A marina on Isleta Marina, on the E side of Bahia de Fajardo, has facilities for small craft. Depths of 8 to 12 feet can be taken to the marina. Berths, electricity, gasoline, diesel fuel, water, ice, and marine supplies are available at the finger piers. Lifts to 100 tons and a 100-foot marine railway can haul out vessels for hull, engine, and electronic repairs. Vessels to 65 feet long can be accommodated at the marina.

(423) A private marina 0.3 mile NE of Playa Sardinera, N of Playa de Fajardo, has facilities for small craft. A depth of 12 feet can be taken to the berths inside a 700-foot breakwater that is marked on the seaward end by a fixed red light. Gasoline, diesel fuel, water, ice, and marine supplies are available.

(424) A marina at the hotel just S of Punta Gorda has berthing facilities inside a manmade basin. A depth of 12 feet can be taken through the lighted entrance and then 12 to 7 feet to the berths. Berths, electricity, gasoline, diesel fuel, water, and ice are available.

Chart 25663

(425) **Isla de Ramos**, 4 miles S of Cabo San Juan Light, is 0.2 mile in diameter and covered with palm trees except on its summit which is a grassy 35-foot knoll with a house on top. A reef surrounds the island to a distance of 200 to 300 yards. A buoyed shoal with a least depth of 16 feet is 0.6 mile ESE of the island.

(426) **Cayo Largo,** 1.5 miles E of Isla de Ramos, consists of a narrow 1.8-mile-long ridge steep-to on all sides. The S half is awash at low water, and the sea always breaks on it; the N half has depths of 4 to 15 feet. Buoys mark the W side. The velocity of the current is 0.5 knot in the channel W of Cayo Largo; it floods S and ebbs NW.

(427) **Isla Pineros,** 8 miles S of Cabo San Juan Light, is a 1-mile long wooded island with a 249-foot peak near the middle. **Isla Cabeza de Perro,** just E of Isla Pineros, has a large detached rock off the rocky bluff NE end. **Cabeza de Perro Light** (18°15'00"N., 65°34'36"W.), 80 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on the E point of the island. **Pasaje Medio Mundo,** W of Isla Pineros, is foul, but a depth of 15 feet can be taken through the narrow crooked channel by small boats with local knowledge.

(428) **Punta Puerca,** 10 miles S of Cabo San Juan, is a prominent bold wooded head with a high rock bluff at the shoreline. The highest point, 0.3 mile inland, is the site of several large white dish-shaped radar tracking units. The units show up well from offshore.

Small-craft facilities

(429) A marina at Bahia Demajagua has facilities for small craft. Fuel, water, electricity, repairs, a marina store, and a lift capacity to 80 tons are available. Vessels to 200 feet can be accommodated at the marina.

Chart 25666

(430) **Ensenada Honda**, 10 miles S of Cabo San Juan Light, is the site of the **Roosevelt Roads United States Naval Station.** The harbor is well protected by the circular shore and the reefs which constrict the entrance to 0.3 mile. The harbor is included in a **restricted area**

which extends from **Punta Figueras** (see chart 25663), 3.5 miles N of Ensenada Honda, to 2 miles W of the entrance. (See **207.815**, chapter 2, for limits and regulations.)

(431) **Bahia de Puerca,** a mile NE of Ensenada Honda, has depths of 37 feet or more, leading to a pier with 37 feet alongside at the head of the bay. A 26-foot spot is 150 yards SW of the pier. The 1,000-foot pier consists of a series of caissons connected by walkways; a large inactive graving dock is inshore of the pier.

(432) **Isla Cabras,** on the E side of the entrance to Ensenada Honda, has a rocky bluff on the E side. **Vieques Southwest Channel Range Front Light** (18°12'42"N., 65°36'00"W.), 70 feet above the water, is shown from a skeleton tower with a rectangular white daymark with a central red vertical stripe near the E end of the island. The island is connected to the mainland by a causeway. **Cabra de Tierra** is the southernmost point of a low neck covered with mangroves and palms separating Ensenada Honda from Bahia de Puerca.

(433) **Punta Cascajo,** the W point at the entrance to Ensenada Honda, has rocky cliffs on the S side and a bare reef 250 yards off the SE side. Many houses are on the high part of the point, and trees fringe the shoreline. An unnamed cove just NW of the point is blocked at the entrance by a permanent shark net.

(434) The SW approach to Ensenada Honda is marked by a **025°24'** lighted range. (The front range light is on Isla Cabras and the rear range light is on Punta Puerca.)

Channels

(435) A dredged channel, marked by lighted and unlighted buoys, a light, and a **315°** lighted range, leads to a large turning basin in Ensenada Honda. Vessels anchor inside the harbor according to draft; the holding ground is soft mud, which may cause some dragging during a hurricane. In 1990, a controlling depth of 40 feet was available in the channel and turning basin.

Wharves

(436) Pier 1, U.S. Navy fuel pier, the more W pier on the NE side of Ensenada Honda, is 450 feet long with 32 feet along the W side and 36 feet along the E side; water is available. A small boat landing with about 15 feet alongside is inshore of the E side of the fuel pier.

(437) Pier 2, U.S. Navy cargo pier, SE of Pier 1, is 398 feet long with 32 feet alongside; water is available. An LST landing ramp is about 400 yards SE of the cargo pier.

(438) Pier 3, a 1,200-foot-long U.S. Navy aircraft carrier pier marked at its seaward end by fixed red lights, is 0.25 mile S of Pier 2. Depths of about 39 feet are alongside.

Quarantine, customs, immigration, and agricultural quarantine

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

(440) **Quarantine** is enforced in accordance with regulations of the U.S. Public Health Service. (See Public Health Service, chapter 1.)

(441) **Customs** and **immigration,** services are handled by representatives from Fajardo.

(442) An **agricultural quarantine** official is at the Roosevelt Roads Naval Station.

Chart 25665

(443) **Puerto de Humacao**, 15 miles SSW of Cabo San Juan Light, affords some shelter for medium-draft vessels. The port is exposed SE and S, and a heavy sea sometimes makes in with SE winds. The port is inactive and the piers and cargo handling facilities of Playa de Humacao are in ruins. Small boats can make a landing at the ruins of the old sugar central pier during good weather.

Prominent features

(444) **Punta Lima**, 3 miles NE of Puerto de Humacao, is a projecting wooded hill with low land back of it. A reef 0.5 mile E of the point usually shows breakers on it.

(445) **Cayo Santiago,** 0.7 mile SE of the waterfront at **Playa de Humacao,** is the most prominent feature when approaching the port. The island is low at the N end, rising to 162 feet at the S end. The Caribbean Primate Research Center maintains a monkey colony for experimental purposes on the island; no visitors are permitted.

(446) **El Morrillo,** 1.8 miles SW of the port, is a small rocky hill which rises abruptly from the water and the lowland around it.

(447) **Morro de Humacao,** 3.5 miles SW of the port, is a 100-foot rocky point with higher ground inland. Grass-covered **Cayo Batata** is 0.4 mile off the point. A bare ledge, with five rocks and a reef, awash and steep-to, extends up to 0.2 mile E and S of Cayo Batata.

Channels

(448) The principal entrance to Puerto de Humacao is from S through an unmarked channel leading W of **Bajo Parse** and **Bajo Evelyn;** small vessels can enter from N.

Anchorages

(449) Large vessels can anchor within 2.3 miles S of Cayo Santiago, as close inshore as draft permits.

(450) Ensenada Honda, 10 miles NE, is the nearest hurricane anchorage.

(451) Small vessels anchor in depths of 3 to 10 feet in the NE part of **Puerto de Naguabo,** 2 miles NE of Puerto de Humacao. Good anchorage is afforded except with SE or S winds. A boat landing in about 7 feet of water can be made at a small pier SE of Puerto de Naguabo. Gasoline is available nearby.

Dangers

(452) Several shoal spots with depths of 12 to 18 feet are in the approaches to Puerto de Humacao. The 12-foot shoal 1.2 miles E of Cayo Santiago and the shoals at the S entrance are unmarked. The chart is the best guide. A shoal area with depths of 1 to 6 feet extends for 0.4 mile from Cayo Santiago towards the waterfront at Playa de Humacao. A wreck reportedly covered 8 feet is 300 yards SE of the ruins of the long pier.

Small-craft facilities

(453) Berths with electricity, gasoline, diesel fuel, water, ice, and marine supplies are available. A 50-foot marine railway and a 35-ton lift can handle craft for hull and engine repairs. Some groceries are available at Playa de Humacao, but most supplies must be obtained from **Humacao,** 6 miles inland. (See chart 25650.) The principal source of marine supplies is San Juan, 44 miles by highway from Playa de Humacao.

(454) Humacao is a **customs port of entry.**

Chart 25661

(455) **Palmas del Mar**, 21 miles SSW of Cabo San Juan Light, is a small-craft harbor enclosed by a breakwater. The entrance to the harbor is marked by private lights. A marina on the W side of the harbor provides berths with electricity, gasoline, diesel fuel, water, ice, and marine supplies. A 50-foot marine railway and a 35-ton hoist can handle vessels for hull and engine repairs. It is reported that strong easterly winds cause breaking seas in the harbor entrance and surge inside the harbor.

(456) **Puerto Yabucoa,** 23.5 miles SW of Cabo San Juan Light and 6 miles NE of Punta Tuna Light, is an open bay with numerous reefs and sunken rocks with depths of less than 5 feet between rocky **Punta Guayanes** on the N and **Punta Quebrada Honda** on the S. The port is the site of a deep-draft oil-handling facility. Large tankers call here to deliver crude petroleum and load petroleum and petrochemical products.

Channels

(457) A privately dredged 500-foot channel leads from deepwater to a turning basin and petroleum wharf. A jetty extending about 200 yards from the NE side of the basin entrance is marked by a light. The channel is marked by private lighted buoys, lights, and a **296°50'** lighted range. In 1976-1981, the controlling depth was 34 feet (49 feet at midchannel), thence 43 to 50 feet in the basin except for shoaling along the edges; in 1971, 25 feet was available in the smaller basin to the W of the main basin. In November 1983, shoaling was reported in the vicinity of the turning dolphin in the N part of the main basin.

(458) The storage tank farm and several tall stacks are conspicuous NW of the turning basin.

Anchorages

(459) A suitable anchorage is available for several deep-draft vessels SE of Punta Guayanes.

Dangers

(460) The area seaward of the dredged channel is relatively open and free from dangers, but care should be exercised in approaching the channel as depths shoal extremely rapidly at the channel entrance. Outcrops of hard seafloor material exist close to the edges of the channel; give the edges of the channel a good berth. A shoal area that is partially bare with breakers is 0.5 mile SW of the channel. Prevailing winds from ESE cause a good swell in the basin most of the time.

Pilotage, Puerto Yabucoa

(461) See Pilotage, Puerto Rico (indexed as such) early this chapter. Local pilots are available. Pilots board in-bound vessels about one mile seaward of the channel entrance.

Towage

(462) The use of a tug is compulsory for arriving and departing vessels. Tugs up to 3,800 hp are available.

Quarantine, customs, immigration, and agricultural quarantine

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

(464) **Quarantine** is enforced in accordance with regulations of the U.S. Public Health Service. (See Public Health Service, chapter 1.)

Harbor regulations

(465) Local regulations are enforced by the local Commonwealth Captain of the Port.

Wharves

(466) The petroleum wharf on the N side of the main basin is 450 feet long with turning and berthing dolphins extending off the ends. Depth alongside is 50 feet. The barge and dry cargo wharf on the S side of the basin just inside the entrance is 200 feet long with a depth of 10 feet reported alongside.

(467) A pipeline trestle pier in ruins, formerly used for loading molasses, is at **Playa de Guayanes** in the N part of Puerto Yabucoa.

Supplies and repairs

(468) Bunker C, diesel oils, and water are available at the petroleum wharf. Limited marine supplies are available in Puerto Yabucoa. Stores and supplies can be ordered through the ship agents for delivery to the vessel with at least 48-hours advance notice.

(469) No repair facilities are available.

Chart 25659

(470) **Punta Yeguas**, 1.2 miles S of Punta Quebrada Honda, is a low point with a rocky bluff at the end, which rises gradually in a smooth grassy ridge that joins the E end of Cuchilla de Panduras.

(471) **Punta Toro,** the point 1.4 miles WSW of Punta Yeguas, is a 500-foot-high spur of **Cuchilla de Panduras,** which has elevations of over 1,800 feet to the N.

(472) **Punta Tuna Light** (17°59'24"N., 65°53'06"W.), 111 feet above the water, is shown from a white octagonal tower on a dwelling, near the end of the point. The point projects as a high cliff; a 400-foot hill 0.5 mile N is prominent.

(473) **Arrecife Sargent,** 0.5 mile SE of Punta Tuna is 1.8 miles long and 0.3 mile wide at its widest point. Because it breaks the force of the SE swell, the reef affords some protection from the SE for vessels anchored well in by Punta Tuna where the reef is from 0.3 to 0.2 mile from shore. A bare part of the reef, 0.7 mile E of the light, has the appearance of a rowboat and black can buoy. Other parts of the steep-to reef have depths of 5 to 17 feet. The break on the reef does not show well except when there is considerable sea, and on parts of it the sea rarely breaks. The natural channel between the reef and the shore is not recommended for strangers.

Charts 25671, 25677

(474) The **S coast** of Puerto Rico from Punta Tuna to Cabo Rojo extends in an almost W direction for 75 miles. The coast is very irregular with projecting brush-covered points between shallow coves and bays; fringing reefs close to shore make landing difficult and often dangerous in most places. Except at the E and W ends of Puerto Rico, the land is generally low near the shore with prominent high hills in the interior. Many reefs and islands are from 2 to 5 miles offshore, then the bottom increases rapidly to great depths, making soundings of little use to indicate danger or distance from shore. Numerous lights and other prominent features along the coast can be used for position determination. Safety will be ensured by giving a berth of at least 3 miles to the coast and to Isla Caja de Muertos. Small vessels with local knowledge sometimes hug the coast inside the outer reefs to avoid heavy seas outside.

(475) In 1967, a rock pinnacle, covered 6 fathoms, was reported about 12.5 miles ESE of Isla Caja de Muertos Light in 17°50'35"N., 66°18'14"W.

Chart 25689

(476) **Puerto Arroyo**, 11 miles W of Punta Tuna Light, is an open bay exposed to S winds.

(477) **Punta Figuras** is a projecting point on the E side of Puerto Arroyo. **Cerro Range,** 3 miles N of Punta Figuras, is a distinct sharp conical hill. The stacks of several sugar centrals are also prominent.

(478) The principal entrance channel is from SW. Several shoals with depths of 24 to 30 feet are in this approach, and the bottom is irregular. There is a small- boat passage from E between Punta Figuras and Arrecife Guayama; the passage should be used only with local knowledge. Depths of 24 to 30 feet can be taken to the anchorage area, thence about 5 feet to the private pier at **Arroyo.** The E passage has depths of 13 to 30 feet to the anchorage.

(479) The best anchorage is in 23 to 30 feet a mile WSW of Punta Figuras. The prevailing SE wind is always felt in the anchorage, although the force is somewhat broken by the outlying reef. Some small fishing vessels anchor near Arroyo according to draft. Bahia de Jobos, 10 miles W, is the nearest hurricane anchorage.

(480) **Arrecife Guayama,** 1 to 1.5 miles off Punta Figuras, is nearly 3 miles long and is dangerous to approach. Its E part is awash, and the sea usually breaks on it; the middle part has little water on it with patches awash on which the sea breaks. The SW end of the reef is marked by a lighted buoy. **Arrecife Corona,** 1.4 miles W of Punta Figuras, has a least depth of 5½ feet.

(481) **Arrecife Algarrobo,** 2.3 miles W of Punta Figuras, has 1 foot or less over it. Several shoals with depths of 6 to 18 feet extend up to 2 miles offshore S of **Punta Barrancas,** a point on the W side of Puerto Arroyo 3.8 miles W of Punta Figuras.

Small-craft facilities

(482) Berths, gasoline by truck, water, some marine supplies, and engine repairs are available at Arroyo.

(483) Local harbor regulations for Puerto Arroyo are enforced by a Commonwealth Captain of the Port.

Chart 25677

(484) **Laguna de Las Mareas** about 6.5 miles W of Punta Figuras is the site of a deep-draft oil-handling facility. Large tankers call here to deliver crude petroleum products and load petrochemicals and motor fuels.

Channels

(485) A privately dredged channel and landcuts lead through the reefs from deepwater to the facilities' basin and pier in Laguna de Las Mareas. The breakwater extending from the E entrance point, **Punta Ola Grande,** is marked at the seaward end by a light. The channel is marked by private lighted aids and a **025°04'36"** lighted range. In October 1977, the controlling depth was 33 feet in the entrance channel, thence in 1976, 37 feet in the basin except for shoaling along the edges. In May 1981, shoaling to 33 feet was reported in several places in the harbor. Extreme caution is advised when entering the harbor.

(486) The 1,100-foot pier in the basin extends from the N shore and consists of a series of connected mooring and breasting dolphins with a 90-foot loading platform (pierhead) near its center. In 1968, depths of 38 feet were reported alongside.

Pilotage, Laguna de Las Mareas

(487) See Pilotage, Puerto Rico (indexed as such) early this chapter. Pilots board vessels 1 mile off the entrance to the harbor. A 48-hour and a 24-hour notice of time of arrival are requested.

Towage

(488) Tugs up to 1,800 hp are available for docking vessels. The tugs monitor 2182 kHz and VHF-FM channel 16.

Quarantine, customs, immigration, and agricultural quarantine

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

(490) **Quarantine** is enforced in accordance with regulations of the U.S. Public Health Service. (See Public Health Service, chapter 1.)

(491) A hospital is at nearby Guayama.

Repairs

(492) The nearest port for major repairs is San Juan; limited emergency above-the-waterline repairs are available at Ponce.

Supplies

(493) No bunkers are available; in emergencies bunkers and lube oils may be delivered from Ponce. Limited quantities of water and facilities for offloading waste water are available at the pier. Marine supplies are available on 48-hour notice.

Tides

(494) The reported mean range of tide is 0.8 foot.

Chart 25687

(495) **Bahia de Jobos**, 20 miles W of Punta Tuna Light, is a good hurricane anchorage. The harbor is formed by **Punta Pozuelo,** a projecting point on the E side, and many islands on the S and SW sides. The shore and islands are low and are covered with thick brush and mangroves. **Central Aguirre,** on the NW side of the bay, is one of the largest sugar centrals of Puerto Rico. The E part of the bay is shoal and is used only by local fishing boats.

Prominent features

(496) A light on the E end of **Cayos de Ratones** marks the entrance to Bahia de Jobos. The stacks at Central Aguirre and the water tank at **Salinas** show up well from offshore.

Channels

(497) The principal entrance to Bahia de Jobos is from the W between **Cayo Morrillo** and Cayos de Ratones, and thence through a marked dredged channel that leads to a turning basin and facilities of a powerplant, and to a 1,000-foot-long pier at the head of the channel at Central Aguirre. In 1975, the dredged channel had a controlling depth of 26 feet for a midwidth of 150 feet to the turning basin and pier. In 1977, the basin, marked by private lighted buoys, had depths of 26 feet except for shoaling to 18 feet on the N and W sides. Shoaling to 7 feet exists NE of the basin.

(498) **Boca del Infierno,** a small-boat entrance into Bahia de Jobos between **Cayos Caribes** and **Cayos de Barca,** has a depth of 11 feet over the bar which breaks with a heavy sea. This passage should be used only with local knowledge.

(499) A privately dredged and marked channel leads E from **Punta Rodeo,** the NW extremity of Punta Pozuelo, along the N side of Punta Pozuelo to a private

basin and barge receiving wharf of an oil company. In 1975, the channel had a controlling depth of 9 feet, with 9 to 16 feet available in the basin.

Anchorages

(500) Vessels sometimes anchor just inside the entrance between Cayo Morrillo and Cayos de Ratones to await daylight. There is a good anchorage in depths of 24 to 35 feet with grassy bottom NE of **Cayos de Pajaros.** The anchorage inside the bay is S of the pier at Central Aguirre in depths of 19 to 24 feet with soft mud bottom. A slight swell makes in through Boca del Infierno with S winds.

Dangers

(501) Numerous wooded islands with reefs awash and steep-to surround the S and SW part of Bahia de Jobos up to 1.5 miles from the mainland. There are passages between some of the island groups, but only the principal entrance E of Cayos de Ratones should be used by large vessels and small boats without local knowledge.

Pilotage, Bahia de Jobos

(502) See Pilotage, Puerto Rico (indexed as such) early this chapter. Pilots from Ponce serve this harbor. Vessels are boarded off Cayos de Ratones.

Quarantine, customs, immigration, and agricultural quarantine

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

(504) **Quarantine** is enforced in accordance with regulations of the U.S. Public Health Service. (See Public Health Service, chapter 1.)

(505) Puerto Jobos is a **customs port of entry.**

Wharves

(506) The 1,000-foot-long pier at the head of the dredged channel at Central Aguirre was reported, in 1975, to be in poor condition and not usable. The fuel oil barge loading platform of the powerplant, on the NW side of the turning basin, has about 300 feet of berthing space with dolphins. In June 1976, depths of 17 feet were reported alongside.

Supplies and repairs

(507) Supplies have to be obtained from inland towns; San Juan is 67 miles by highway. Some above-the-waterline emergency repairs can be made by the machine shop at Central Aguirre.

Small-craft facilities

(508) A small-craft facility is on the S side of Bahia de Jobos about 0.7 mile E of Punta Rodeo. The entrance channel to the facility is very narrow and should be navigated with caution. Gasoline, water, ice, and a launching ramp are available.

(509) **Bahia de Rincon,** 26 miles W of Punta Tuna Light, is a 5-mile-wide bay used only by local fishing boats that anchor near **Playa de Salinas** in the NE part. There is a good anchorage in depths of 24 to 30 feet in the E part of the bay during ordinary weather. The bay shoals to 18 feet and less within 1 mile of the shore in some places.

(510) **Arrecife Media Luna** and **Cayo Alfenique** obstruct the entrance to Bahia de Rincon from S. The reefs are partly bare or awash, steep-to, and the sea breaks on them. The W side is obstructed by **Cayos de Caracoles** and **Cayos Cabezazos.** Reefs awash or bare and nearly steep-to surround the islands, and the sea always breaks on their S sides. Foul ground with depths of 1 to 6 feet extends N to **Punta Petrona,** the W point of the bay.

(511) Depths of 23 to 28 feet can be taken to anchorage in Bahia de Rincon on either side of Arrecife Media Luna; avoid the 12-foot shoal 0.4 mile NW of Cayos de Ratones. Small vessels with local knowledge also use the narrow channel N of Cayos de Ratones.

(512) In 1967, a rock pinnacle, covered 6 fathoms, was reported in about 17°50.6'N., 66°18.3'W., about 5 miles S of the light on the E end of Cayos de Ratones. (See chart 25677.)

Chart 25685

(513) The 15-mile indentation in the coast between Bahia de Rincon and Bahia Ponce is obstructed by islands and shoals up to 5 miles offshore. The stacks of several sugar centrals and several water tanks are prominent along the coast line. Anchorage in depths of 15 to 30 feet can be found within 0.5 mile of the shore during ordinary weather. Small local fishing boats anchor near the settlements along the shore.

(514) **Playa Santa Isabel,** 31 miles W of Punta Tuna Light, is a small settlement near the beach where water can be obtained. A depth of 4 feet can be taken to the landing. Gasoline, groceries, and some supplies are available at **Santa Isabel,** 0.7 mile inland.

(515) **Cayo Berberia,** 33 miles W of Punta Tuna Light, is 2 miles offshore and is surrounded by a reef and shoals. The fringing reef, on which the sea breaks on the S and E sides, extends up to 0.4 mile from the island. A shoal with depths of 2 to 12 feet extends for 0.2 mile N of the island and over a mile W of it. In ordinary weather, a good anchorage in 45 to 60 feet of water 1 mile NW of the island was reported by the NOAA Ship MT. MITCHELL. Care must be taken when approaching the

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area because of shoals with depths of 15 to 18 feet, 2 miles NW of the island.

(516) **Isla Caja de Muertos,** about midway of the 75-mile stretch of coast between Punta Tuna Light and Cabo Rojo, is 5 miles offshore and prominent. The SW end is low except for a 170-foot steep hill at the extreme SW end. When viewed from a distance the 170-foot hill appears to be a separate island. At such times the hill is easily mistaken for Isla Morrillito. Care should be taken when shooting tangents to these islands. Landings can be made on the W side of the island during ordinary weather. **Isla Morrillito** is a small 31-foot flat-topped island 200 yards off the SW point.

(517) **Isla Caja de Muertos Light** (17°53'35"N., 66°31'16"W.), 297 feet above the water, is shown from a 63-foot gray cylindrical tower on the summit of the island.

(518) Shoal water with depths of 3 to 18 feet extends up to 0.5 mile from the shore of Isla Caja de Muertos and Isla Morrillito. A reef extends about 0.4 mile seaward in all directions from a point on the NE end of Isla Caja de Muertos in 17°54.0'N., 66°30.6'W. A bar with a least depth of 13 feet extends NE from Isla Caja de Muertos gradually curving E and joins the shoal area W of Cayo Berberia. The sea rarely breaks on the bar; it is dangerous to approach.

(519) A passage N of Cayo Berberia and Isla Caja de Muertos is used in the daytime by small coasting vessels with local knowledge. There are several shoals with depths of 14 to 17 feet along the route.

(520) A good anchorage in ordinary weather in 90 to 115 feet of water about 0.8 mile NW of the center of Isla Caja de Muertos was reported by the NOAA Ship MT. MITCHELL. The island offers a good lee.

(521) **Isla del Frio** (see chart 25683), 4.3 miles NNW of Isla Caja de Muertos and 0.4 mile offshore, is surrounded by a 0.4-mile-long reef that is steep-to on the S edge.

Chart 25683

(522) **Bahia de Ponce**, 43 miles W of Punta Tuna Light and 32 miles E of Cabo Rojo Light, is the most important commercial harbor on the S coast and one of the three leading ports of Puerto Rico. The harbor is protected from the prevailing E trade winds by Punta Penoncillo and Isla de Gata with their surrounding reefs, but it is exposed to the S causing a swell at times in the anchorage. The port facilities are in the E part of the 3.5-mile-wide bay, which is surrounded by shoals

and reefs; the N part of the bay shoals to less than 18 feet within 0.4 mile of the shore in places.

(523) **Ponce,** the second largest city in Puerto Rico, is 2 miles inland from the port at **Playa de Ponce,** and 71 miles by highway from San Juan. Most cargo is landed at the municipal pier and bulkhead on Punta Penoncillo. The principal imports include foodstuffs, textiles, building materials, and machinery. Exports include sugar, cement, and canned fish.

Prominent features

(524) (See also chart 25677.) Isla Caja de Muertos with the light on its summit is the most prominent feature in the approach. The stacks of the cement factory W of Ponce, the large microwave tower in Ponce, the hotel on the hill back of Ponce, and the radio towers and stacks surrounding the bay can be seen from well offshore. Also prominent is the aerolight at Mercedita Airport, about 2.5 miles E of Ponce.

(525) **Isla de Cardona,** in about the middle of the entrance to Bahia de Ponce, is marked by a light shown from a white tower near the middle of the island. **Isla de Gata,** S of the municipal pier on **Punta Penoncillo** is connected by a dike to **Punta Carenero.**

Channels

(526) The principal entrance is E of Isla de Cardona. A Federal project provides for a 600-foot-wide entrance channel 36 feet deep, then an inner channel 200-foot-wide 36 feet deep leading to an irregular shaped turning basin, with a 950-foot turning diameter adjacent to the municipal bulkhead. (See Notices to Mariners and latest editions of charts for controlling depths.)

(527) The entrance channel is marked by a **015°** lighted range, lights, and buoys; do not confuse the rear range light with the flashing red radio tower lights back of it. A 0.2-mile-wide channel between Isla de Cardona and Las Hojitas is sometimes used by small vessels with local knowledge.

Anchorages

(528) The usual anchorage is NE of Isla de Cardona in depths of 30 to 50 feet, although vessels can anchor in 30 to 40 feet NW of Las Hojitas. A small-craft anchorage is NE of Las Hojitas in depths of 18 to 28 feet. (See **110.1 and 110.255**, chapter 2, for limits and regulations.) A well-protected anchorage for small boats in depths of 19 to 30 feet is NE of the yacht club on Isla de Gata. A comfortable anchorage with little swell during ordinary weather in depths of 18 to 30 feet can be found in **Caleta de Cabullones,** the bight E of Isla de Gata.

(529) Bahia de Ponce is not safe as a hurricane anchorage because it is exposed to the S. The nearest hurricane anchorages are at Bahia de Jobos, 28 miles E, Bahia de Guayanilla, 8 miles W, and Bahia de Guanica, 16 miles W.

Dangers

(530) **Bajo Tasmanian**, an extensive bank on the E side of the principal harbor entrance, is about a mile long with several spots of 16 to 18 feet. The W part of the bank extends close to the range line and has depths as little as about 20 feet.

(531) The bank on the W side of the entrance extends almost to Isla de Cardona and has general depths of 28 to 48 feet, but there are several spots of 18 to 23 feet within an area 0.5 mile SW of the island.

(532) **Bajo Cardona** extends 600 yards ESE from Isla de Cardona with depths of 12 to 16 feet. A bare reef on which the sea breaks extends 300 yards NE of the island; depths of 11 to 14 feet continue in the same direction for 200 yards.

(533) A reef bare at low water and steep-to extends 300 yards W and SW from Isla de Gata. The sea always breaks on the outer side of this reef.

(534) It is reported that with an E wind of 25 knots or more, the mud from the reef off Isla de Gata discolors the water across the channel to Isla de Cardona and beyond making the channel off the piers at Punta Penoncillo appear shoal.

(535) Other unmarked shoals and reefs are dangerous in approaching Bahia de Ponce through any of the inshore passages. A reef with four islets extends 0.4 mile from shore to Punta Cabullones, 2.5 miles E of Isla de Cardona. The reef is steep-to, and the sea breaks on the S side. **Roca Ahogado,** a bare rock in the middle of Caleta de Cabullones, has shoal water of 4 to 18 feet extending up to 0.2 mile from it.

(536) **Las Hojitas,** NW of Isla de Cardona, is 0.8 mile long in a NE direction with a small patch awash near the SW end. The reef has depths of 2 to 11 feet and is steep-to E and NE of this patch.

(537) **Cayo Viejo,** 0.8 mile W of Isla de Cardona, is about 0.3 mile in diameter and awash at its shoalest point.

(538) **Isla de Ratones,** on the W entrance to Bahia de Ponce and a mile offshore, is a low island with a reef that bares at low water extending a mile ESE of it. **Cayo Arenas,** 0.5 mile E of Isla de Ratones, is surrounded by a reef and shoals that extend up to 200 yards from its shore. Crooked channels with a least depth of 10 feet are between these islands and the shore; they should be used only with local knowledge.

Weather

(539) The tropical climate of Bahia de Ponce features average rainfall of about 33 inches annually, a small diurnal and annual temperature range, and pleasant summer sea breezes. Most of the rain is in the form of showers or thunderstorms, which are frequent from May through November. Thunder is heard on about 6 to 12 days each month; September is the most active month. Monthly precipitation extremes range from over five inches in October to less than one inch in January through March. Maximum temperatures range from the mid-80's in winter to around 90ºF in August and September. Summer highs climb to 90ºF or more on only 7 to 10 days each month, thanks to the sea breeze however, 90ºF or greater has been recorded in every month. The average annual temperature at Ponce is 78.8ºF with an average maximum of 88.7ºF and an average minimum of 68.4ºF. The mean temperature difference between the warmest month (July) and the coolest month (January) is only 6.1ºF. Winds are usually out of the SE and E from spring to fall, and NE and E the remainder of the year. Windspeeds of 17 knots or more blow up to 2 percent of the time in March, April, and July. Visibilities are generally good, except in showers.

Routes

(540) From E: When 3 miles S of Isla Caja de Muertos Light steer **303°** for 8 miles until Isla de Cardona Light bears 005°, distant 2.5 miles, then head in on the lighted range bearing **015°.** From W: When 5 miles S of Guanica Light steer **079°** for 15.4 miles to the position off the entrance of Bahia de Ponce.

Pilotage, Bahia de Ponce

(541) See Pilotage, Puerto Rico (indexed as such) early this chapter. Pilots board vessels at the entrance buoys.

Towage

(542) Vessels enter and clear the harbor under their own power. Two tugs are available in emergencies and may be contacted by calling the Coast Guard station at Ponce.

Quarantine, customs, immigration, and agricultural quarantine

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

(544) **Quarantine** is enforced in accordance with regulations of the U.S. Public Health Service. (See Public Health Service, chapter 1.)

(545) Ponce is a **customs port of entry.** The customhouse is at Playa de Ponce. The deputy collector of customs and his inspectors act as immigration inspectors.

Harbor regulations

(546) A Commonwealth Captain of the Port with an office at Playa de Ponce enforces the local rules and regulations for Bahia de Ponce.

Wharves

(547) The municipal pier and wharf on Punta Penoncillo are administered by a board with a dock superintendent in charge. The municipal pier on the SE side is 450 feet long and has depths of 26 to 30 feet along both sides; transit sheds and pipelines for water, molasses, and bulk cement are on the pier. Immediately NW of the pier is a 63-foot-wide loading ramp which slopes to about 1 foot above the water.

(548) On the N side of Punta Penoncillo is a 1,900-foot bulkhead wharf, locally known as Alcoa Pier and has depths of 17 to 28 feet alongside; transit sheds and pipelines for water and diesel oil are on the wharf; general cargo is received.

(549) About 300 yards N of the Alcoa Pier, the 610-foot Trailer Terminal pier has reported depths of 36 feet alongside.

(550) About 350 yards E of the municipal pier is a L-shaped pier with a 350-foot face which in 1972 had reported depths of 30 feet alongside and 31 feet in the approach. Pipelines on the pier handle water and vegetable oil, and unload polluted water from fishing vessels.

(551) A maneuvering basin extends 250 yards N of the municipal wharf, the northerly limits marked by buoys. In September 1971, the basin had depths of 24 to 30 feet with shoaling to lesser depths in the E end.

Supplies

(552) Most supplies are available at Ponce. If necessary, additional supplies can be brought in by truck from San Juan in a few hours. Freshwater, bunker C oil, and diesel oil are available at the municipal pier; gasoline is available by truck.

Repairs

(553) Above-the-waterline repairs and minor electrical and small-engine repairs are available in Ponce. There is no drydock or large marine railway available at the port.

Small-craft facilities

(554) Berths with electricity, gasoline, diesel fuel, water, ice, and a launching ramp are available. A 65-foot marine railway and a 50-ton lift can handle craft for hull, engine, and electronic repairs.

Chart 25681

(555) **Bahia de Tallaboa**, 27 miles E of Cabo Rojo Light, is an open bay somewhat protected by islands and surrounding reefs. The shoreline is heavily industrialized; large vessels call here to deliver and load petroleum and chemical products.

Prominent features

(556) The beach is intensely developed with tank farms, cracking towers, buildings, and stacks. The most prominent objects in 1972 were two large cracking towers topped by red and white checkered tanks which constantly emit smoke, a large elevated water tank SE of the cracking towers, and a castlelike house on a hill above the extreme W edge of the bay. The two red and white striped stacks of the South Coast Steam Plant on the NE shore of Bahia de Guayanilla and the large sugar mill stack NW of Bahia de Guayanilla are also prominent from offshore.

Channels

(557) The principal entrance channel, marked by buoys, leads into Bahia de Tallaboa between **Cayo Caribe** on the E and **Cayo Maria Langa** and **Cayo Palomas** on the W. It is recommended that inbound vessels when abeam of Buoy 4, steer directly for Buoy 6 until Buoy 5 is abeam to the W. This avoids the danger of being set onto the 15-foot bank W of the channel by strong prevailing E winds. Shoals and reefs with depths of 10 feet and less extend from the islands nearly to the buoyed channel.

(558) It is reported that depths of 32 feet or more can be taken to the offshore loading platform W of **Cayo Rio** and 37 feet can be taken to the oil pier NE of Cayo Rio. Private aids mark the best approach to each facility.

(559) Ponce Salt Industries maintain a small harbor in the NE part of Bahia de Tallaboa. A channel leading to a riprap salt unloading area is marked by a private **013°** unlighted range and by buoys. Depth in the channel is about 5 feet. The approach across the bay to the harbor is marked by a private **057°** unlighted range with a depth of about 29 feet to the point where the 013° range is intersected. A mooring buoy, in about 13 feet of water, is just outside and to the E of the 5-foot channel leading to the inner harbor.

(560) There are numerous private piers and boathouses for yachts and small craft along the NE shore of Bahia de Tallaboa extending from 66°42.2'W., to 66°43.0'W. This area is mostly foul with unmarked coral heads and reefs. Small craft should not attempt passage without local knowledge.

Anchorages

(561) Holding ground in Bahia de Tallaboa, charted as sticky, is poor, and dragging should be expected in winds greater than 25 knots. Bahia de Guayanilla, 1.5 miles W, is a good hurricane anchorage.

(562) **Pilotage, towage, quarantine, customs, immigration,** and **agricultural** quarantine services and **harbor regulations** for Bahia de Tallaboa are the same as for Bahia de Guayanilla (indexed as such) which is discussed later in this chapter.

Wharves

(563) The Commonwealth Oil Refining Company, Inc., maintains a 2,100-foot pier, marked by a light at the seaward end, in the N part of the bay, about 0.3 mile NE of Cayo Rio. In February 1971, a reported controlling depth of 38 feet was available along the outer 1,100 feet of the E side. Crude petroleum and chemicals are received, and petroleum products are shipped.

(564) Union Carbide Caribe Company, Inc., has a 60-foot-long offshore tanker loading platform with dolphins about 700 yards SW of Cayo Rio. A reported depth of 32 feet can be taken to the platform. The platform is used to load bulk chemicals. The corners of the platform are marked by lights.

(565) A 35-foot-long barge wharf with dolphins is at the mouth of a 100-yard-wide outlet canal about 0.6 mile N of the tanker loading platform. Two buoys about 600 yards NW of the platform mark the best approach to the canal. In December 1977, the controlling depth was 20 feet in the approach to the canal, thence in 1970, about 3 feet reported in the canal. The mouth of the canal is subject to silting.

(566) Anchorage should not be attempted shoreward of the loading platform as there is a possibility of rupturing the submerged chemical lines leading to the platform.

(567) **Bahia de Guayanilla,** 25 miles E of Cabo Rojo Light, is the largest hurricane harbor and one of the best in Puerto Rico. The reefs and islands to the SE break the sea but not the wind; some dragging can be expected. The harbor, between low and wooded **Punta Guayanilla** on the E and bluff-faced **Punta Verraco** on the W, is protected at its entrance by extensive reefs which extend 1 mile or more offshore. The E part of the bay is a continuation of the industrial complex at Bahia de Tallaboa; large vessels call here to deliver and load petroleum and bulk chemical products.

Prominent features

(568) The features discussed for Bahia de Tallaboa are also prominent approaching Bahia de Guayanilla. The rectangular container lift structure of the Union Carbide Caribe Company off **Punta Gotay,** on the W side of

Punta Guayanilla, and the tank farms to the E of Punta Gotay are also prominent. The tanks of Punta Pepillo and a large stack S of **Guayanilla** are conspicuous. A square white tower and a large white bulk storage tank bear 356° directly down the channel from the entrance.

(569) **Cerro Toro,** on the SW side of Punta Verraco, has a 100-foot hill with a bluff head at its W end and a gentle slope NE to the low part of Punta Verraco. There is a bright yellow spot in the bluffs on the SE side. A low break separates the hills from **Punta Ventana,** 0.4 mile to the SW. The hill and point usually show well.

Channels

(570) The entrance channel, marked by lighted and unlighted buoys and a **358°** lighted range, leads into Bahia de Guayanilla between the shoals extending 0.4 mile from Cayo Maria Langa on the E and the shoals extending 1.4 miles from Punta Verraco on the W. Reported depths of about 40 feet can be taken from the entrance buoy to the privately dredged channel leading to the PPG Industries pier in the N part of the bay. In 2001, a controlling depth of 33 feet was reported in the privately dredged and marked channel. A least depth of 31 feet can be taken to the Commonwealth Oil Refining Company piers E of the PPG channel entrance. Another privately dredged channel leads from the PPG channel entrance to the Texaco Terminal wharf off Punta Pepillo. In 2001, the channel had a reported controlling depth of 33 feet.

Anchorages

(571) The usual anchorage is 0.5 to 1 mile NE of Punta Verraco in depths of 35 to 50 feet, although vessels can anchor any place in the bay according to draft. There is good holding bottom of thick mud. Small fishing boats anchor in the N end of the bay. A good hurricane anchorage for small craft drawing less than 10 feet can be had in the center of the cove about 1 mile 035° from Punta Gotay. The approach channel to the cove is about 200 yards N of Cayo Mata, thence E between two jutting points of land; the channel is privately marked and maintained; local knowledge is required.

Dangers

(572) Cayo Maria Langa, marked by a light on the NW end, is surrounded by reefs on which the sea breaks. The 30-foot curve is 0.3 mile S and about 0.6 mile ESE from the island, descending abruptly to great depths.

(573) **Arrecife Fanduco,** the SW end of the shoal that extends 0.6 mile S of Punta Guayanilla and 0.4 mile W of Cayo Maria Langa, is partly bare at low water, and the sea always breaks on it. A shoal with a depth of 13 feet extends 0.2 mile SSW from **Punta Gotay,** the W end of Punta Guayanilla.

(574) **Arrecife Guayanilla** and **Arrecife Unitas,** on the W side of the entrance to Bahia de Guayanilla, form the S and SE sides of the reefs which extend 1.1 miles from Punta Verraco. The reefs are mostly bare at low water, and the sea always breaks on them. The 30-foot curve is about 0.2 mile from the S side, and the slope is abrupt to great depths. It has been reported that several deep-draft vessels have grounded on the 30-foot and shallower banks off the SE end of Arrecife Guayanilla while approaching the harbor entrance.

(575) Inside the bay, the water is shoal with depths of less than 5 feet up to 0.5 mile or more from shore. The least depth inside the limit of the buoys is 30 feet.

Routes

(576) Vessels approaching in the daytime from E or W can follow the coast at a distance of 2.5 miles until the entrance to Bahia de Guayanilla is recognized, then follow the channel marked by buoys into the harbor. At night vessels should keep well offshore to avoid the reefs off the entrance until the entrance buoys are identified.

Pilotage, Bahia de Guayanilla

(577) See Pilotage, Puerto Rico (indexed as such) early this chapter. Vessels are usually boarded 1 mile outside the entrance buoys for Bahia de Guayanilla and Bahia de Tallaboa. Pilots can be contacted on 2182 and 2738 kHz. At least 2 hours' advance notice of arrival should be given.

Towage

(578) Tugs up to 2,200 hp are available for Bahia de Guayanilla and Bahia de Tallaboa. The tugs monitor 2182 kHz and VHF-FM channel 16.

Quarantine, customs, immigration, and agricultural quarantine

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

(580) **Quarantine** is enforced in accordance with regulations of the U.S. Public Health Service. (See Public Health Service, chapter 1.)

Harbor regulations

(581) Local regulations are enforced by a Commonwealth Captain of the Port whose office is at Playa de Guayanilla.

Wharves

(582) The Union Carbide Caribe Company offshore wharf, on the W side of Punta Guayanilla at Punta Gotay, is 100 feet long with dolphins and had a reported depth of about 38 feet alongside in 1972.

(583) The Commonwealth Oil Refining Company oil piers at the end of a causeway, 0.4 mile SW of Punta Pepillo, provide about 2,700 feet of berthing space. Depths alongside are reported to be about 36 feet. The ends of the piers are marked by private lights. There are pipelines on the piers for water and petroleum products. A 250-foot work-barge wharf with dolphins 0.1 mile E of the N pier has a reported depth of about 16 feet alongside.

(584) Texaco's distributing plant wharf off Punta Pepillo is about 820 feet long with dolphins. In October 1982, depths of 37 feet were reported alongside. Private lights mark the wharf.

(585) The PPG Industries (Caribe) Company has a 1,100-foot pier in the N part of the bay. The privately dredged approach channel leading to the pier is marked by private lighted buoys and a private **014°** lighted range. In 1975-1978, a controlling depth of 35 feet was reported in the approach channel, thence in 1972, depths of 39 feet were reported alongside the pier. A 200-foot-long tug pier is about 0.1 mile E of the pier.

(586) A private 150-foot-long marginal barge wharf is at the N end of the large cove, known as **Cano de Los Placeres,** about 0.8 mile NE of Punta Gotay. A privately dredged channel leads from the entrance to the cove to the wharf; the channel has reportedly been dredged to 10 feet.

Supplies

(587) Bunker C, light diesel oil, other petroleum products, and at times marine diesel oil are available at the Commonwealth Oil Refining Company piers; 3 days advance notice is required to obtain the marine diesel oil. Water is available at the piers of the Union Caribe Company and the Commonwealth Oil Refining Company. Groceries and marine supplies can be obtained from Ponce, 12 miles by highway from Bahia de Guayanilla.

Repairs

(588) No repair facilities are available. Above-the-waterline and minor electrical and small engine repairs can be made in Ponce.

Chart 25679

(589) **Bahia de Guanica**, 16 miles E of Cabo Rojo Light, is small but one of the best hurricane harbors in Puerto Rico. The bay is protected by the steep, high, and wooded shores on the E and W sides. Large vessels call to load fertilizer, sugar, and molasses at the ports of **Guanica** and **Ensenada.**

Prominent features

(590) An abandoned lighthouse tower on Punta Meseta is prominent in the daytime. Power transmission towers located on either side of the channel and a 39-foot water tower NW of **Punta Meseta** are visible from seaward. Once inside the harbor, the most prominent objects are: two stacks at the sugar mill, a cupola at a large house near the sugar mill, and a fixed crane at the fertilizer wharf 0.5 mile N of Punta Meseta.

Channels

(591) Bahia de Guanica is entered through a buoyed approach channel, about 0.8 mile SE of **Punta Brea** (17°56.0'N., 66°55.2'W.), thence through a privately dredged channel, marked by a **354°30'** lighted range and buoys, which leads to a turning basin on the E side of the bay, and thence to the sugar mill at the W end of the bay. In 1970, the controlling depths in the dredged channel were 26 feet to the turning basin, thence 21 feet in the N half, and 27 feet in the S half of the channel to the W end of the bay.

(592) An overhead power cable with a clearance of 150 feet crosses the channel about 0.4 mile inside the entrance.

Anchorages

(593) The usual anchorage is 0.6 mile E of the sugar mill pier in depths of 20 to 28 feet, although vessels may anchor any place in the bay according to draft. The bottom is soft and holding ground is good, except in the entrance. Small fishing boats anchor off Playa de Guanica.

Dangers

(594) **Cayos de Cana Gorda**, 2 miles E of the entrance to Bahia de Guanica, extend 0.8 mile SW from **Punta Ballena.** They are low, covered with mangrove, and do not show well from seaward. Reefs partly bare at low water surround them to a distance of 0.3 mile.

(595) **Arrecife Coral,** a mile E of the entrance, is an extensive coral reef partly bare at low water. The W end of the reef is nearly a mile SE from Punta Meseta. Foul ground is between it, the N shore, and Cayos de Cana Gorda.

(596) **Corona La Laja,** 0.9 mile S of Punta Meseta, is about 0.2 mile in diameter with 8 to 17 feet over it; the sea seldom breaks on the shoal. A ridge with depths of 22 to 24 feet extends over 0.3 mile W of the shoal almost to the buoyed channel.

(597) On the W side of the entrance, a shoal with 11-foot and 12-foot spots extends 0.2 mile SE of Punta Brea.

(598) A detached shoal, 0.6 mile NE of Punta Brea, has depths of 20 to 29 feet near the W side of the entrance channel. Other spots with depths of 25 to 28 feet are

near the limits of the channel leading into the bay. A 29-foot depth is between entrance Buoys 2 and 3, and 24-foot depths are about 0.85 mile SE of the buoys.

(599) **Ensenada las Pardas,** an open bay N of Punta Brea, is fringed with reefs, mostly bare at low water on which the sea breaks; the reefs make out as much as 0.4 mile from the shore.

Routes

(600) From a position 2.5 miles S of Punta Meseta, pass Entrance Lighted Buoy 2, thence steer to pass midway between Buoy 3 and Lighted Buoy 4, thence pass Buoy 5 and steady on the **354°30'** lighted entrance range into the harbor. Care should be taken to avoid 20-foot shoals W of Buoy 3 and E of Lighted Buoy 4.

Pilotage, Bahia de Guanica

(601) See Pilotage, Puerto Rico (indexed as such) early this chapter. Pilots from Bahia de Guayanilla serve Bahia de Guanica. Vessels are usually boarded 0.5 mile S of the entrance buoy. Pilots may be contacted on 2182 and 2738 kHz. Several hours' notice must be given to allow the pilot to come from Guayanilla.

Towage

(602) Tugs from Bahia de Guayanilla are available if necessary.

Quarantine, customs, immigration, and agricultural quarantine

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

(604) **Quarantine** is enforced in accordance with regulations of the U.S. Public Health Service. (See Public Health Service, chapter 1.)

(605) Guanica is a **customs port of entry.**

Harbor regulations

(606) Local regulations are enforced by a Commonwealth Captain of the Port whose office is near Playa de Guanica.

Wharves

(607) A 440-foot fertilizer bulkhead wharf with a conveyor, 0.5 mile N of Punta Meseta, has 28 feet reported alongside. A chemical pier with dolphins, 0.7 mile N of Punta Meseta, has 25 feet reported alongside; a conveyor system and pipelines are available.

(608) The sugar mill on **Punta Pera** at the W end of the bay has two small wharves on the S side of the point which are used by small vessels for loading and have 28 feet alongside; pipelines for water, fuel oil, and molasses, and a conveyor system for bulk sugar are at the wharves. The Dominican Dock, extending off the E end of the point and marked by private lights on the outboard corners, has 25 feet alongside and is equipped for handling sugarcane.

Supplies

(609) Water is available at the sugar mill pier. Some marine supplies can be obtained at **Ensenada** and **Guanica.** Fuels are available by truck from Guayanilla.

Repairs

(610) Some emergency repairs can be made by the machine shop of the sugar central at Ensenada.

Chart 25671

(611) The 13.5-mile stretch of coast between Punta Jorobado and Cabo Rojo includes numerous cays, islets, and reefs, some of which extend as much as 4 miles offshore. The area is important as a commercial fishing ground; many small fishing boats base in the coves and fishing villages.

(612) A range of high hills shows up inland for virtually the whole distance. The highest points are **Cerro Vertero,** 4.4 miles NW of Punta Jorobado, and **Cerro Mariquita,** 6 miles NE of Cabo Rojo.

(613) **Punta Jorobado,** 2 miles W of Punta Brea, is a small projecting point with a hummock 92 feet high. **Arrecife Baul** is a reef lying 0.7 mile SE of the point. **Turrumote II,** a mile W of Punta Jorobado, is a sandy islet 300 yards wide surrounded by reefs. **Bahia Montalva,** the bay about 2.8 miles NW of Punta Jorobado, offers some protection behind **Arrecife Romero** and **Arrecife Enmedio** for craft drawing up to 12 feet, but care is required in entering. **Turrumote I,** an islet 3.6 miles W of Punta Jorobado, is small and sandy, with shoals of 9 to 21 feet deep extending SE and SW.

(614) At **La Parguera,** 8.5 miles E of Cabo Rojo Light, there is a somewhat protected harbor for small boats. Depths of 6 to 10 feet can be taken to the landing. Berths, electricity, gasoline, and some groceries are available. A small marine railway can handle craft up to 60 feet for hull repairs only.

(615) **Arrecife Margarita,** 9 miles W of Punta Jorobado, is 1.5 miles S of **Punta Tocon,** and its W end is about 2 miles SE of Cabo Rojo. Rocks awash and depths up to 28 feet are on this reef, which extends nearly 4.5 miles in an E-W direction.

(616) **Cabo Rojo,** the SW point of Puerto Rico, is a low neck 1.5 miles long at the S end of which are two hills with yellow bluff faces; the E hill is 118 feet high, and the W hill is 75 feet high. **Cabo Rojo Light** (17°56'00"N., 67°11'30"W.), 121 feet above the water, is

shown from a 46-foot gray hexagonal tower attached to a flat-roofed dwelling on the SE point of the cape.

(617) The **W coast** of Puerto Rico extends 26 miles N from Cabo Rojo to Punta Higuero and then 11 miles NE to Punta Borinquen. The coast is irregular with projecting wooded points between shallow bays. Places for small boat landings can be found in ordinary weather, but landing is dangerous in rough weather. In the S part the land is low near the shore with prominent high hills in the interior. Between Cabo Rojo and Bahia de Mayaguez reefs with depths of 30 feet or less extend up to 13 miles offshore; lighted buoys mark the extension of the shoal area. N of Bahia de Mayaguez the dangers are within 1 to 2 miles of the shore. Small vessels with local knowledge use an 18-foot buoyed passage 1 to 2 miles offshore between Cabo Rojo and Bahia de Mayaguez.

(618) **Punta Aguila,** 1.7 miles NW of Cabo Rojo Light, consists of 2 small bluff heads with lower land behind them. A shoal with depths of 12 to 16 feet extends 1 mile W from the point. Water and gasoline are available at a fishing village a mile N of the point.

(619) **Bajo Casabe** is a shoal that makes off between Punta Aguila and Punta Melones. The 18-foot curve is about 0.4 mile from shore at Punta Melones. Depths of 24 to 42 feet are near the W edge, which is fairly steep-to. A shoal with 22 to 28 feet extends W from the S part of Bajo Casabe, its W end lying about 2.7 miles WNW from Punta Aguila.

Chart 25675

(620) **Bahia de Boqueron**, 6 miles N of Cabo Rojo, is a good harbor for vessels passing through Canal Guanajibo. It is easily entered but is rarely used, except by small local boats. The better hurricane anchorage is at Guanica. The bay is 2.6 miles wide at the entrance between Punta Melones and Punta Guaniquilla, and extends 2 miles to its head where it is a mile wide. There are two entrances, N and S of **Bajo Enmedio,** the latter a rocky area with depths of 4 to 17 feet which lies across the middle of the bay. A lighted buoy marks its S edge.

(621) **Punta Melones,** the S point, is a bluff at the water's edge, backed by a 230-foot hill. Punta Guaniquilla, the N point, is sharply projecting and prominent.

(622) For 0.6 mile inside Bajo Enmedio the depths are 27 to 35 feet. A ridge with depths of 19 to 23 feet extends in a N and S direction near the middle of the bay between Bajos Roman and Ramito. The depths E of the ridge decrease gradually from 26 to 12 feet.

(623) **Canal Norte** is the channel leading into the bay between Punta Guaniquilla and the N end of Bajo Enmedio. It has a least width of about 350 yards, with depths of 21 to 28 feet. Owing to its nearness to the shore, this channel is easily followed and is the better one for strangers. **Canal Sur,** the S channel, leads between Bajos Enmedio and Palo. It is 350 yards wide between the 30-foot curves, with depths of 36 to 40 feet in the middle.

(624) Anchorage can be had with soft bottom anywhere in Bahia de Boqueron, except on the shoals where the bottom is hard.

(625) **Bajo Palo** is a shoal that extends nearly 0.7 mile N from the S shore of the bay, between 0.4 and 0.8 mile NE of Punta Melones. A depth of 5 feet is 0.3 mile from shore, and N of this the water deepens gradually from 8 to 13 feet at its N end. The W side of the shoal is steep-to.

(626) **Bajo Ramito** is a small shoal with a depth of 8 feet and 20 to 24 feet close-to, 0.5 mile from the S side of the bay, and 1.7 miles NE from Punta Melones. **Roca Velasquez,** a rock which should be avoided by all vessels, lies nearly 0.2 mile W from the village of Boqueron. A submerged rock is reported about 0.7 mile SSW of the village in about 18°01'25.8"N., 67°10'31.2"W. **Bajo Roman** is a small patch on which the least depth is 18 feet, with a surrounding depth of 27 feet. It lies about 0.4 mile from the N shore and 1 mile SE from Punta Guaniquilla.

(627) **Boqueron,** a small fishing settlement on the N side at the head of the bay, is principally a bathing resort for Mayaguez. A private boating club has depths of 3 to 5 feet alongside. Berths, electricity, gasoline, diesel fuel, water, ice, a launching ramp, and some marine supplies are available.

Chart 25671

(628) **Canal de Guanajibo**, a buoyed passage inside the reefs between Punta Aguilla and Bahia de Mayaguez, has a least depth of 18 feet at its N end on the ridge extending NE from Escollo Negro. The least depth at the S end of the channel is 23 to 24 feet on a bank making W from Bajo Casabe. The current velocity is about 1 knot and sets N and S in the channel.

(629) **Bajos Resuello,** the shoals off the entrance to Bahia de Boqueron, consist of three shoals separated by channels having depths of 24 to 36 feet; the S extremity of the shoals is W from Punta Melones and is marked by a buoy.

(630) **Bajo Corona Larga** consists of two shoals with depths of 25 to 54 feet between them. The NW shoal, 1.3 miles long, is 4.5 miles W from Punta Guaniquilla; it has a least depth of 12 feet at its N end. The SE shoal is 1 mile long and has depths on the coral heads of 16 to 18 feet.

(631) **Punta Carenero,** the N point at the entrance to Puerto Real, is low with many coconut trees, and at the water is a fringe of mangrove. **Punta La Mela,** the S point of Puerto Real, is low and covered with coconut trees that extend S to **Punta Boca Prieta.** A good anchorage in 36 feet is 0.5 mile W of Punta La Mela.

(632) **Cerro Buena Vista,** an 850-foot hill 3.4 miles E of Puerto Real, is a prominent and useful landmark for many miles, especially from W. From that direction it shows a knob at the summit, with a steep convex slope on its N side.

(633) **Puerto Real,** 8 miles N of Cabo Rojo, is a circular basin 0.7 mile in diameter used by local fishing vessels and small pleasure craft. Depths in the basin are 6 to 15 feet with shoal water toward the E end. **Puerto Real,** a small fishing community, is on the N shore of the basin. Water, gasoline, and some groceries are available. A small marine railway can haul out craft for minor repairs.

(634) **Escollo Media Luna,** a rocky patch with a least depth of 25 feet, is 12 miles NW of Cabo Rojo and 6.5 miles offshore. **Las Coronas** consists of a shoal of numerous heads with depths of 9 to 14 feet, the S end of which is 3.2 miles NW of Punta Guaniquilla. The shoal extends 1 mile N and 2.5 miles ENE toward Punta Ostiones and, together with the shoals extending off that point, forms a ridge across Canal de Guanajibo. The depths are 9 to 15 feet on the shoalest section of this ridge 3 miles WSW from Punta Ostiones, and depths of 13 to 17 feet are along the center portion of the ridge.

(635) **Escollo Negro** is the N shoal on the W side of Canal de Guanajibo. It is about 2.2 miles long in a NE direction and about 1.3 miles wide. Depths are 7 to 12 feet. A buoy marks an 18-foot passage across the ridge into Canal de Guanajibo.

(636) **Arrecife Tourmaline** extends 5 miles W from Escollo Negro, with a width of 2.7 miles, its NW end lying 9.2 miles W from Punta Guanajibo. On the W and S parts of the reef are depths of 30 to 42 feet, decreasing to 18 and 24 feet on its NE part. A 30-foot spot off the NW end of the reef is marked by a lighted buoy.

(637) **Punta Ostiones,** 9.5 miles N of Cabo Rojo and 1.3 miles N of the entrance to Puerto Real, is projecting and prominent, especially as seen from S. **Cayo Fanduca,** 0.8 mile SW from Punta Ostiones and about 0.5 mile from shore, consists of a few bare rocks. A narrow channel between it and the shore has a depth of about 3 feet, but it should not be attempted by strangers.

Chart 25673

(638) **Bahia de Mayaguez**, about halfway along the 34-mile stretch of the W coast between Cabo Rojo and Punta Borinquen, is one of the three leading ports of Puerto Rico. The open roadstead is easy to enter day or night and is a good harbor in all but hurricane weather. The shipping terminal is in the N part of the 3.8-mile-wide bay which is protected somewhat by the shoals that extend across the entrance. Depths of 30 to 60 feet are in the N part of the bay, but the S part is shoal.

(639) **Mayaguez,** the largest city on the W coast of Puerto Rico, is a mile S of the terminal and 101 miles by highway from San Juan. The principal imports include foodstuffs, building materials, machinery, fertilizers, textiles, and some petroleum products. Exports include clothing, fruit, vegetables, and tuna fish.

Prominent features

(640) **Punta Guanajibo**, 14 miles N of Cabo Rojo Light, is a 165-foot flat-topped ridge on the S side of Bahia de Mayaguez. A reform school on the point shows well from S.

(641) **Cerro Anterior,** a 433-foot saddle-shaped hill 1.5 miles inshore at Mayaguez, is conspicuous, and **Pico Montuoso,** a dome-shaped peak 9 miles eastward of the bay is readily identified from W.

(642) The city hall clock tower and a church are conspicuous above the other buildings at Mayaguez. Several red and white radio towers (seven in 1972) are visible along the S shore of the bay. A tall blue water tank is prominent behind the radio towers.

(643) Storage tanks and two closely positioned stacks are visible back of a prominent marine crane at the shipping terminal pier.

(644) A group of storage tanks and a tall boom on a conveyor pier are prominent about 750 yards SE of **Punta Algarrobo.**

Channels

(645) The principal entrance channel is between the lighted buoys marking Manchas Grandes and Manchas Interiores. Federal project depths in the Approach and Terminal Channels are 30 feet. (See Notice to Mariners and latest editions of charts for controlling depths.) The approach to the terminal is marked by a lighted **092°** range, and the approach to the anchorage is marked by a daybeacon 0.2 mile S of Punta Algarrobito.

(646) A secondary channel with depths of 18 feet or more leads into the bay from N inside of Manchas Exteriores and Manchas Interiores and W of Arrecife Algarrobo.

Anchorages

(647) The usual anchorage is SW of the shipping terminal in depths of 30 to 50 feet; the holding ground is good. The nearest hurricane anchorage is on the S coast of Bahia de Guanica, a distance of 60 miles.

(648) Small fishing boats anchor in depths of 3 to 12 feet along the shore S of the shipping terminal. Pleasure craft anchor in depths of 7 to 12 feet along the shore 1.2 miles S of the terminal. Some small boats use Puerto Real, 10 miles S of Bahia de Mayaguez, as a hurricane anchorage.

Dangers

(649) **Escollo Rodriguez**, a bank with depths of 3 to 18 feet extending N for 2.5 miles from Punta Guanajibo, has a reef at the W end which is awash and always breaks. **Roca Blanca,** 0.7 mile NE of the reef, has 9 feet over it with deep water close-to.

(650) **Manchas Grandes,** on the S side of the principal entrance, has depths of 10 to 20 feet and extends S to Escollo Rodriguez.

(651) **Manchas Interiores** and **Manchas Exteriores** with depths of 12 to 18 feet extend in a NW direction for 2 miles on the N side of the principal entrance. The W side of the shoals are steep-to, but broken ground on the E side extends to within a mile of the shore; some spots have depths of 18 feet.

(652) **Arrecife Algarrobo,** a mile NW of the terminal, has a few heads which bare at low water; the sea frequently breaks on the reef.

(653) **Bajo Mondongo,** 500 yards SW of the terminal, is a small shoal partly awash. A sunken wharf is off **Punta Algarrobito,** 0.4 mile S of the terminal.

(654) When winds are out of the W or SW, a surge is felt in the harbor causing vessels to pound against the terminal wharf. Smaller vessels are forced to anchor off under such conditions.

Tides and currents

(655) Since the range of tide is about 1 foot, the variation in the water level depends considerably upon the wind.

(656) The current velocity is about 1 knot and sets N and S across the entrance to Bahia de Mayaguez.

Weather

(657) The tropical climate of Bahia de Mayaguez features average rainfall of more than 78 inches annually, a small diurnal and annual temperature range, and a sea breeze that opposes the trade winds. About 8 to 11 inches of rain falls on 11 to 14 days each month from May through October. Thunder is heard on 12 to 15 days each month during this period. Maximum temperatures range from the mid-80's (°F) in winter to around 90°F in summer and climb to 90°F or above on 10 to 19 days each month from April through October. Winds mainly blow out of the ENE, and sea breezes are not common. Visibilities are good, except in showers.

Routes

(658) From S: When abeam of Arrecife Tourmaline Lighted Buoy 8, steer **060°** for about 7.5 miles, then head in on the lighted entrance range bearing **092°.** Note that this range leads to the N edge of the Approach Channel. If proceeding to the shipping terminal leave the range when abeam of Lighted Buoy 5 and steer **096°** to line up with the Terminal Channel. If proceeding to anchorage leave the range just after passing between the buoys marking Manchas Interiores and Manchas Grandes and head for the daybeacon 0.2 mile S of Punta Algarrobito, then anchor according to draft.

(659) From N: When Punta Higuero Light bears 120°, distant 2.3 miles, steer **153°** for about 10.7 miles and enter on the lighted range.

Pilotage, Bahia de Mayaguez

(660) See Pilotage, Puerto Rico (indexed as such) early this chapter. Vessels are boarded 1 mile W of the entrance buoys.

Quarantine, customs, immigration, and agricultural quarantine

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

(662) **Quarantine** is enforced in accordance with regulations of the U.S. Public Health Service. (See Public Health Service, chapter 1.)

(663) Mayaguez is a **customs port of entry.** The deputy collector of customs and his inspectors act as immigration officers.

(664) **Agricultural quarantine** officials are stationed in Mayaguez. (See appendix for address.)

Harbor regulations

(665) A Commonwealth Captain of the Port with an office on the Ports Authority shipping terminal wharf enforces the local rules and regulations for Bahia de Mayaguez.

Wharves

(666) The Ports Authority Terminal, in the N part of the bay, is under the control of the Puerto Rico Ports Authority.

(667) The 1,280-foot bulkhead wharf, (18°13'12"N., 67°09'39"W.), has a reported depth of about 28 feet alongside. Covered transit sheds, pipelines for water, fuel oil, molasses, and conveyors are available. General cargo is received.

(668) About 750 feet NW of the terminal wharf, a bulkhead wharf extends about 1,300 feet with wharves operated by three fish packing companies:

(669) The Star-Kist Cannery Packing Company wharf, the easternmost one, is about 500 feet long with 28 feet alongside; covered storage, pipelines for water, and diesel fuel are available.

(670) The Del Monte Cannery Packing Corporation wharf, immediately NW of the Star-Kist wharf, is 595 feet long with about 30 feet alongside; freshwater is available.

(671) The Ibec Cannery Packing Company wharf, immediately NW of the Del Monte wharf, is 200 feet long with about 30 feet alongside; freshwater is available.

(672) The Pecuarias de Puerto Rico conveyor pier (18°13'27" N., 67°10'10"W.) is a 31-foot pier with dolphins with depths of 30 feet reported alongside. A conveyor system is used to receive bulk grains.

Supplies

(673) Most supplies are available at Mayaguez. If necessary, supplies can be brought in from San Juan by truck in a few hours. Water and diesel oil are available at the terminal; gasoline can be trucked in.

Repairs

(674) Machine shops in Mayaguez can make above-the-waterline repairs to vessels.

Chart 25671

(675) **Bahia de Anasco**, 4.5 miles NW of Bahia de Mayaguez, is somewhat foul in the N part for about a mile from shore. There are shoals with 16 to 17 feet over them inside the 10-fathom curve. A tall stack, 1.8 miles inland, is prominent, and the entrances to the several rivers that empty into the bay show as breaks in the coconut groves.

(676) **Punta Cadena,** together with the **Cerros de San Francisco** extending E, is quite prominent. The dome-shaped hills slope upward to **Pico Atalaya,** 3 miles inland. From the point to Punta Higuero many rocks and coral reefs extend up to 0.6 mile offshore, then the bottom increases rapidly to great depths, making soundings of little use to indicate danger or distance from shore.

(677) Canal de la Mona and the W coast of Puerto Rico N of Punta Higuero has been described previously in this chapter.

Chart 26194

(678) **Navassa Island** (18°24'N., 75°01'W.), a United States possession claimed in 1857, formally annexed by presidential proclamation in January 1916, and under the jurisdiction of the U.S. Fish and Wildlife Service, is about 527 miles SE of Key West and about 30 miles W of Hispaniola. The island is about 1.9 miles long and 1.1 miles wide. The shoreline consists of steep, jagged, undercut rock formations that rise as much as 50 feet from the sea. The interior comprises about 1.8 square miles of terrain sloping steeply upward to a lofty, undulating tableland with scattered trees and cactus. The island is uninhabited except for a few wild goats. There is no water on the island, and the terrain is extremely rugged. The island, reported visible on radar at 22 miles, is marked by a light 395 feet above the water and shown from a gray cylindrical tower.

(679) **Lulu Bay,** a small indentation on the SW side, fronts the ruins of a former phosphate mining operation. Small craft can anchor here, but caution should be exercised due to the close proximity of the undercut rock and the frequent surge which has been observed to be as much as 7 to 10 feet. Vessels can anchor about 0.4 mile WSW of Lulu Bay with the light bearing about 080°; sand and coral bottom.

(680) Requests to visit Navassa Island should be made to the Commander, Seventh Coast Guard District, Miami, Fla. (See appendix for address.)

(681) Navassa Island is also described in Pub. No. 147, Sailing Directions (Enroute), Caribbean Sea, published by the National Geospatial-Intelligence Agency.