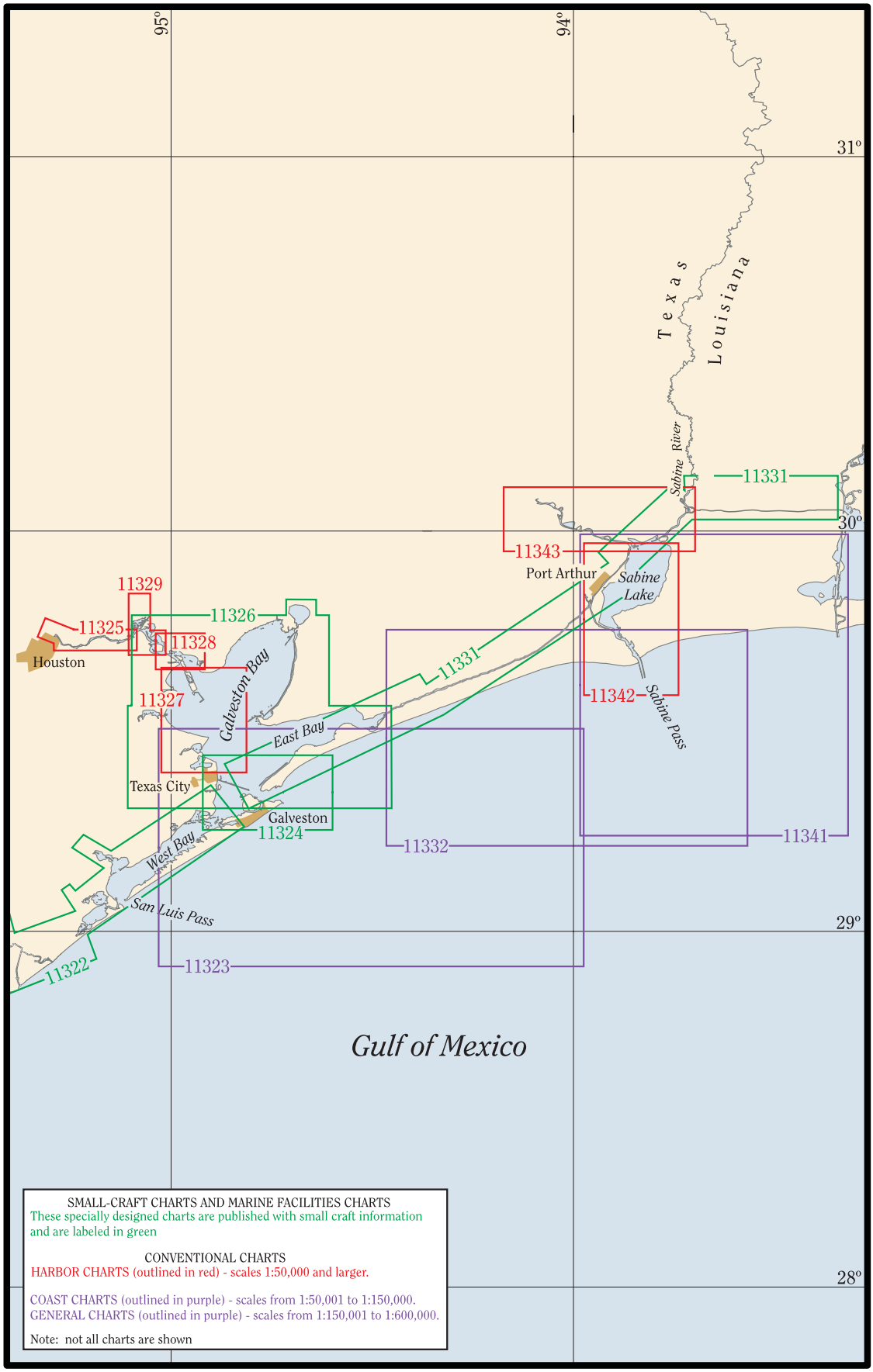
95°
94°
31°
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Texas
Louisiana
Sabine River
11331
11343
Port Arthur
Sabine Lake
11329
11326
11325
11328
Houston
11331
11327
Galveston Bay
East Bay
11342
Sabine Pass
Texas City
Galveston
11324
West Bay
11332
11341
San Luis Pass
11322
11323
Gulf of Mexico
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 purple) - scales from 1:50,001 to 1:150,000.
GENERAL CHARTS (outlined in purple) - scales from 1:150,001 to 1:600,000.
Note: not all charts are shown

Sabine Pass to San Luis Pass

(1) This chapter describes the 77-mile-long Texas Gulf Coast from Sabine Pass to San Luis Pass, and Port Arthur Canal, Sabine-Neches Canal, Neches River, Galveston Bay, East and West Bays, Houston Ship Channel and their tributary waterways. Also discussed are the deepwater ports of Port Arthur, Beaumont, Orange, Galveston, Texas City, and Houston.

COLREGS Demarcation Lines

(2) The lines established for this part of the coast are described in **80.840 and 80.845**, chapter 2.

Weather

(3) The climate of this coast ranges from warm and humid in summer to moderately subtropical in winter. During the warmer months, warm humid air from the Gulf brings showers and thunderstorms and an occasional tropical cyclone. There are periods of modified continental influence during the colder months when extratropical systems to N occasionally penetrate the Gulf region of Texas. These systems and their fronts produce low temperatures and "northers", strong, cold winds from N. Cold fronts reaching this area are seldom severe. Temperatures drop to freezing or below only four times a year in Galveston, on average. Spring days are typically mild, with brisk winds and frequent showers. Early autumn is essentially an extension of summer. November brings an increase in N winds and cold spells.

(4) Navigational hazards in winter include strong winds, rough seas, and poor visibilities. Winds from extratropical cyclones and their associated fronts are often "northers" and reach 40 knots or more. Gales (winds of 34 knots or more) blow about 1 percent of the time from November through March. These winds usually pose little problem to vessels lying close to the Gulf coastline, as they blow offshore. Seaward, with an increasing fetch, waves become higher. Wave heights of 12 feet or more are encountered 1 to 2 percent of the time, and waves greater than 20 feet have been reported. On average, a 32-foot significant wave height from December through April can be expected every 10 years. Visibilities drop below 2 miles 2 to 3 percent of the time during this period. Precipitation also restricts visibilities.

(5) The tropical cyclone season extends from late May into early November. There is about a 30 percent chance of a tropical cyclone (tropical storm and hurricane) and a 20 percent chance of a hurricane along this coast in any given year. The 1900 hurricane completely destroyed the city of Galveston, but the building of a 17-foot seawall on the Gulf side of the island has reduced the danger of sea and swell action. Tropical cyclones are dangerous to shipping near the coast, because the winds often blow onshore. Based on statistics, it is estimated that every 10 years, on average, sustained winds will reach 85 knots while maximum significant wave heights build to 32 feet.

Charts 11330, 11340

(6) Sabine Pass and its connecting channels form an extensive system of deepwater routes leading inland as far as Beaumont and Orange, Texas. From Sabine Pass the coast follows a general WSW direction for 50 miles to Galveston Entrance. Except in the E part, deep water extends fairly close inshore. The coast is low and devoid of prominent features, with the exception of High Island. Heald Bank, off the coast, has depths of 25 to 35 feet and is a danger to deep-draft vessels.

(7) Galveston Entrance is the approach to the cities of Galveston, Texas City, and Houston. Galveston Bay and tributaries form one of the larger commercial ports in the United States, and have extensive foreign and coastwise trade.

Shipping Safety Fairways and Fairway Anchorages

(8) A system of shipping safety fairways has been established along the Gulf Coast to provide safe lanes for shipping that are free of oil well structures. Vessels approaching the passes and entrances to ports, or bound along the Gulf Coast between Sabine Pass and San Luis Pass should proceed in the charted shipping safety fairways. Caution should be exercised when approaching or navigating in these fairways as they are unmarked.

(9) **Fairway anchorages** have been established off the entrances to the ports, which will be generally free of oil well structures. (See **166.100 through 166.200**, chapter 2, for regulations governing the **fairways** and **anchorages.**)

Charts 11342, 11341, 11330

(10) **Sabine Pass**, 244 miles W of Southwest Pass, Mississippi River, and 50 miles ENE of Galveston Entrance, is the approach from the Gulf to Sabine Lake, Sabine and Neches Rivers, and the cities of Port Arthur, Beaumont, and Orange.

(11) Sabine Pass, Lake, and River together form the boundary between the States of Louisiana and Texas for a distance of 275 miles N from the Gulf.

Prominent features

(12) The most prominent objects seen when approaching Sabine Pass are the E jetty light, an abandoned lighthouse, a white 81-foot tower on the E side of the pass, and the dredging range towers. Also prominent are the entrance range lights, the oil and water tanks W of Sabine Pass, and a stack at Port Arthur.

(13) **Sabine Pass East Jetty Light** (29°38'41"N., 93°49'22"W.), 42 feet above water, is shown from a cylindrical steel tower on piles at the S end of the jetty. A fog signal is at the light.

(14) **Sabine Coast Guard Station** is on the W side of the pass, about 5.8 miles above the E jetty light.

(15) **Vessels should approach Sabine Pass through the prescribed Safety Fairway.** (See **166.100 through 166.200**, chapter 2.)

COLREGS Demarcation Lines

(16) The lines established for Sabine Pass are described in **80.840**, chapter 2.

Channels

(17) The entrance, obstructed by a bar, has been improved by the construction of two nearly parallel jetties about 550 yards apart extending about 3.5 miles in a S direction from shore. The general depths between jetties, outside the channel, are 8 to 16 feet. Federal project depths are 42 feet in the outer bar channel, thence 40 feet through the jetty channel to and through Port Arthur Canal, with 40 feet in the E and W turning basins and Taylor Bayou turning basin at Port Arthur. (See Notice to Mariners and latest editions of charts for controlling depths.)

(18) In March 1983, shoaling to 38 feet was reported in the safety fairway in the approach to Sabine Bank Channel about 5.6 miles S of Sabine Bank Channel Lighted Whistle Buoy SB in about 29°19'20"N., 93°39'26"W. In 1980-March 1983, shoaling to 37 feet was reported about 9 miles S of the buoy, extending WSW from about 29°16.0'N., 93°40.2'W. for about 0.9 mile. In 1975, a submerged obstruction covered 27 feet was found to exist in 29°32'09"N., 93°43'15"W., about 0.2 mile E of the dredged outer bar channel that leads through the Sabine Pass Safety Fairway.

(19) The bar channel is marked by a **337°18'** lighted range and lighted buoys, and the channel through the jetties by a **347°** lighted range and lighted and unlighted buoys. Unlighted dredging ranges, maintained by the Corps of Engineers, mark the sides of the outer bar and jetty channels.

(20) Inside the jetties, the pass extends NW about 6 miles to Sabine Lake. The bottom outside the channel for the most part is soft, and vessels can touch without damage. Lighted ranges and other lighted aids mark the channel through Sabine Pass and Port Arthur Canal to Port Arthur.

Sabine-Neches Waterway Navigation Guidelines

(21) The Sabine Pilots provide a coordination service to traffic in Sabine Bank Channel, Sabine Pass, Port Arthur Canal, Sabine-Neches Canal, and Neches River. They have adopted the following procedures regarding meeting situations as discussed below. The procedures are not Coast Guard regulations, but are guidelines that the Sabine Pilots have established and use to ensure that vessels meet safely.

(22) (1) Vessels with a combined beam that equals or exceeds one-half the channel width will not meet, day or night.

(23) (2) Above the Texaco Island intersection (29°49.5'N., 93°57.5'W.), vessels 85,000 deadweight tons or more will not meet vessels of either 30,000 deadweight tons or greater, or vessels with drafts of 25 feet or greater.

(24) (3) Above Buoys 29 and 30, vessels of 85,000 deadweight tons or greater will not meet any vessel of 30,000 deadweight tons or more with a draft of 30 feet or greater.

(25) (4) Vessels of 48,000 deadweight tons or more with a draft of 30 feet or greater will not meet above Buoys 29 and 30.

(26) (5) Vessels with a combined draft of 65 feet or more will not meet in the Neches River at night.

(27) (6) The Fina turning basin (29°59.2'N., 93°54.4'W.) and Sun Oil turning basin (30°00.6'N., 93°59.0'W.) are not used for anchorages, but for meeting situations in which the size of the two vessels or other surrounding circumstances preclude their meeting in the channel. The inbound or outbound vessel, as appropriate, should vacate turning basins as soon as possible.

(28) (7) The project depth of the Sabine-Neches Waterway is 40 feet. This depth coupled with tidal fluctuations and weather conditions will govern policy on maximum draft limitations. Meeting situations in channel bends should be avoided whenever possible.

(29) The Sabine Pilots request that vessels transiting the waterway check in with the Sabine Pilots Dispatcher on VHF-FM channel 20 at the following locations:

(30) (1) Sabine Bank Channel Lighted Gong Buoy 29 and Lighted Buoy 30 (29°36'N., 93°48'W.).

(31) (2) Port Arthur Canal Light 40 (Mesquite Point).

(32) (3) Port Arthur turning basin, Taylor Bayou.

(33) (4) Sabine-Neches Canal Light 65 (Neches River Intersection).

(34) (5) Neches River Light 40 (McFadden Bend Cutoff).

(35) Nothing in these coordination guidelines should be construed as limiting a pilot in his good judgment.

(36) A **regulated navigation area** has been established in Sabine Neches Waterway (Sabine Pass Channel, Port Arthur Canal, Sabine-Neches Canal, Neches River, Sabine River and all navigable waterways tributary thereto). (See **165.1 through 165.13 and 165.806**, chapter 2, for limits and regulations.)

Anchorages

(37) **Deep-draft vessels usually anchor in the Sabine Fairway Anchorages outside of the pass entrance.** (See **166.100 through 166.200**, chapter 2.) Vessels of light draft can find good holding ground 7 to 8 miles W of the jetties as close inshore as drafts will permit. The pass affords excellent anchorage for small craft, and is used by coasting vessels as a wintertime harbor of refuge. In May 1991, a submerged vessel was reported in about 29°36'N., 93°34'W.

(38) An anchorage basin, Federal project depth 40 feet, is on the E side of Sabine Pass Channel opposite the town of Sabine Pass. (See **110.1 and 110.196**, chapter 2, for limits and regulations, and Notice to Mariners and latest editions of charts for controlling depths.) The portion of the pass off the town of Sabine Pass and SW of the ship channel is used as an anchorage by small light-draft vessels and was reported dredged to 21 feet in 1982.

Dangers

(39) The offshore oil well structures, Sabine Bank, and the spoil and dumping grounds on either side of the entrance channel are the principal dangers encountered when approaching Sabine Pass. Vessels should not approach the entrance too closely before the pilot boards.

Tides and currents

(40) The diurnal range of tide at the jettied entrance to Sabine Pass is 2.5 feet. The currents off the entrance of Sabine Pass are dependent upon the direction and velocity of the wind. Following continued N to E winds, a SW to W current will be found off the entrance, frequently with a velocity of 1 knot and sometimes as much as 2 knots. Following S and SW winds, the currents will be in the opposite direction, but with less velocity. The tidal current between the jetties at strength averages 1.1 knots on the flood and 1.6 knots on the ebb, but velocities up to 2.5 knots have been observed in Sabine Pass. Tidal current predictions for Sabine Pass may be found in the Tidal Current Tables, Atlantic Coast.

Weather

(41) Port Arthur's climate is a mixture of tropical and temperate zone conditions. Sea breezes help prevent extremely high summer temperatures, except on rare occasions, and the area lies far enough S so that cold air usually moderates before reaching the area. Summer temperatures climb to 90°F or more on about 84 days each season while winter readings fall to 32ºF and below on about 14 days annually. The average annual temperature of Port Arthur is 68.9ºF. The average annual maximum is 78.1ºF while the average minimum is 59.1ºF. The warmest month is July with an average temperature of 83.1ºF while the coolest month is January with an average temperature of 52.2ºF. The warmest temperature on record is 107ºF recorded in August 1962 while the coolest temperature on record is 12ºF recorded in December 1989. Each month, June through September has recorded temperatures at or above 100ºF while each month, October through April, has recorded temperatures at or below freezing.

(42) Rain occurs year round, with minimums usually in March and April. The average annual rainfall for Port Arthur is 56.75 inches. September is the wettest month averaging 5.67 inches and March is the driest averaging 3.26 inches. The greatest 24-hour rainfall occurred in September 1963 when 12.09 inches accumulated. Winter precipitation is often steady, while in summer, showers and thunderstorms are more likely. Snow and sleet are infrequent; the greatest snowfall in a single storm was 3.5 inches in February 1960. Thunderstorms are most likely in July and August, when they are observed on 13 to 14 days per month, on average. They are most violent in spring and can produce strong, gusty winds. The annual average number of thunderstorms is 69.

(43) Tropical cyclones are most likely in September, although the season runs from late May into early November. During Audrey, in June 1957, the Coast Guard station at Sabine Pass recorded sustained winds to 85 mph with gusts to 100 mph. Storm tides reached 9 feet above mean sea level. Carla, in September 1961, generated 5- to 9-foot tides in the Port Arthur area.

(44) Fog is most frequent in midwinter and rare in summer. It usually dissipates before noon, but occasionally, under stagnant conditions, it lasts into the afternoon.

Along the coast, it may not develop until daybreak, but inland, where radiation is more effective, it may form before midnight. At Sabine Pass, the fog signals operate an average of 90 to 120 hours per month from December through March. At Port Arthur, visibilities drop to 0.25 mile or below on 6 to 8 days per month during this period. (See page T-8 for **Port Arthur climatological table.**)

(45) The National Weather Service maintains an office in Port Arthur; barometers may be compared there or by telephone. (See appendix for address.)

Pilotage, Port Arthur

(46) Pilotage is compulsory for all foreign vessels and U.S. vessels under register in the foreign trade. Pilotage is optional for coastwise vessels that have on board a pilot licensed by the Federal Government. The Sabine Pilots have an office in Groves, Texas, and a pilot station at Sabine, Texas, at the inner end of the W jetty at Sabine Pass.

(47) The three pilot boats, SABINE PILOT and SABINE PILOT II, each 65 feet long, and SABINE BANK PILOT, 45 feet long, each have a black hull and a white house with green trim. The International Code flag "P" is flown. The boats are equipped with a radiotelephone and monitor VHF-FM channels 13, 14, 16, and 20 and use channel 14 as a working channel. The pilot office at Groves monitors VHF-FM channel 20. All the pilots carry portable radiotelephones. The pilot boats meet vessels, day or night, at the sea buoy or at Sabine Bank Channel Lighted Gong Buoy 29, according to the preference of the vessel. For boarding, the pilots request that the pilot ladder is rigged 8 feet above the water. Pilots can be obtained on a minimum of 4 hours advance notice which should include the vessel's length, beam, DWT, freshwater deep draft, berth assignment, and ETA. Notice may be given by telephone 409-722-1141, 962-8580, 962-8589 through the Port Arthur Marine Operator, by FAX 409-962-9223, or through ships' agents.

(48) The Coast Guard Captain of the Port highly recommends all tank vessels with drafts greater than 27 feet to secure pilotage services throughout the length of Sabine Bank Channel, especially during periods of restricted visibility. It is recommended that vessels embark and disembark pilots at Sabine Bank Channel Lighted Whistle Buoy SB.

Towage

(49) Vessels usually proceed without assistance through the pass to Port Arthur. Radiotelephone equipped tugs up to 3,900 hp are available at Port Arthur. The tug companies are equipped to perform wrecking and salvage operations.

Quarantine, customs, immigration, and agricultural quarantine

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

(51) **Quarantine** is enforced in accordance with regulations of the U.S. Public Health Service. (See Public Health Service, chapter 1.) The city has three hospitals.

(52) Port Arthur is a **customs port of entry.**

Coast Guard

(53) A **marine safety office** is in Port Arthur. (See appendix for address.)

(54) **Texas Bayou,** on the W side opposite the abandoned Sabine Pass lighthouse, has facilities for small craft to dock and a launching ramp. Water, ice, and some provisions are available from a nearby store. Gasoline is available at a dock about 0.5 mile SSE of the bayou's entrance on Sabine Pass.

(55) **Sabine** is a village on the W side of the pass, about 5 miles above the outer end of the jetties. The S of the two old slips is used as a small-boat harbor where gasoline, diesel fuel, water, and ice are available. There is a menhaden plant and wharf, and many shrimp boats base here. Several oil companies have bases for supplying offshore oil wells.

(56) Sabine is a **customs port of entry.**

(57) **Sabine Pass** is a village on the W side of the pass about 1.5 miles N of Sabine. Shrimp boats base here.

(58) **Sabine Lake** has an average depth of about 6 feet in its 15-mile length. At the S end, where it empties into Sabine Pass, the depth is 1 to 4 feet. A highway bridge over the S end has a swing span with a clearance of 9 feet. (See **117.1 through 117.59 and 117.979**, chapter 2, for drawbridge regulations.) An overhead power cable close NW of the bridge has a clearance of 75 feet. Numerous gas and oil well structures, pipes, piles, stakes, and wrecks, some submerged, exist within Sabine Lake. In addition to the S entrance from Sabine Pass, the lake can be entered also from the Sabine-Neches Canal or through Sabine River. The depth through **East Pass** is about 3 feet.

(59) A 1.5-mile-long bulkhead is off the Port Arthur waterfront on the W side of Sabine Lake. A channel with a reported controlling depth of about 4 feet leads through a narrow opening in the bulkhead to a marina basin. Berths, gasoline, diesel fuel, water, ice, marine supplies, and a launching ramp are available.

(60) **Johnson Bayou,** in the extreme SW part of Louisiana, empties into the SE part of Sabine Lake, directly E of Port Arthur. The dredged channel leading to the entrance has filled to the lake bottom level. In 1987, the reported depth was 3 feet into the mouth of the bayou. The entrance is marked by private stakes and buoys. Inside the entrance, the bayou is deeper and navigable for

about 4.5 miles to the settlement of **Johnson Bayou;** a highway connects the settlement with **Sulphur.** A channel, marked by a private light and buoys, leads NNW across Sabine Lake from Johnson Bayou to the Sabine-Neches Canal.

(61) **Port Arthur Ship Canal** extends for about 6 miles from Sabine Pass to the entrance to Taylor Bayou. A narrow strip of land separates the canal from the W shore of Sabine Lake. Lights and lighted ranges mark the channel to Taylor Bayou.

(62) **Port Arthur,** an important shipping center, is on the W shore of the Sabine Lake, 17 miles above the Sabine Pass entrance. There are several large oil refineries and chemical plants, two shipyards, a grain elevator, and numerous small industrial firms at Port Arthur.

(63) The principal industrial development is on Taylor Bayou, at the SW outskirts of the city, sometimes known as **West Port Arthur.** The port has extensive domestic and foreign trade in chemicals and crude petroleum and its refined products. There is some commerce in grain, lumber, iron and steel products, cotton, scrap iron, glass and clay products, shell, paper products, alcohol, caustic soda, menhaden, vegetable and fish oils, lead, and general merchandise.

Harbor regulations

(64) The port is under the control of the Port of Port Arthur Navigation District. A Port Commission, under a Port Director, is responsible for the development and operation of the port and establishes regulations.

Wharves

(65) Port Arthur has more than 90 wharves and piers. Only the deep-draft facilities are described. For a complete description of the port facilities refer to Port Series No. 22, published and sold by the U.S. Army Corps of Engineers. (See appendix for address.) The alongside depths are reported; for information on the latest depths contact the private operator. All of the facilities have direct highway and railroad connections. Water and electrical shore power connections are available at most piers and wharves. General cargo at the port is usually handled by ship's tackle; special handling equipment, if available, is mentioned in the description of the particular facility. Cranes up to 150 tons are available at Port Arthur. Floating cranes with capacities up to 125 tons are also available.

(66) **Plains Marketing, Sabine Pass Wharf** (29°44'21"N., 93°53'19"W.): 40-foot face; 300 feet of berthing space with dolphins; 27 feet alongside; deck height, 6 feet; receipt and shipment of crude oil; owned and operated by Plains Marketing.

(67) **Premcor Refining Group, Port Arthur Refinery, Tug Mooring Wharf** (29°51'05"N., 93°58'18"W.): 300-foot face; 300 feet of berthing space; 17 feet alongside; deck height, 7 feet; pipeline to wharf for shipping liquid sulphur (2001 operation scheduled); occasional mooring of tugboats; owned and operated by Premcor Refining Group, Inc., Subsidiary of Premcor, Inc.

(68) **Premcor Refining Group, Port Arthur Refinery, Berths Nos. 0 to 6** (29°50'47"N., 93°58'07"W.): 1,200-foot face (middle portion); 1,200 feet of berthing space; 40 feet alongside; deck height, 7 feet; receipt and shipment of crude oil, petrochemicals; and petroleum products; receipt of liquid caustic soda; shipment of spent liquid caustic soda; occasional loading of barges for bunkering vessels; owned and operated by Premcor Refining Group, Inc., Subsidiary of Premcor, Inc.

(69) **Great Lakes Carbon Corp. Wharf** (29°50'03"N., 93°57'51"W.): 680-foot face; 980 feet of berthing space with dolphins; 40 feet alongside; deck height, 8 feet; one electric loading tower with 90-foot boom with spout, maximum loading rate 600 tons per hour, belt-conveyor system; shipment of calcined petroleum coke; owned by Rice Carden Corp., and operated by Great Lakes Carbon Corp.

(70) **United Marine Enterprise, Port Arthur Shipyard, Motiva Enterprises No. 3 Dock** (29°50'23"N., 93°57'20"W.): 1,400-foot face; 1,400 feet of berthing space; 28 to 30 feet alongside; deck height, 12 feet; 4.8 acres open storage; mooring vessels and offshore drilling rigs for repair; mooring government-owned vessels for maintenance; owned by Motiva Enterprises, LLC., and operated by United Marine Enterprise, Inc.

(71) **Motiva Enterprises, Port Arthur Terminal, No. 1 Dock Wharf, Berths Nos. 6 and 7** (29°49'59"N., 93°57'25"W.): 1,140-foot face; 1,500 feet of berthing space; 37 feet alongside; deck height, 10 feet; receipt of methyl tertiary butyl ether and ballast water; shipment of petroleum products and cyclohexane; occasional loading of barges for bunkering vessels at berth; owned and operated by Motiva Enterprises, LLC.

(72) **Motiva Enterprises, Port Arthur Terminal, No. 2 Dock Wharf, Berths Nos. 1 and 2** (29°49'43"N., 93°57'36"W.): 280-foot face (No.1); 700 feet of berthing space with dolphins (No.1); deck height, 9.2 feet; 830-foot face (No.2); 1,100 feet of berthing space (No.2); 37 feet alongside; receipt of ballast water; shipment of petroleum products; occasional loading of barges for bunkering vessels at berth; and mooring of barges; mooring vessels for transfer of plant equipment to barges; owned and operated by Motiva Enterprises, LLC.

(73) **Port of Port Arthur, Public Ocean Terminal, Upper Wharf, Berths Nos. 1 and 2** (29°51'45"N., 93°56'12"W.): 1,380-foot face; 1,380 feet of berthing space; 40 feet

alongside; deck height, 15 feet; receipt and shipment of conventional, containerized, and roll-on/roll-off general cargo in foreign and domestic trade; owned and operated by Port of Port Arthur Navigation District of Jefferson County, Texas.

(74) **Port of Port Arthur, Public Ocean Terminal, Lower Wharf, Berths Nos. 3 to 5** (29°51'32"N., 93°56'25"W.): 1,720-foot face; 1,820 feet of berthing space; 40 feet alongside; deck height, 15 feet; one traveling gantry crane with 75-ton capacity; 15.3 acres open storage; receipt and shipment of conventional, containerized, and roll-on/roll-off general cargo in foreign and domestic trade; owned and operated by Port of Port Arthur Navigation District of Jefferson County, Texas.

(75) **Atlantic Shippers of Texas Wharf** (29°55'35"N., 93°52'44"W.): 730-foot face; 700 feet of berthing space; 28 feet alongside; deck height, 12 feet; conveyor system and 80-ton crane, loading rate, 200 tons per hour; receipt and shipment of ingredients for livestock feed; occasional mooring of vessels; owned and operated by Atlantic Shippers of Texas, Inc., Subsidiary of Animalfeeds International Corp.

(76) **Global Terminaling Services Wharf** (29°55'49"N., 93°52'31"W.): 755-foot face; 800 feet of berthing space; 40 feet alongside; deck height, 15.7 feet; one traveling tower with hinged boom and conveyor, loading rate, 3,000 tons per hour; shipment of petroleum coke; occasional mooring of vessels; owned by Kansas City Southern Industries, and operated by Global Terminaling Services, Inc.

Supplies

(77) Provisions and marine supplies can be obtained in Port Arthur. Water of good quality is available alongside the wharves or can be delivered in barges. Bunker fuels can be obtained from Premcor Refining Group, Port Arthur Refinery, Berths Nos. 0 to 6, or elsewhere in the harbor by barge. Small boats can obtain gasoline, oil, water, and supplies along the city waterfront of the Sabine-Neches Canal.

Repairs

(78) Port Arthur has two shipyards on the W side of the Sabine-Neches Canal. The yard about 2.5 miles above Taylor Bayou builds drilling rigs, has three floating drydocks with a maximum capacity of 4,200 tons, and can handle vessels up to 350 feet. The second yard, about 7 miles above Taylor Bayou, has a 3,000-ton floating drydock and two marine railways; vessels up to 125 feet can be handled. Both yards have machine, electrical welding, and carpenter shops, and make general repairs. Floating cranes up to 125 tons are available in the port.

Communications

(79) Radio station WPA provides ship-to-shore radiotelephone service. The port is served by the Kansas City Southern and Southern Pacific Railroads, buslines, and an airline. The Jefferson County Airport is NW of the city.

(80) **Taylor Bayou,** 6 miles above Sabine Pass, is the site of many of the deep-draft facilities at Port Arthur. Federal project depth for the basins and connecting channels in the bayou is 40 feet. (See Notices to Mariners and latest editions of the charts for controlling depths.) Barriers, 1.6 miles and 2.3 miles above the entrance, obstruct through navigation on Taylor Bayou. The upper reach of Taylor Bayou, navigable for about 29 miles, is accessible through Taylor Bayou Outfall Canal, which is entered from the Intracoastal Waterway at Mile 290.3W. Taylor Bayou Outfall Canal and the upper reach of Taylor Bayou are discussed in chapter 12.

(81) The **Sabine-Neches Canal** is a continuation of the Port Arthur Ship Canal above the mouth of Taylor Bayou. It extends parallel with the shores of Sabine Lake, from which it is separated by a narrow strip of land, NE to the mouth of Neches River, thence E through the open water of the N part of Sabine Lake to the mouth of Sabine River. The Federal project depths are 40 feet to the mouth of Neches River, thence 30 feet to the mouth of Sabine River. (See Notice to Mariners and latest editions of charts for controlling depths.) Lights, lighted ranges, and buoys mark the channel.

(82) A fixed highway bridge with a clearance of 136 feet crosses the Sabine-Neches Canal at Port Arthur 1.8 miles above the entrance to Taylor Bayou.

(83) During high-river stages on Neches River, usually from January to the last of April, a vessel may encounter an athwartship current crossing Neches River along the canal route, which may prove dangerous if not guarded against.

Chart 11343

(84) **Neches River** empties into Sabine Lake from the NW and extends in a ship canal 18.5 miles to Beaumont. A Federal project provides for a 40-foot channel to a 34-foot turning basin at Beaumont, thence 30 feet to the Bethlehem Shipyards. (See Notice to Mariners and latest editions of charts for controlling depths.) Lights, lighted ranges, and buoys mark the river.

(85) State Route 87 highway bridge (Rainbow Bridge) over the river, about 1.5 miles above its mouth, has a fixed twin span with a clearance of 143 feet. This twin bridge and the one at Port Arthur are the only bridges crossing the channel between the Gulf and the turning basin at Beaumont. Overhead power cables with

clearances of 164 feet cross the river 50 yards E of State Route 87 highway bridge and just E of McFadden Bend Cutoff. These are the least overhead cable clearances between Port Arthur and the turning basin at Beaumont.

(86) On the W side, at the turn from the Sabine-Neches Canal into the Neches River, there are several basins in which are a marine service wharf, a small-vessel fueling wharf, and a boat club. The marine service wharf repairs small vessels and barges and operates a tank cleaning service.

(87) A marina is on the long canal just W of the S end of State Route 87 highway bridge. Gasoline and berths are available. In July 1982, reported depths of about 5 feet could be carried to the marina.

(88) **Port Neches,** on the Neches River 5 miles above the mouth, is an important oil refining and chemical center. Petroleum products, asphalt, and roofing material are exported. Port Neches has several private oil handling terminals, a layup berth maintained by a ship repair firm that does above-the-waterline hull and engine repairs, and a wharf and ramp at which gasoline and water are available. The private oil handling terminals are discussed later in this chapter under Wharves, Beaumont.

(89) The marsh island N of McFadden Bend Cutoff has been dredged away except for a strip 300 feet wide. The dredged area forms an anchorage for decommissioned ships under jurisdiction of the U.S. Maritime Administration and has a controlling depth of 18 feet. (See **162.270**, chapter 2, for **regulations restricting navigation** in the vicinity.)

(90) Above Beaumont, a depth of about 10 feet can be carried for about 12 miles upriver, but there is no commerce in this section and probably many snags obstruct the channel.

(91) **Beaumont,** on Neches River 18.5 miles above Sabine Lake and 43 miles from the Gulf, is the largest city in E Texas, and the home of Lamar University. Petroleum, petrochemical, and shipbuilding and repair are the principal industries. Commerce is principally in petroleum products, chemicals, molasses, wheat, flour, rice, synthetic rubber, shell, paper pulp, cement, dry and liquid sulfur, iron and steel products, scrap iron, and lumber and wood products.

Anchorages

(92) There are no anchorages at Beaumont and only emergency anchorage is permitted in Neches River. Vessels may tie up to the banks of the river for a limited period provided permission is obtained from the Corps of Engineers. There is temporary anchorage in 29 feet in the bends of the old river below Port Neches and W of the cutoff about a mile above McFadden Bend Cutoff. There is little swinging room.

(93) A barge assembly basin, 2,200 feet long and 350 feet wide for the temporary mooring of barges of tows, is in the bend of the former channel close N of Deer Bayou. Moorings spaced about 175 feet apart on concrete deadmen are on the NE side of the basin.

(94) The channel is clear, and all bends of less than 5,000-foot radius have been eliminated by cutoffs between the mouth of Neches River and Beaumont; there are a few places where a vessel may turn around.

(95) Two bridges cross the improved channel above the turning basin at Beaumont. The first, the Kansas City Southern vertical lift railroad bridge, about 0.4 mile above the turning basin, has a clearance of 13 feet down and 147 feet up. (See **117.1 through 117.49**, chapter 2, for drawbridge regulations.) The second, Interstate 10-U.S. 90 highway bridge, about 1 mile above the railroad bridge, has a fixed span with a clearance of 48 feet.

Tides and currents

(96) Periodic tides are practically negligible in Neches River. The rise and fall of the water depends upon meteorological conditions.

Pilotage, Beaumont

(97) See Pilotage, Port Arthur (indexed as such) early this chapter.

Towage

(98) Tugs to 3,950 hp are available at Beaumont.

Quarantine, customs, immigration, and agricultural quarantine

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

(100) **Quarantine** is enforced in accordance with regulations of the U.S. Public Health Service. (See Public Health Service, chapter 1.) Beaumont has several public and private hospitals, and several clinics and infirmaries.

(101) Beaumont is a **customs port of entry**.

Harbor regulations

(102) The Board of Commissioners of the Port of Beaumont Navigation District, known as the Port Authority, has jurisdiction over and controls all terminals, wharves, sheds, warehouses, and equipment owned and operated by it. The Port Authority establishes rules, regulations, and tariffs governing the port. The Port Director is in charge of operations; the Superintendent of Docks assigns berths.

Wharves

(103) Beaumont has more than 70 wharves and piers. Only the deep-draft facilities are described. For a complete description of the port facilities refer to Port Series No. 22, published and sold by the U.S. Army Corps of Engineers. (See appendix for address.) The alongside depths are reported; for information on the latest depths contact the private operator. The port's waterfront facilities extend along the S bank of the Neches River for about 19 miles. Most of the facilities have direct highway and railroad connections, and most of the piers and wharves have water and electrical shore power connections. General cargo at the port is usually handled by ship's tackle; special handling equipment, if any, is mentioned in the description of the particular facility. Cranes up to 220 tons and a 500-ton floating derrick are available at Beaumont.

(104) **S side Neches River:**

(105) **Fina Oil and Chemical Co., Port Arthur Terminal, No.1 Dock** (29°58'49"N., 93°52'40"W.): 512-foot face; 900 feet of berthing space with dolphins; 40 feet alongside; deck height, 14 feet; receipt of crude oil and xylene; receipt and shipment of naptha; shipment of petroleum products; owned and operated by Fina Oil and Chemical Co., Inc., a subsidiary of TotalFinaElf SA.

(106) **Fina Oil and Chemical Co., Port Arthur Terminal, No.1 Dock A** (29°58'50"N., 93°52'48"W.): 223-foot face; 550 feet of berthing space with dolphins; 35 feet alongside; deck height, 12.5 feet; receipt and shipment of benzene, toluene, and petroleum products; owned and operated by Fina Oil and Chemical Co., Inc., a subsidiary of TotalFinaElf SA.

(107) **Fina Oil and Chemical Co., Port Arthur Terminal, Dock B** (29°58'50"N., 93°52'54"W.): 237-foot face; 500 feet of berthing space with dolphins; 30 feet alongside; deck height, 12.5 feet; receipt of asphaltene and xylene; receipt and shipment of benzene, toluene, and petroleum products; owned and operated by Fina Oil and Chemical Co., Inc., a subsidiary of TotalFinaElf SA.

(108) **Port Neches:**

(109) **Huntsman Corp., Oxides and Olefins (O&O) Facility, Port Neches No.1 Dock Wharf** (29°59'22"N., 93°55'46"W.): 160-foot face; 800 feet of berthing space with dolphins; 38 feet alongside; deck height, 9 feet; shipment and occasional receipt of petrochemicals; receipt of liquid caustic soda; owned and operated by Huntsman Corp.

(110) **Motiva Enterprises, Port Neches Terminal, No. 3 Dock Wharf** (29°59'26"N., 93°56'03"W.): 60-foot face; 600 feet of berthing space with dolphins; 28 feet alongside; deck height, 8.5 feet; receipt of crude oil, naptha, and gas oil; shipment of pyrolysis gasoline by barge; owned by Motiva Enterprises, LLC and Huntsman Corp., and operated by Motiva Enterprises, LLC.

(111) **Motiva Enterprises, Port Neches Terminal, No. 2 Dock Wharf** (29°59'30"N., 93°56'13"W.): 205-foot face; 950 feet of berthing space with dolphins; 40 feet alongside; deck height, 8.5 feet; receipt of crude oil, naptha, petroleum products, and occasionally gas oil; owned by Motiva Enterprises, LLC and Huntsman Corp; and operated by Motiva Enterprises, LLC.

(112) **Motiva Enterprises, Port Neches Terminal, No. 1 Dock Wharf** (29°59'34"N., 93°56'23"W.): 192-foot face; 800 feet of berthing space with platforms; 40 feet alongside; deck height, 8.5 feet; receipt of crude oil and methanol; receipt and shipment of petroleum products; owned by Motiva Enterprises, LLC and Huntsman Corp.; and operated by Motiva Enterprises, LLC.

(113) **Huntsman Petrochemical Corp., C4 Facility, Port Neches No. 2 Dock Wharf** (29°59'37"N., 93°56'33"W.): 81-foot face; 500 feet of berthing space with dolphins; 27 to 30 feet alongside; deck height, 11 feet; receipt of crude butadiene, methanol, and styrene; occasional shipment of butadiene and other liquified petroleum gases; owned by Ameripol Synpol Co. and Huntsman Corp.; and operated by Huntsman Petrochemical Corp.

(114) **Huntsman Petrochemical Corp., C4 Facility, Port Neches No. 3 Dock Wharf** (29°59'39"N., 93°56'38"W.): 40-foot face; 310 feet of berthing space with dolphins; 24 feet alongside; deck height, 14 feet; receipt of crude butadiene, methanol, and styrene; occasional shipment of butadiene and other liquified petroleum gases; all by barge; owned by Ameripol Synpol Co. and Huntsman Corp.; and operated by Huntsman Petrochemical Corp.

(115) **Union Oil Co. Of California, Beaumont Terminal, Main Dock, Berths 1 to 5, and 7** (30°00'31"N., 93°58'26"W.): 1,170-foot face; 1,170 feet of berthing space; 40 feet alongside; deck heights, 14.5 feet (top deck) and 4.5 feet (lower deck); receipt and shipment of crude oil, petroleum products, and petrochemicals; receipt of ballast water; receipt of bunker fuel and other products by barge for bunkering and loading tankers berthed at wharf; owned and operated by Union Oil Co. of California.

(116) **Sun Marine Terminals, Ship Dock No. 1** (30°00'27"N., 93°58'58"W.): 93-foot face; 875 feet of berthing space with dolphins; 40 feet alongside; deck height, 18 feet; receipt and shipment of crude oil, petroleum products, and petrochemicals; receipt of ballast water; bunkering tankers berthed at wharf; owned and operated by Sun Marine Terminals, Inc.

(117) **Sun Marine Terminals, Ship Dock No. 2** (30°00'32"N., 93°59'20"W.):114-foot face; 1,000 feet of berthing space with platforms; 40 feet alongside; deck height, 18 feet; receipt and shipment of crude oil; receipt of ballast water; and bunkering tankers berthed at wharf; owned and operated by Sun Marine Terminals, Inc.

(118) **Sun Marine Terminals, Ship Dock No. 3** (30°00'36"N., 93°59'33"W.): 74-foot face; 1,000 feet of berthing space with platforms; 40 feet alongside; deck height, 18 feet; receipt and shipment of crude oil; receipt of ballast water; and bunkering tankers berthed at wharf; owned and operated by Sun Marine Terminals, Inc.

(119) **Sun Marine Terminals, Ship Dock No. 4** (30°00'39"N., 93°59'46"W.): 75-foot face; 1,000 feet of berthing space with platforms; 40 feet alongside; deck height, 18 feet; receipt and shipment of crude oil; receipt of ballast water; and bunkering tankers berthed at wharf; owned and operated by Sun Marine Terminals, Inc.

(120) **Sun Marine Terminals, Ship Dock No. 5** (30°00'49"N., 94°00'19"W.): 75-foot face; 1,000 feet of berthing space with dolphins and platforms; 40 feet alongside; deck height, 18 feet; receipt and shipment of crude oil; receipt of ballast water; and bunkering tankers berthed at wharf; owned and operated by Sun Marine Terminals, Inc.

(121) **Beaumont:**

(122) **Du Pont Beaumont Industrial Park, Main Wharf** (30°01'10"N., 94°01'28"W.): 50-foot face (lower platform); 785 feet of berthing space with dolphins; 36 feet alongside; deck height, 12.8 feet; receipt and shipment of methanol and acrylonitrite; receipt of sulfuric acid; shipment of anhydrous ammonia; owned and operated by E.I. du Pont de Nemours & Co., Inc.

(123) **Oiltanking Beaumont, South Wharf** (30°01'53"N., 94°02'01"W.): 90-foot face; 700 feet of berthing space with dolphins; 40 feet alongside; deck height, 12 feet; receipt and shipment of petroleum products; owned and operated by Oiltanking Beaumont, LP.

(124) **Oiltanking Beaumont, North Wharf** (30°02'00"N., 94°02'02"W.): 90-foot face; 800 feet of berthing space with dolphins; 40 feet alongside; deck height, 18 feet; receipt and shipment of petroleum products; owned and operated by Oiltanking Beaumont, LP.

(125) **Martin Gas Sales, Stanolind Cut Terminal, D Dock Pier** (30°02'17"N., 94°02'46"W.): 32-foot face; 800 feet of berthing space with dolphins (SE side); 35 feet alongside; 300 feet with dolphins (NW side); 25 feet alongside; deck height, 7 feet; receipt and shipment of liquid sulphur and sulphuric acid; owned and operated by Martin Gas Sales, Inc.

(126) **Neches Industrial Park, Dock No. 1 Barge Wharf** (30°03'41"N., 94°02'09"W.): 49-foot face; 750 feet of berthing space with dolphins; 34 feet alongside; deck height, 10 feet; receipt and shipment of ammonia and of ammonium biosulfate and thiosulfate fertilizers; receipt of sulfuric acid; shipment and occasional receipt of liquid sulphur, all by barge; owned by Neches Industrial Park, Inc.; and operated by Neches Industrial Park, Inc.; Martin Gas Sales, Inc., and A&A Fertilizer, Ltd.

(127) **Exxon Mobil Refining & Supply Co., Beaumont Refinery, Wharf No. 5** (30°04'34"N., 94°03'52"W.): 95-foot face; 850 feet of berthing space with buoys and dolphins; 40 feet alongside; deck height, 13 feet; receipt of crude and lubricating oils and ballast water; shipment of petroleum products; occasional bunkering of tankers berthed at wharf; loading barges for bunkering vessels at berth; owned by Exxon Mobil Corp.; and operated by Exxon Mobil Refining & Supply Co., Division of Exxon Mobil Corp.

(128) **Exxon Mobil Refining & Supply Co., Beaumont Refinery, Wharf No. 4** (30°04'37"N., 94°04'02"W.): 250-foot face; 750 feet of berthing space with dolphins; 40 feet alongside; deck height, 13 feet; receipt of lubricating oil and ballast water; shipment of petroleum products; occasional bunkering of tankers berthed at wharf; loading barges for bunkering vessels at berth; owned by Exxon Mobil Corp.; and operated by Exxon Mobil Refining & Supply Co., Division of Exxon Mobil Corp.

(129) **Exxon Mobil Chemical Co., Beaumont Olefins/Aromatics Plant, Wharves Nos. 2 and 3** (30°04'26"N., 94°03'31"W.): 140-foot face; 650 feet of berthing space with dolphins; 38 feet alongside; deck height, 14 feet; receipt of toluene; shipment of benzene, cutter stock, paraxylene, and propylene; mooring tugboat; owned and operated by Exxon Mobil Chemical Co., Division of Exxon Mobil Corp.

(130) **Louis Dreyfus Corp., Port of Beaumont Navigation District, Grain Wharf** (30°04'31"N., 94°04'40"W.): 597-foot face; 1,100 feet of berthing space with dolphins; 40 feet alongside; deck height, 16 feet; three grain spouts with conveyors, loading rate 50,000 bushels per hour; shipment of grain; owned by Port of Beaumont Navigation District of Jefferson County; and operated by Louis Dreyfus Corp.

(131) **Port of Beaumont Navigation District, Carroll Street Wharf** (30°04'31"N., 94°04'48"W.): 765-foot face; 950 feet of berthing space; 40 feet alongside; deck height, 15.9 feet; receipt and shipment of conventional and containerized general cargo, lumber, and steel products in foreign and domestic trade; receipt of aggregate by self-unloading vessel; owned by Port of Beaumont Navigation District of Jefferson County; and operated by Port of Beaumont Navigation District of Jefferson County; and Trans-Global Solutions, Inc., d.b.a. Beaumont Bulk Terminal.

(132) **Port of Beaumont Navigation District, Harbor Island Marine Terminal Wharf** (30°04'34"N., 94°05'18"W.): 1,880-foot face; 1,880 feet of berthing space; 40 feet alongside; deck height, 15 to 15.9 feet; 220-ton mobile

crane, toplift container truck to 40 tons; 112,000 square feet covered storage, 27½ acres open storage; receipt and shipment of conventional and containerized, heavy-lift, and roll-on/roll-off general cargo, and of project cargo, in foreign and domestic trade; owned and operated by Port of Beaumont Navigation District of Jefferson County.

(133) **Port of Beaumont Navigation District, Wharf No. 1** (30°04'38"N., 94°05'28"W.): 576-foot face; 576 feet of berthing space; 30 feet alongside; deck height, 15.9 feet; one acre open storage; mooring government-owned vessels; receipt and shipment of roll-on/roll-off general cargo in foreign and domestic trade; owned by Port of Beaumont Navigation District of Jefferson County; and operated by U.S. Department of Transportation, Maritime Administration; and Port of Beaumont Navigation District of Jefferson County.

(134) **Port of Beaumont Navigation District, Wharves Nos. 2, 3, and 4** (30°04'41"N., 94°05'17"W.): 1,385-foot face; 1,385 feet of berthing space; 38 feet alongside; deck height, 15.9 feet; 60-ton traveling gantry crane; 5.7 acres open storage; receipt and shipment of conventional, containerized, and roll-on/roll-off general cargo in foreign and domestic trade; receipt and shipment of dry bulk commodities; owned and operated by Port of Beaumont Navigation District of Jefferson County.

(135) **Port of Beaumont Navigation District, Wharves Nos. 5, 6, and 7** (30°04'49"N., 94°05'18"W.): 1,450-foot face; 1,450 feet of berthing space; 36 feet alongside; deck height, 15.9 feet; 7.2 acres open storage; 208,560 square feet covered storage; receipt and shipment of conventional and containerized general cargo in foreign and domestic trade; owned and operated by Port of Beaumont Navigation District of Jefferson County.

Supplies

(136) Water is available at most of the wharves and piers, and Bunker C and diesel oil can be obtained by barge or at the several oil terminals. General and marine supplies are available at Beaumont.

Repairs

(137) A shipyard that builds offshore oil well drilling towers and barges up to 500 feet is on the W side of the river about 0.5 mile above the railroad bridge. The shipyard has a 17,500-ton floating drydock that can handle vessels up to 645 feet, cranes up to 65 tons, a 500-ton floating crane, and complete machine, welding, pipe, joiner, and metal shops. In addition, the yard can make most any type of repairs to wooden and steel vessels, and engines. Other repair plants can make above-the-waterline repairs to vessels anywhere in the harbor. Iron works in the port can handle any kind of foundry or machine work.

Small-craft facilities

(138) Gasoline, diesel fuel, water, and ice are available at a boat club just above the Interstate 10/U.S. Route 90 highway bridge. A privately marked channel with a reported controlling depth of 5 feet in July 1982, leads to the private boat club's berthing facilities.

Communications

(139) The Port Authority controls the terminal's rail trackage at the Port of Beaumont. It connects with the four trunkline railroads serving the city. They are the Southern Pacific, Kansas City Southern, Atchison, Topeka and Santa Fe, and the Missouri Pacific Railroads. Over 80 steamship lines offer service to all ports of the world and barge lines operate in coastwise service from the port. Several motor freight lines and interstate buslines serve the city. Radio Station WPA at Port Arthur provides ship-to-shore radio and radiotelephone service.

(140) **Pine Island Bayou** empties into Neches River 9 miles above Beaumont and has a navigable depth of about 8 feet for about 10 miles to the pumping plant of the Lower Neches Valley Authority. The only commerce on the bayou is the transportation of fuel oil to this plant.

(141) The Santa Fe railroad bridge, 6.5 miles above the mouth, has a 37-foot fixed span with a clearance of 20 feet. An overhead power cable on the E side of the bridge has a clearance of 47 feet. Highway and railroad bridges 6.8 miles above the mouth at Voth, Tex., have a minimum channel width of 40 feet and clearance of 21 feet.

(142) **Sabine River** empties into Sabine Lake from the N. **Orange** is a city of some commercial importance on the river about 8 miles above Sabine Lake, and 36 miles from the Gulf. The city is on the main coastal highway between Lake Charles and Beaumont. The principal commodities handled at the Port of Orange include rice, flour, cornmeal, treated timbers and lumber, naval stores, carbon black, steel products, chemicals, petroleum products, alcohol, container board, shell, rubber, powdered milk, and general cargo. Shipbuilding and petrochemical production are the most important industries at Orange.

Channels

(143) The section of the Sabine River from the mouth to Orange, which is part of the Sabine-Neches Waterway, has been improved by dredging a deep-draft channel, which with land cuts, has eased or bypassed the sharp bends in the river. The Federal project depths are 30 feet from the end of the Sabine-Neches Canal, at the mouth of the river, to the site of the old highway bridge

(30°05.6'N., 93°43.4'W.) at Orange, thence 25 feet in the channel around Orange Harbor Island to Orange. (See Notice to Mariners and latest editions of charts for controlling depths.) Lights, lighted ranges, a lighted buoy, and daybeacons mark the channel to Orange. In July 1982, a reported depth of 12 feet, except on the sharp bends, could be carried to Echo, about 6 miles above Orange. An overhead power cable with a clearance of 172 feet crosses the river about 3 miles below Orange. Between Orange and Echo, an overhead power cable, a fixed highway bridge (I-10/U.S. 90), and a swing bridge cross the river; clearances are 146 feet, 47 feet, and 6 feet, respectively. (See **117.1 through 117.59 and 117.981**, chapter 2, for drawbridge regulations.)

Anchorages

(144) There are no anchorage areas for commercial vessels in the port. Vessels may tie up along the bank of the river for limited periods if permission is obtained from the Corps of Engineers.

Tides and currents

(145) Practically no periodic tides occur. The rise and fall of the water depends upon the meteorological conditions. Currents in the Sabine River are about 2.5 knots during high stages.

Pilotage, Orange

(146) See Pilotage, Port Arthur (indexed as such) early this chapter.

Towage

(147) Tugs of up to 3,900 hp are available at Orange.

Quarantine, customs, immigration, and agricultural quarantine

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

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

(150) Orange has two hospitals.

(151) Orange is a **customs port of entry.**

Harbor regulations

(152) The local regulations are established by the Orange County Navigation and Port District of the Port of Orange. A Port Director is in charge of operations. Regulations are enforced by a harbormaster, whose office is at the Municipal Terminal.

(153) A **restricted area** for vessels of a Navy reserve center has been established at Orange. (See **334.790**, chapter 2, for limits and regulations.)

Wharves

(154) Deep-draft vessels at the Port of Orange berth alongside the long wharf on the SW side of the Orange Municipal Slip (30°03.9'N., 93°43.2'W.), about 2 miles below the city. The wharf has four ship berths for a total length of 2,300 feet. In July 1982, depths of 30 feet were reported alongside the wharf. Transit sheds with a total capacity of over 346,000 square feet of covered storage are available on the wharf. Depressed railroad tracks are in the rear of the transit sheds, and a paved highway leads to the wharf. Electricity and fresh water are available at all berths. A 30-ton mobile crane and floating cranes to 150 tons are available by special arrangement. General cargo is handled at the wharf. Oil-handling barge berths are on both sides of the channel opposite the S end of Orange Harbor Island.

(155) Lay berths for 36 vessels are available at Orange about 2 miles above the Municipal Slip. The reported depth alongside the berths is 18 feet. Electrical, fresh water, and telephone connections are available.

Supplies

(156) Provisions and some marine supplies are available in Orange. Water can be obtained at either the Municipal Slip or along the riverfront in town. Bunker C and diesel oil are available by barge or truck from Port Arthur.

Small-craft facilities

(157) A marina is on the W side of the channel opposite the N end of Orange Harbor Island. Berths with electricity, water, ice, and hotel accommodations are available. In July 1982, a depth of 12 feet was reported available alongside the pier at the marina.

Repairs

(158) Orange has several shipyards that build vessels, offshore oil rigs, and barges. The largest yard is at the N end of Orange Harbor Island. It has three floating drydocks, a pontoon pier, and a marine railway. The largest drydock at this yard has an 11,000-ton capacity, is 600 feet long, has a clear width of 50 to 126 feet, and can handle vessels to 388 feet. The yard has machine, metal, welding, paint, and joiner shops, and can make above- and below-the-waterline repairs of any type. Two repair yards on the W side of the channel 0.6 mile SSE of the S end of Orange Harbor Island have floating drydocks up to 2,500 tons and 185 feet long. A repair yard W of Orange Harbor Island has a 250-foot marine railway. Floating cranes up to 150 tons are available in the port, and a 500-ton floating crane can be obtained from Port Arthur.

Communications

(159) The Missouri Pacific, Sabine River and Northern, and Southern Pacific Railroads serve the port. Several motor freight lines offer service, and buslines pass through the city. The main coastal highway (U.S. Route 90) and Interstate 10 pass N of the city, and State Route 87 connects with Port Arthur over the Rainbow Bridge.

(160) **Cow Bayou** flows into Sabine River about 4 miles above Sabine Lake. A dredged channel leads from the Sabine River to a turning basin at the highway bridge at **Orangefield.** In March 2004, the controlling depth in the channel was 5.6 feet (8.5 feet at midchannel), thence 5.3 to 6.8 feet in the basin with shoaling to 2.2 feet in the left outside quarter. In 1996, a draft of 4.5 feet could be carried for about 15 miles above the basin. Below the basin, one fixed highway bridge and two swing highway bridges cross the bayou; clearances are 8 feet for the swing bridges and 55 feet for the fixed bridge. (See **117.1 through 117.59 and 117.965**, chapter 2, for drawbridge regulations.) The fixed highway bridge at the upper end of the turning basin at Orangefield has a clearance of 18 feet. The minimum clearances of the overhead power and telephone cables below the Orangefield turning basin are 63 feet; overhead power cables at the turning basin and 0.5 mile above have clearances of 30 and 37 feet, respectively. A shipyard about 300 yards above the first bridge has a 1,000-ton floating drydock that can handle vessels up to 200 feet long.

(161) **Adams Bayou** empties into Sabine River 2 miles above Cow Bayou. A dredged channel leads from the Sabine River to the first fixed highway bridge. In January 2005, the controlling depth was 5.8 feet (8.8 feet at midchannel). The highway bridge has a fixed span with a clearance of 11 feet. Just below the bridge is a shipyard with a 100-ton floating drydock that can handle vessels up to 70 feet for general repairs. Below the bridge is a yacht basin with covered and open berths for yachts up to 45 feet. Gasoline, a 2-ton hoist, and water are available. Minor engine and hull repairs are made. The channel leading to the basin had a reported controlling depth of 6 feet in July 1982. A large plant of the Dupont Chemical Company is halfway between the Sabine River and the fixed bridge; its piers are not available to the public.

Charts 11331, 11348

(162) **Lake Charles Deepwater Channel**, a part of the Intracoastal Waterway, enters Sabine River 0.7 mile above Adams Bayou and extends E for 22 miles to the Calces River at a point 13 miles below Lake Charles. Lake Charles is described in chapter 9.

(163) The Intracoastal Waterway route continues along Sabine River and the Sabine-Neches Canal. (See chapter 12.)

Charts 11332, 11323

(164) **High Island**, a small settlement on the mainland about 30 miles W of Sabine Pass, is a mound about 1 mile in diameter and 40 feet high, the highest land on the coast between Sabine Pass and Galveston. It is a conspicuous landmark for vessels making, or standing along the coast. Numerous oil derricks are on the mound, and about 1.5 miles N are two 132-foot towers for a transmission line crossing the Intracoastal Waterway.

(165) Gasoline, water, and provisions can be obtained in the town. The ruins of a long fishing pier extend about 0.7 mile into the Gulf.

(166) **Rollover Pass,** about 6.5 miles WSW of High Island, is a shallow inlet from the Gulf into East Bay, which is not passable for even the smallest of outboard craft because of very strong tidal currents, reported obstructions, and shifting bottom. The pass is baldheaded with steel piling. The village of **Gilchrist** is on the pass. Gasoline is available in cans from a station near the pass, and water and ice can be obtained at several nearby bait stands.

(167) **Heald Bank,** lying 34 miles E of Galveston and 27 miles offshore, is nearly 5 miles long in a NE and SW direction. Depths of 25 to 35 feet extend over the bank, and depths of 50 to 60 feet are found as close as 1.5 to 2 miles to the SE. In a heavy sea Heald Bank should be avoided by all vessels, including those of moderate draft which could pass over it in smooth water. A lighted bell buoy is 3 miles SW of the bank. In 1965, a vessel reported striking a submerged object about 5.6 miles SE of the buoy. A 33-foot spot, marked by a buoy, is about 11 miles SW of the bank.

Currents

(168) The currents at Heald Bank are due largely to winds. In calm weather or with light breezes, little current is experienced. Wind velocities of 20 to 35 knots produce currents of about 0.5 to 1 knot, setting in a direction approximately fair with the wind. In February 1919, a velocity of 2.6 knots in a SW direction was observed; a N wind of about 45 knots was blowing at this time. From observations made during the first 6 months of 1915, the average drift was one-fourth knot, setting in a W direction.

Chart 11340

(169) **East Flower Garden Bank** and **West Flower Garden Bank,** covered 9 and 10 fathoms, respectively, and **Stetson Bank**, cover 10 fathoms are coral reefs about 108 miles S of Sabine Pass. To help preserve the fragile coral structures, these reefs have been designated **coral habitat areas of particular concern (HAPCs).** (See **50 CFR 638**, chapter 2, for limits and regulations. The Flower Garden and Stetson Banks have also been designated as the **Flower Garden Banks National Marine Sanctuary.** (See **15 CFR 922.1 through 922.50 and 922.120 through 922.123,** chapter 2, for limits and regulations.)

(170) **Prohibited-from-Lightering Zone, Flower Garden Banks**.–The Flower Garden Banks have also been designated as a Prohibited-from-Lightering Zone. See **Parts 156.300 through 156.330**, chapter 2, for limits and regulations, and Lightering Zones, indexed as such, chapter 3.

(171) The International Maritime Organization (IMO) has declared the Flower Garden Banks and Stetson Bank an International No-Anchoring Zone, except for vessels under 100 feet (30.48 meters) using Sanctuary mooring buoys. (See **15 CFR Part 922**, chapter 2, for limits and regulations)..

Chart 11323

(172) **Bolivar Peninsula**, SW of High Island, extends to the Galveston Bay Entrance. The land is low with few prominent features. An abandoned lighthouse, a black conical tower 116 feet high, is on the S end of the peninsula. Numerous wrecks lie in the shoal water along the Gulf Coast off Bolivar Peninsula. It is reported that several fishing vessels have been wrecked on these obstructions.

Galveston Entrance

(173) **Vessels should approach Galveston Bay through the prescribed Safety Fairways**. (See **166.100 through 166.200**, chapter 2.)

(174) **Traffic Separation Scheme (Galveston)** has been established in the approach to Galveston Bay. The Scheme consists of **directed traffic lanes** for inbound and outbound traffic, a **separation zone**, and two **precautionary areas**. The Traffic Separation Scheme is coterminous with the existing safety fairway from the vicinity of Galveston Bay Entrance Lighted Whistle Buoy GA to the vicinity of Galveston Bay Entrance Channel Approach Lighted Buoy GB

(175) **The Traffic Separation Scheme has been designed to aid in the prevention of collisions in the approach to the harbor, but is not intended in any way to supersede or alter the applicable Navigation Rules. Separation zones are intended to separate inbound and outbound traffic lanes and to be free of ship traffic, and should not be used except for crossing purposes. Mariners should use extreme caution when crossing traffic lanes and separation zones.**

Note

(176) A pilot boarding area is located near the center of the inshore precautionary area. Due to heavy vessel traffic, mariners are advised not to anchor or linger in this precautionary area except to pick up or disembark a pilot. (See Traffic Separation Schemes, chapter 1, and **33 CFR 167**, chapter 2, for additional information.)

Charts 11324, 11327, 11323, 11331, 11322, 11326, 11330

(177) **Galveston Bay** is a large irregularly shaped shallow body of water on the coast of Texas, about 285 miles W from Southwest Pass and 690 miles NW from Dry Tortugas. The bay is about 30 miles long in a general NNE and SSW direction, about 17 miles wide at its widest part, and has general depths of 7 to 9 feet. About midway of its length it is nearly divided into parts by **Red Fish Bar,** a chain of small islets and shoals, through which the Houston Ship Channel has been dredged. N of Red Fish Bar the bay is known as the Upper Bay and S as the Lower Bay. The NE end of the upper bay is Trinity Bay.

(178) Galveston Bay is the approach to East and West Bays, Houston Ship Channel, and the cities of Galveston, Texas City, and Houston, as well as to numerous smaller towns and bayous.

(179) **Galveston Entrance,** the approach to Galveston Bay, lies between two converging stone-rubble jetties about 4 miles long and 1.3 miles apart at the outer ends. From deep water in the Gulf, the N jetty extends to Bolivar Peninsula and the S jetty extends to the N end of Galveston Island. Mariners should be alert to the possibility of strong cross-currents in the Galveston Bay Entrance Channel; caution is advised.

(180) **Bolivar Roads** is the large deepwater area between the jetties extending W between Bolivar Peninsula on the N and Pelican Island and Galveston Island on the S. On the S and W it connects with the ship channels to Galveston, Texas City, and Houston. The Intracoastal Waterway crosses its NW side.

(181) **Galveston** occupies the entire width of the E end of **Galveston Island.** The wharves are built along Galveston Channel on the N side of the city, and the S side fronts upon the Gulf from which the city is protected by a concrete seawall 17 feet high. Galveston,

although widely known as the major seashore resort in the SW, is essentially and primarily a place of maritime commerce and industry.

(182) The principal industries consist of shipping, boat building and repairing, grain elevators, machine shops, cotton compresses, meat packing, fishing, dairying, and agriculture.

(183) The Port of Galveston offers a short route to the sea, and together with the deep and easily navigated channel and excellent port facilities enable Galveston to handle cargo most expeditiously and economically. The principal commodities handled at the port are shell, wheat, rice, flour, synthetic rubber, cotton, molasses, sugar, tea, petroleum products, scrap iron, lumber, wood pulp, paper products, coke, coal tar products, steel products, oil well pipe casing, machinery and supplies, sulfuric acid, alcohol, caustic soda, industrial chemicals, liquid and dry sulfur, stone and gravels, ores and concentrates, lead, zinc, copper, aluminum, bituminous coal, with general and containerized cargo.

(184) Both foreign and domestic commerce are extensive, the principal exports are cotton, grain, flour, rice, sulfur, fertilizer chemicals, and metals. The main imports are bananas, plywood, seafood, raw sugar, and tea.

(185) **Port Bolivar** has been abandoned as a port. The pier slips have shoaled; the only marine activity is an auto ferry operating between Galveston and Port Bolivar and several small shrimp-packing plants. In April 1999, the controlling depth in the ferry channel was 14 feet.

(186) The current outside the jetties frequently has a velocity exceeding 1 knot. The set may be in any direction under the combined influence of the entrance currents and currents setting along the coast.

(187) Daily predictions for Galveston Bay Entrance are published in the Tidal Current Tables.

(188) **Pelican Island,** an artificial island, is on the N side of Galveston Channel and protects the channel from northers. A radio station, an offshore drilling service facility, Texas A and M Maritime Academy, Texas University System's Moody Marine Institute, and a SEABEE and LASH barge marshalling area, Marine Geophysical Survey Company, and ship wharf are located on the island. Dikes enclose the central part of the island. Seawolf Park, a city park and recreation area with a public mooring wharf, occupies the former quarantine station at the E tip of the island. The submarine CAVALLA, a memorial to the submarine crews who lost their lives during World War II, and the destroyer escort STEWART are berthed adjacent to the park.

Prominent features

(189) Approaching the entrance to Galveston Bay, among the first objects sighted on a clear day will be the 363-foot high American National Insurance Co. Building at about 29°18.4'N., 94°47.4'W., which displays aircraft warning lights at night, two grain elevators on Galveston Channel in the vicinity of Pier 29, the numerous hotels and motels along the seawall, and a tall hotel on a pier. The 116-foot abandoned lighthouse on Bolivar Point, the Santa Fe Building, and the many buildings of the medical center and the University of Texas, show conspicuously on closer approach and are easily identified. Vessels approaching from E near the coast will first sight High Island, and those approaching from SW will probably first sight the water tank near Scholes Field in about 29°16.0'N., 94°51.0'W., and then the American National Insurance Co. Building.

(190) **Galveston South Jetty Light 5A** (29°19.6'N., 94°41.4'W.), 30 feet above the water, is shown from a skeleton tower with a square green daymark at the outer end of the S jetty. A fog signal is at the light.

(191) **Galveston Bay Entrance Channel Approach Lighted Buoy GB** (29°18'18"N., 94°37'36"W.), the sea buoy, is 3.7 miles off Galveston South Jetty Light 5A, and marks the entrance to the channel. A racon is at the buoy.

(192) **Galveston Bay Entrance Lighted Whistle Buoy GA** (29°09'30"N., 94°25'54"W.) is about 17 miles SE of Galveston South Jetty Light 5A.

(193) **Vessel Traffic Service Houston–Galveston** became mandatory on 13 October 1994. VTS Houston/Galveston is an information hub, using radar, closed circuit television, and VHF communications to provide the users with decision making information. VTS Houston/Galveston's mission is to facilitate safe, efficient waterborne commerce. Specifically, VTS Houston/Galveston works to prevent groundings, rammings, and collisions, by sharing information and implementing appropriate traffic management measures.

(194) Participation in the VTS Vessel Movement Reporting System is mandatory for vessels greater than 131 feet in length, vessels greater than 26 feet in length engaged in towing, and vessels authorized to carry 50 or more passengers, which are engaged in trade. Vessels entering the Vessel Traffic Service Area should check in with "Houston Traffic" on VHF-FM Channel 5A. VHF-FM Channels 11 and 12 are also reserved for VTS Houston/Galveston communications. Detailed information on VTS Houston/Galveston's operating requirements, designated frequencies, precautionary areas, and mandatory reporting points can be found in **CFR Chapter 2 Part 161 Vessel Traffic Management, tables 161.12, 161.35(b), and 161.35(c).**

(195) For a complete detailed description of the Vessel Traffic Service, mariners should obtain the latest edition of the U.S. Coast Guard's Houston/Galveston Vessel Traffic Service User's Manual, available from the

Commanding Officer, U.S. Coast Guard Vessel Traffic Houston/Galveston, 9640 Clinton Drive, Houston, TX 77029. Website: www.uscg.mil/VTSHouston

COLREGS Demarcation Lines

(196) The lines established for Galveston Bay are described in **80.845** chapter 2.

Channels

(197) The Federal project provides for an Entrance Channel and an Outer Bar Channel both dredged to 45 feet from the Gulf to about 2 miles W of the outer end of the jetties, and in the Inner Bar Channel to Bolivar Roads, thence 40 feet in Galveston Channel from the roads to Pier B at West 43rd Street in Galveston. (See Notice to Mariners and latest editions of charts for controlling depths.) The channels are well marked. Lighted ranges mark the Entrance, Outer Bar, and Inner Bar Channels. Mariners should be alert to the possibility of strong cross-currents in the Galveston Bay Entrance Channel; caution is advised.

Anchorages

(198) **Vessels may anchor off the bar in the Galveston Entrance Anchorages just inshore of the intersection of the Galveston Safety Fairway with the Coastwise Fairway**. (See **166.100 through 166.200**, chapter 2, for limits and regulations.) An anchorage area, for temporary use only, is N of the realigned Inner Bar Channel W of the spoil areas in Bolivar Roads. (See **110.1 and 110.197**, chapter 2, for limits and regulations.) In all instances, vessels must anchor sufficiently clear of all active channels so as not to interfere with navigation or the usefulness of any established aids to navigation.

(199) Because of heavy traffic, Galveston Channel can be used only for temporary anchorage by vessels preparing to haul into the berth at wharves or after leaving the wharves before going to sea. **Small craft anchoring in the designated areas should find the shoaler water so as to leave the deeper areas clear for larger vessels.**

(200) In Galveston Bay small craft can anchor anywhere outside of the dredged channels where the depth is sufficient. The water in the bay may be lowered as much as 3 feet by a norther, and vessels should anticipate this when selecting anchorage during the winter.

Dangers

(201) A considerable number of unmarked dangerous wrecks exist in the approaches to Galveston Bay Entrance. A spoil bank is S of the Outer Bar Channel, and an extensive shoal area is S of the channel between the jetties. Heald Bank and the offshore oil well structures are the principal hazards.

(202) Vessels navigating in the Houston Ship Channel from Bolivar Roads to Morgans Point are cautioned about the heavy breakers which result from the bow wakes of tankers and other large merchant vessels in the channel.

Bridges

(203) A rail and highway causeway crosses Galveston Channel and connects Galveston Island with Pelican Island. The bascule span has a clearance of 12 feet. The single bascule leaf overhangs the channel above a clearance of 75 feet when the bridge is open, and caution is necessary. (See **117.1 through 117.59 and 117.977**, chapter 2, for drawbridge regulations.) An overhead power cable close E of the bridge has a clearance of 85 feet. Galveston is connected to the mainland by three parallel causeways 1.75 miles long crossing the Intracoastal Waterway at the SW end of Galveston Bay. The rail-highway bridge has a bascule span with a clearance of 7 feet. (See **117.1 through 117.49**, chapter 2, for drawbridge regulations.) The bridgetender monitors VHF-FM channel 16 and works on channel 13; call sign KUF-652. An overhead power cable immediately SW of the bridge has a clearance of 99 feet. Twin fixed bridges 0.1 mile SW of the rail-highway bridge have clearances of 73 feet.

Tides and currents

(204) The diurnal range of tide at Galveston Bay Entrance at the S jetty is 2.0 feet. The effect of the wind on the water level in this part of the Gulf and adjoining bays may be considerable. A level 2 to 4 feet above mean low tide may result from a strong wind blowing continuously for several days from the E and SE. A strong wind blowing steadily from the N for several days may lower the water to a level 2 or 3 feet below mean low tide. Daily predictions for Galveston Channel are given in the Tide Tables.

(205) The currents are also modified frequently by the winds. E or SE winds may cause a continuous flood current between the jetties at the entrance for a period of a day or more, and W or NW winds sometimes set up a continuous outgoing current for a similar period. The average velocity of the current between the jetties at strength is 1.7 knots on the flood and 2.3 knots on the ebb.

Weather

(206) The climate of the Galveston area is predominantly marine, with periods of modified continental influence during winter when cold fronts reach the coast. Cold fronts that reach the area are usually not severe. Temperatures drop to 32°F or below on just 4 days annually, on average. The average high temperature at Galveston

is 74.6ºF and the average low temperature is 65.2ºF. Due to the lagging marine influence, August, rather than July is the warmest month with an average temperature of 83.7ºF. January is the coolest month with an average temperature of 53.9ºF. The warmest temperature on record is 99ºF recorded in August 1990 and the coolest temperature on record is 14ºF recorded in December 1989. Temperatures greater than 90ºF have been recorded in each month, April through October and average 15 days each year. Each month, November through March, has reported temperatures below freezing.

(207) The cold fronts or northers are responsible for a preponderance of N winds from November through March. Windspeeds climb to 28 knots or more about 1 percent of the time during this period and reach the 17- to 27-knot range 13 to 19 percent of the time. On occasion they have been observed at 50 knots. However, northerlies, since they blow offshore, are less of a problem to vessels close to the coast, although they are often preceded by strong, gusty onshore winds which generate heavy seas. Waves of 12 feet or more are encountered 1 to 2 percent of the time during this period. The frontal activity is also responsible for precipitation on about 2 to 4 days per month, usually in the form of steady rains. Poor visibilities are sometimes a problem in winter, and fog occurs from November through April. Offshore visibilities drop below 0.5 mile about 1 to 2 percent of the time, while Galveston records heavy fog (visibilities of 0.25 mile or less) on an average of 1 day per month in December and January. The Galveston South Jetty Light 5A fog signal operates an average of about 70 to 100 hours per month from December through March.

(208) During spring and fall, weather is often variable. Thunderstorms are common from May through September. During July and August, they occur on about 4 days per month around the bay. Thunderstorms and showers provide most of the summer rainfall and occur, on average, 23 days each year. The average annual rainfall for Galveston is 41.53 inches. September is the wettest month averaging 5.34 inches and March is the driest averaging 2.35 inches. Snowfall averages less than one inch annually and the greatest 24-hour snowfall total is 2.5 inches which fell in January 1973.

(209) From late May through early November, there is the threat of a tropical cyclone with its strong winds, rough seas, storm tides, and torrential rains. Galveston has experienced all of these. The 1900 hurricane completely destroyed the city as storm tides were driven to 20 feet above mean sea level. An 1885 storm dumped 26 inches of rain on the city. During Carla, in September 1961, winds guested to 112 mph (97 knots) and during Alicia in August 1983, the area was hit with 100-knot winds. A hurricane can be expected to affect the area about once in 5 years, on average. While September is the most likely month for a hurricane, devastating storms have occurred in all the hurricane months except November.

(210) The National Weather Service maintains an office in Galveston; **Barometers** may be compared there or by telephone. (See appendix for address.) (See page T-9 for **Galveston climatological table.**)

Pilotage, Galveston Bay

(211) Pilotage is compulsory for all foreign vessels and U.S. vessels under register. Pilotage is optional for U.S. vessels in coastwise trade under enrollment that have on board a pilot licensed by the Federal Government.

(212) Pilots for Galveston and Texas City are available from Galveston-Texas City Pilots, #2 Pennzoil Road, Pelican Island, Galveston, TX 77552; telephone 409-740-3336, 409-740-3690. FAX 409-740-3393. Houston is served by Houston Pilots, 8150 South Loop East, Houston, TX 77017; telephone/FAX 713-649-3513, maintained 24-hours; email, disp@houston-pilots.com. The Houston pilots serve all ports above Texas City in Harris County. (See webpage, www.houston-pilots.com for information on tide, tariff, and local regulations.)

(213) The pilot boats come out when vessels are expected, and the pilots board at Galveston Bay Entrance Channel Approach Lighted Buoy GB. The Galveston-Texas City Pilots have two boats, TEXAS, 70 feet long, and GALTEX, 47 feet long, an alternate pilot boat. Each boat has a black hull and white superstructure with the word PILOT on each side of the superstructure. The boats fly the international code flag "P" by day and display the standard pilot lights at night. The pilot boats monitor VHF-FM channels 14 and 16 and work on channel 73; call sign KOK-780. The calls signs for pilot boats TEXAS and GALTEX are WX-8357 and WYU-8513, respectively. The pilots carry portable radiotelephones. The sound and visual signals are four long blasts on the whistle or flashes on the signal light.

(214) The Houston pilots have four boats: M/V Houston, 62 feet long, call sign WBQ 8986; M/V Lonestar, 50 feet long, call sign WCY 9015; Houston Pilot No. 1, 54 feet long, call sign WYR 8541; and the Houston Pilot No. 3, 91 feet long, call sign WZR 9849. The boats have gray hulls and white superstructures. M/V Houston and Lonestar are swath designs. The pilot boats display the International Code flag P by day and the standard pilot light by night. The pilot boats monitor VHF-FM channels 14, 16, and 74, continuously; the pilot office monitors channel 74. The pilot boats call signs are WYR-8541 and WZR-9849. The sound and visual signals are two long and three short blasts on the whistle or flashes on the signal light.

(215) Vessels should maintain steerage way and offer a good lee for the pilot to board. The pilots will advise vessels on the radiotelephone if special procedures are necessary. All pilots carry portable radiotelephones.

(216) Pilots can be obtained by making a signal off the bar or with a 1½-hour advance notice by cable, telegram, radio, fax, telephone, or through ships agents or directly through shipping companies. Houston Pilots request an 8-hour advance notice.

Towage

(217) Tugs up to 4,200 hp are available.

Quarantine, customs, immigration, and agricultural quarantine

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

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

(220) The medical school and hospital of the University of Texas and other hospitals are in the city.

(221) Galveston is a **customs port of entry.**

Coast Guard

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

Harbor regulations

(223) The **Galveston Wharves,** which comprise piers, warehouses, wharves, export grain elevator, cotton compresses, terminal switching railroad, and special modern handling equipment, is a municipally owned Port Authority, administered by the Board of Trustees appointed by the City Council. The operation of the wharves is under direction of a Port Director. The Board establishes tariff rates and regulations governing the wharves. The individual piers and terminals are administered by the firms operating them.

Wharves

(224) Galveston has more than 60 wharves and piers. Only the deep-draft facilities are described. For a complete description of the port facilities refer to Port Series No. 23, published and sold by the U.S. Army Corps of Engineers. (See appendix for address.) The alongside depths are reported; for information on the latest depths contact port authorities. Almost all the facilities are on the S side of Galveston Channel and are owned and operated by the Board of Trustees of the Galveston Wharves, a city-owned corporation. All the deep-draft facilities have water, shore power, railroad, and highway connections. General cargo at the port is usually handled by ship's tackle; special handling equipment, if available, is mentioned in the description of the particular facility. Cranes up to 300-ton capacity are available in Galveston. A 200-ton floating crane is available at the port, and a 500-ton floating derrick is available from Houston.

(225) Container Terminal of Galveston, Pier 10 (29°19.0'N., 94°46.9'W.): 1,343-foot face, 40 feet alongside; deck height, 11 feet; 52 acres of open storage; four container cranes to 60 tons; receipt and shipment of containerized, roll-on/roll-off and conventional general cargo, including steel and lumber; owned by the city of Galveston and operated by Container Terminal of Galveston, Inc.

(226) Pier 12: SW side of Container Terminal; 845-foot face, 30 feet alongside, deck height, 11 feet; 53,240 square feet covered storage; two mobile cranes; fork lifts; one diesel mobile straddle carrier; receipt and shipment of general cargo.

(227) Pier 14: 200 yards SW of Container Terminal; 253-foot face, 22 feet alongside; W side 689 feet long, 30 feet alongside; E side 664 feet long, 32 feet alongside; deck height, 10 feet; 6 acres open storage; receipt and shipment of general and containerized cargoes and dry bulk commodities and ores and heavy lifts.

(228) Piers 15, 16, and 18: 0.4 mile SW of Container Terminal; 1,203-foot face, E side 664 feet long; 32 feet alongside; deck height, 11½ feet; 194,000 square feet covered storage; 0.6 acre of open storage; receipt and shipment of conventional general cargo; fueling of small vessels on upper side.

(229) Piers 19 and 20: 1,250 feet of continuous berthing space in line with Pier 21; 22½ feet alongside; deck height, 8½ feet; two electric 24-inch conveyors; 7,500 square feet of covered storage; receipt of bananas.

(230) Piers 23-26: 0.9 mile SW of Container Terminal; 1,415-foot face, 32 feet alongside; E side 168 feet long, 30 to 16 feet alongside; deck height, 12 feet; 295,000 square feet of covered storage; one electric freight elevator, one gravity chute, one fixed conveyor; receipt and shipment of general cargo.

(231) Piers 27-29: 1.1 miles SW of Container Terminal; 1,486-foot face; 31 to 41 feet alongside; deck heights, 8 to 12 feet; 95,000 square feet covered storage; 8 grain loading spouts, loading rate 50,000 bushels per hour, unloading rate 33,000 bushels per hour; electric conveyors; receipt and shipment of grain and general cargo.

(232) Piers 30, 32, and 33: 1.3 miles SW of Container Terminal; E side 1,185 feet long; 34 to 40 feet alongside; deck height, 11 feet; 185,000 square feet of covered storage; 3 grain loading towers, rate 80,000 bushels per hour; one pneumatic unloader, rate 8,000 bushels per hour; receipt and shipment of grain and general cargo.

(233) Piers 34-35: 1.4 miles SW of Container Terminal; 345-foot face; 35 feet alongside; deck height, 8½ feet; two 35-ton bridge cranes and one 5-ton bridge crane; 92,000 square feet covered storage; 8.5 acres of open storage; receipt and shipment of conventional and roll-on/roll-off general cargo, heavy machinery and steel.

(234) Imperial Sugar Co. Dock: 558 feet of berthing space; 35 feet alongside; deck height, 11 feet; two 11-ton electric traveling gantry crane with 80-foot boom with bucket and hopper; 48-inch belt conveyor system; storage building with capacity for 30,000 tons of sugar; receipt of bulk raw sugar by vessel; owned by the City of Galveston; operated by Imperial Sugar Co.

(235) Pier 36: 1.5 miles SW of Container Terminal; 1,205 feet long, head of slip 200 feet long; 30 feet alongside; deck height, 11 feet; 239,000 square feet covered storage; receipt and shipment of general cargo.

(236) Piers 37-38: 1.7 miles SW of Container Terminal; 348-foot face, E side 1,163 feet long, W side 1,180 feet long; 30 feet alongside Pier 37; 20 feet alongside Pier 38; deck height, 11 feet; 75,000 square feet covered storage; 8 acres of open paved storage; receipt and shipment of containerized, roll-on/roll-off, and conventional general cargo; owned by the city of Galveston and operated by Aramco Services Co.

(237) Piers 39-40: 1.8 miles SW of Container Terminal: 787-foot face, E side 1,173 feet long, W side 1,163 feet long; 32 feet alongside; deck height, 10 feet; 458,000 square feet covered storage; receipt and shipment of sacked rice; operated by American Rice, Inc.

(238) Pier 41: 1.9 miles SW of Container Terminal: 373-foot face, E side 1,195 feet long; 21 to 33 feet alongside; deck height, 11 feet; 471,000 square feet covered storage; receipt and shipment of general cargo.

(239) Pennzoil Sulphur Co., Ship Dock: 2.0 miles SW of Container Terminal; 575-foot face; 36 feet alongside; deck height, 36 feet; shipment of dry bulk and liquid sulphur; bunkering vessels berthed at wharf; owned and operated by Pennzoil Sulphur Co.

(240) SEABEE Berth (29°18.7'N., 94°48.4'W.): S side of Pelican Island; 1,000 feet of berthing space with dolphins alongside offshore platform; 42 feet alongside; a barge marshalling area with depths of 14 feet is adjacent N of offshore platform; operated by Western Towing Co. and Lykes Brothers Steamship Co.

Supplies

(241) Provisions and marine supplies are available. Water for boiler use or drinking may be obtained at all piers. Bunker C and diesel oil are available by truck or barge; maximum loading rate is about 3,000 barrels per hour.

Repairs

(242) The port of Galveston has numerous marine repair shops and foundries capable of making repairs to the hull or machinery of steel or wooden vessels. A company has facilities to repair refrigerator equipment. In the slip E of the Container Terminal (Pier 9) are two boatyards with marine ways the largest of which can handle vessels up to 250 tons or 130 feet for general repairs. A machine and carpenter shop operates in connection with the yard. A marine repair plant, 1.7 miles W of the bridge between Galveston Island and Pelican Island, has a 1,000-ton vertical lift and related shops for the construction and repair of steel barges, tugs, and various types of small vessels.

Salvage

(243) Tugs, lighters, pumps, derricks, diving equipment, and other facilities are available for wrecking and salvage operations.

Small-craft facilities

(244) A marina, yacht club, and yacht yard are in a basin about 400 yards E of the Container Terminal (Pier 9). The marina is protected by a concrete breakwater and has five piers with covered and open berths for more than 400 craft; each berth has electrical and water connections. In December 2002, the reported approach depth was 20 feet with 10 feet alongside the slips. The yacht yard at the inner end of the basin has a lift that can handle craft up to 70 feet for hull, engine, and electronic repairs, or dry open or covered storage. Gasoline, diesel fuel, water, ice, marine supplies, pump-out station, and berths with electricity are available in the yacht basin. A launching ramp is available, and a mooring area is N of the marina.

Communications

(245) There are no commercial flights servicing Galveston, but a limo service is available to both Houston Intercontinental Airport and Houston Hobby Airport. A small airport in Galveston offers helicopter charter service associated with the offshore oil industry. There are close to 100 steamship lines that provide service to all ports of the world. In addition, several barge lines operate along the Intracoastal Waterway to other Gulf ports and to the Mississippi and other river systems. The terminal railroad connects with two trunkline railroads serving the port. They are the Union Pacific and the Burlington Northern-Atchison, Topeka, Santa Fe. Interstate and local buslines provide service and motor freight lines serve the port. A radio station provides ship-to-shore radio and radiotelephone service, and weather reports are broadcast.

(246) **Texas City,** on the W side of Galveston Bay about 7 miles NW from Galveston, is a privately owned port of considerable commercial importance. It has extensive foreign and coastwise trade in petroleum, chemicals, fertilizer, and tin ore. Commodities handled through the port include shell, rice, wheat, flour, molasses, hides, synthetic rubber, naval stores, textiles, lumber, wood pulp paper products, petroleum products, steel products, salt, aluminum, zinc, copper, and tin ores, machinery, coal tar products, sulfuric acid, industrial chemicals, scrap iron, and fertilizer. A 23-foot storm levee has been constructed around the city.

Prominent features

(247) The Texas City Dike that extends about 4.5 miles into Galveston Bay, the three elevated tanks in the port area, and the numerous cracking towers of the oil refineries and chemical plants are conspicuous.

Channels

(248) Texas City Channel extends WNW from deep water in Bolivar Roads through the lower end of Galveston Bay to a turning basin off the wharves at Texas City. A Federal project provides for a depth of 40 feet in the channel and basin. (See Notice to Mariners and latest editions of charts for controlling depths.) The channel is marked by lighted ranges, lights, and lighted and unlighted buoys.

(249) Texas City Channel is protected by Texas City Dike on the N. The dike is earth-filled, protected by stone revetment, and is about 4.5 miles long. It is 900 feet N of the channel at the E end and about 2,300 feet N at the W end. The wharves are protected by a large spoil bank known as **Shoal Point,** extending along the E side of the turning basin.

(250) The W shore of Shoal Point and the turning basin W of the island are within a **safety zone**. (See **165.1 through 165.7, 165.20 through 165.25, and 165.804**, chapter 2, for limits and regulations.)

(251) **Industrial Canal** a private industrial canal, extends from the S end of the turning basin off the Texas City wharves S and W for about 2 miles to another turning basin. January 2005, the controlling depth was 38 feet (40 feet at midchannel), thence 39 to 40 feet in the basin. The channel is marked by a private light and a **090°** lighted range.

(252) About midway in Texas City Channel, a small-boat channel between the dike and the dredged channel leads NW to a landing and small-boat basin at the inshore end of the dike. The channel had a reported depth of about 6 feet and is used by fishing and pleasure boats.

(253) A natural small-boat channel about 5 to 7 feet deep, marked by daybeacons, leads S from the Texas City Channel to the Intracoastal Waterway through the lower Galveston Bay.

Dangers

(254) A sunken wreck reportedly covered 4 feet is off the entrance to North Slip.

Security Zones

(255) The Captain of the Port (COTP) Houston-Galveston has established a Security Zone in Texas City including the Port of Texas City Channel, Turning Basin, and Industrial Canal. (See **165.30 through 165.33 and 165.814**, chapter 2, for limits and regulations.) Unauthorized vessels/persons are excluded from these without express permission of the COTP.

Pilotage, Texas City

(256) See Pilotage, Galveston Bay (indexed as such) this chapter.

Towage

(257) Vessels usually proceed without assistance from the bar to Bolivar Roads. Tugs up to 3,400 hp are available at Texas City for docking, undocking, and shifting.

Quarantine, customs, immigration, and agricultural quarantine

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

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

(260) Texas City has a county and a private hospital.

Wharves

(261) Texas City has over 40 wharves and piers. Only the deep-draft facilities are described. For a complete description of the port facilities refer to Port Series No. 23, published and sold by the U.S. Army Corps of Engineers. (See appendix for address.) The alongside depths are reported; for information on the latest depth contact the private operator. The port's waterfront facilities are on the turning basin and along the Industrial Canal. Almost all facilities have highway, railroad, water, and electrical shore power connections. The Texas City Terminal Railway Co. owns most of the waterfront facilities in Texas City. General cargo at the port is usually handled by ship's tackle; special handling equipment, if available, is mentioned in the description of the particular facility. A 50-ton floating crane is available at Galveston, and a 500-ton floating derrick is available from Houston.

(262) Monsanto Tanker Dock No. 1 (29°22'41"N., 94°53'33"W.): 110-foot face, 750 feet with dolphins; 35 feet alongside; deck heights, 5 and 15 feet; shipment of acetic acid, styrene, vinyl acetate, and methanol; owned and operated by Monsanto Co.

(263) Texas City Terminal Railway Co., Dock No. 15 (29°22'31"N., 94°53'26"W.): 400-foot face; 30 to 32 feet alongside; deck height, 15 feet; 10,000 square feet open storage; tank storage for 1 million barrels; receipt and shipment of petroleum products, petrochemicals, and chemicals; owned by Texas City Terminal Railway Co. and operated by Stan Trans. Inc.

(264) Texas City Terminal Railway Co., Dock No. 16 (29°22'26"N., 94°53'21"W.): 140-foot face, 283 feet with dolphins; 42 feet alongside; deck height, 16 feet; tank storage for 7 million barrels; receipt of crude oil, receipt and shipment of petroleum products and petrochemicals; bunkering vessels; owned by Texas City Terminal Railway Co. and Stan Trans, operated by Marathon Oil Co., Anchortank, Inc., and Texas City Refining Co.

(265) Texas City Terminal Railway Co., Oil Dock No. 18: SE end of Pier E; 88-foot face, 320 feet with dolphins; 34 feet alongside; deck height, 14 feet; receipt of crude oil, shipment of petroleum products, chemicals, and petrochemicals; bunkering vessels; owned by Texas City Terminal Railway Co. and operated by Marathon Oil Co., and Texas City Refining, Inc.

(266) International Minerals & Chemical Corp., Dock No. 19B: 100 yards W of Oil Dock No. 18; 233-foot face; 34 feet alongside; deck height, 12 feet; straddle carrier, 30-ton traveling bridge crane; receipt and shipment of miscellaneous dry bulk materials; owned by Texas City Terminal Railway Co. and operated by International Minerals & Chemical Corp.

(267) Texas City Terminal Railway Co., Oil Dock No. 19A: 100 yards W of Container Dock No. 19; 77-foot face, 152 feet with dolphins; 34 feet alongside; deck height, 14 feet; receipt of crude oil, receipt and shipment of petroleum products; bunkering vessels; owned by Texas City Terminal Railway Co. and operated by Lowry Tank & Terminal Co., Chemicals and Plastics Division; Marathon Oil Co., Texas City Refining, Inc.

(268) Texas City Terminal Railway Co., Oil Dock No. 20: across slip S of Oil Dock No. 19; 98-foot face, 300 feet with dolphins; 32 feet alongside; deck height, 14 feet; receipt of crude oil, receipt and shipment of petroleum products and benzene; bunkering vessels; owned by Texas City Terminal Railway Co. and operated by Marathon Oil Co. and Texas City Refining, Inc., Coastal States Crude Gathering Co., and Lowry Tank and Terminal Co.

(269) Amoco Tanker Dock No. 31 (29°22'16"N., 94°53'22"W.): 80-foot face, 320 feet with dolphins; 36-38 feet alongside; deck height, 15½ feet; tank storage for 16 million barrels; receipt of crude oil; receipt and shipment of petroleum products; bunkering vessels; owned and operated by Amoco Texas Refining Co.

(270) Amoco Tanker Dock No. 32: 200 yards S of Dock No. 31; 80-foot face, 320 feet with dolphins; 36-38 feet alongside; deck height, 15½ feet; receipt of crude oil; receipt and shipment of petroleum products; bunkering vessels; owned and operated by Amoco Texas Refining Co.

(271) Amoco Tanker Dock No. 32A: 75 yards S of Dock No. 32; 20-foot face, 320 feet with dolphins; 36-38 feet alongside; deck height, 15½ feet; receipt of crude oil; owned and operated by Amoco Texas Refining Co.

(272) Texas City Tanker Dock, Berths Nos. 40 and 41: 400 yards SW of Dock No. 32A; 1,090 feet of berthing space with dolphins along N and S sides; 40 feet alongside; deck height, 16 feet; receipt of crude oil; owned by Amoco Texas Refining Co. and operated by Amoco Texas Refining Co., Marathon Oil Co., and Texas City Refining, Inc.

(273) Amoco Chemicals Corp. Dock No. 50: (29°21'48"N., 94°54'15"W.): N side of Texas City Canal; 60-foot face, 420 feet with dolphins; 36-40 feet alongside; deck height, 11 feet; receipt and shipment of styrene, mixed xylene, paraxylene, metaxylene, and petroleum distillates; owned by Texas City Terminal Railway Co., and operated by Amoco Chemical Corp.

(274) Union Carbide Corp., Tanker Dock No. 66: W side of turning basin at head of Texas City Canal; 100-foot face, 250 feet with dolphins; 37 feet alongside; deck height, 12 feet; receipt and shipment of chemicals; owned and operated by Union Carbide Corp., Solvents and Coatings Materials Division.

(275) Union Carbide Corp., Tanker Dock No. 67: S side of turning basin at the head of Texas City Canal; 100-foot face, 600 feet with dolphins; 40 feet alongside; deck height, 6 feet; receipt and shipment of chemicals; owned and operated by Union Carbide Corp., Solvents and Coatings Materials Division.

Small-craft facilities

(276) There are several fish camps at the inner end of the Texas City Dike where water, ice, and launching ramps are available. A paved highway leads to a dry storage marina near the outer end of the dike on the N side. Gasoline, diesel fuel, water, ice, marine supplies, and a launching ramp are available. A 6-ton forklift can handle vessels up to about 30 feet for hull and engine repairs or dry covered and open storage. A depth of 4 feet was reported in the entrance channel and alongside the fuel pump in 1991. A fishing pier is at the end of the dike.

Communications

(277) The Texas City Terminal Railroad connects with two trunkline railroads serving the port. They are the Union Pacific and the Burlington Northern-Atchison, Topeka, Santa Fe. Buslines and a motor freight line serve the city. Air service is available at the Houston Airport.

Chart 11326

(278) **East Bay** is a large and shallow bay extending E about 16 miles from the S end of Galveston Bay and lying N of Bolivar Peninsula. The depths in the bay range from 2 to 7 feet. **Hanna Reef** is a chain of low islands and shoals composed of broken shell. Only a heavy anchor will penetrate more than a few inches. The islands support no life. Breaker action is reported to be severe along the S side. The chain lies E of the Houston Ship Channel and partially separates Galveston Bay from East Bay. Small craft of about 3-foot draft can pilot their way between bays through two passes or around either end of the reef.

(279) **Trinity Bay** is a large body of water NE of the upper part of Galveston Bay. Depths in the bay proper range from 5 to 9 feet. Extensive oil-drilling operations are in progress in the Red Fish Bar, Cedar Point, and Trinity Bay areas. Numerous oil well structures and derricks are visible to the E of the Houston Ship Channel. The derricks are moved as soon as wells are brought in or abandoned. Numerous pipes, piles, and abandoned oil wells which constitute a menace to navigation are in the N and W part of the bay between Trinity River and Umbrella Point.

Caution

(280) There are a number of fishing locations in Trinity Bay in the vicinity of which caution should be exercised as piles or other structures may exist. They are marked by quick flashing red lights.

(281) **Lake Anahuac** is separated from the N part of Trinity Bay by an earth dike which obstructs all navigation.

(282) Although a Federal project authorizes a channel 9 feet deep from Houston Ship Channel to and in Trinity River, **Trinity River Channel** does not lead into the river; it leads NE from Houston Ship Channel to **Smith Point,** thence follows the E shore N between a protective spoil bank and the mainland to a dead end where the spoil bank crosses the channel and joins the mainland at Anahuac. The channel is not maintained.

(283) **Double Bayou,** 8 miles NE of Smith Point, flows into Trinity Bay and is used mainly by oil and fishing interests. A dredged entrance channel, marked by lights and daybeacons leads to the mouth of the bayou and thence upstream for about 1.7 miles. In October 2003, the controlling depth was 5.0 feet (7.0 feet at midchannel), thence 6.0 feet (7.0 feet at midchannel) for about 2.0 miles farther upstream.

(284) At a point 0.5 mile above its mouth, the bayou divides into East and West Forks and is navigable for respective distances of about 4 and 12 miles. **Double Bayou** and **Eagle** are settlements along the West Fork between the mouth and the highway bridge 3 miles from Trinity Bay. The bridge has a fixed channel span with a width of 10 feet and clearance of 14 feet. A marina at Double Bayou has covered berths and a marine railway capable of handling boats up to 55 feet for hull and engine repairs. A shipyard just above the marina builds barges and other commercial vessels. A marine railway at the yard can handle vessels up to 120 feet for general repairs. Diesel fuel, ice, and a launching ramp are available at seafood wharf on the West Fork near its junction with East Fork. A bridge crosses East Fork, 5 miles from the junction of the bayou.

(285) **Anahuac Channel,** a dredged channel, leads from the upper part of Trinity Bay to Anahuac and **Browns Pass,** and is the entrance channel to Trinity River. In March 2004, the controlling depth was 4.0 feet (5.0 feet at midchannel). The channel is marked by lights and daybeacons. Mariners should be on the lookout for floating logs.

(286) **Anahuac** is a town at the NE end of Trinity Bay, opposite the mouth of Trinity River. There was a reported depth of 5 feet in 1992 at a small landing used for handling barge shipments of shell. Small shrimp boats tie up just above the shell wharf. Gasoline is available at service stations in the town. The **Chamber-Liberty Counties Navigation District Canal** is used for irrigation purposes only. A highway connects Anahuac with Goose Creek and Houston.

(287) **Trinity River** is one of the largest rivers in Texas and empties into the NE end of Trinity Bay. Entrance to the river is through Anahuac Channel and Browns Pass, and not through Trinity River Channel. In 1994-June 2001, the centerline controlling depth was 5.0 feet from the mouth of the river at Anahuac through **Browns Pass** to **Devers Canal**, about 17 miles above the mouth; thence in July 2001, 4.1 feet to the cutoff channel, thence 1.2 feet **Liberty.** Sulfur is moved by barge from **Moss Bluff,** about 10 miles above the river mouth, to Galveston Bay. A highway bridge with a fixed channel span having a clearance of 73 feet crosses the river about 6 miles above Anahuac. An overhead power cable with a clearance of 78 feet crosses the river about 3 miles below the highway bridge.

(288) In the open waters of Trinity Bay about 2 miles W of Anahuac Channel, a 0.5-mile-long overhead power cable with a clearance of 29 feet is strung in a NW-SE direction on poles about 200 feet apart.

(289) Off **Houston Point (Cedar Point),** a small dredged channel with a reported depth of 6 feet in August 1982, leads to an oil company dock in a basin.

(290) Berths for tenders and crew boats are at the bulkhead at the head of the basin, and dolphins for mooring barges are on the W side of the basin. A walkway extends about 0.3 mile seaward from the basin.

Chart 11328

(291) **Cedar Bayou** is a crooked stream flowing in a S direction into the NW corner of Galveston Bay, 2.5 miles E of Morgans Point and 25 miles N of Galveston.

(292) The principal commerce is in crude oil and shells, handled mostly in barges. A channel has been dredged across the flats from the Houston Ship Channel to the first bend above the mouth of the bayou. Two submerged jetties are on the N side of the channel, at the mouth of the bayou. The outer end of the westernmost jetty is marked by a light. A Federal project provides for a 10-foot channel extending from Houston Ship Channel to State Route 146 highway bridge, about 8.5 miles above the mouth of Cedar Bayou. (See Notice to Mariners and latest editions of charts for controlling depths.)

(293) The Cedar Bayou entrance channel across the flats is marked by lights, buoys, and daybeacons. About 0.5 mile above the mouth, the bayou is crossed by Tri City Beach Road highway bridge having a bascule span with a clearance of 13 feet. (See **117.1** through **117.49,** chapter 2, for drawbridge regulations.) The Missouri Pacific railroad bridge, about 6.1 miles above the entrance, has a vertical lift span that is on automatic operation; clearances are 13 feet down and 81 feet up. The lift span is normally kept in a raised position, except for the passage of trains when it is lowered to a clearance of 13 feet. (See **117.1** through **117.59 and 117.957**, chapter 2, for drawbridge regulations.) A fixed highway bridge about 6.4 miles above the entrance has a clearance of 52 feet.

(294) Overhead power cables crossing the bayou between the mouth and the N side of the railroad bridge have a least clearance of 85 feet. Overhead power cables about 2.5 miles above the railroad bridge have a least clearance of 77 feet.

(295) A highway bridge 9.7 miles above the entrance and a railroad bridge 13.4 miles above the entrance have fixed spans with a minimum clearance of 18 feet. In October 1982, the highway bridge was being modified to provide a clearance of 18 feet. A highway bridge crossing a cutoff between **Boaz Island** and the mainland has a 13-foot fixed span with a clearance of 6 feet. Only very small craft use the cutoff.

(296) Shallow **Tabbs Bay** is at the NW end of Galveston Bay, and contains numerous oil well structures and overhead power cables. There are no defined channels; the average depth is reported to be less than 3 feet.

(297) A channel from Houston Ship Channel follows the W end of **Hog Island** and Tabbs Bay to **Baytown** on the N shore. **Goose Creek** is navigable for craft drawing up to 5 feet to a highway bridge 2.8 miles above the entrance. The channel, unmarked and ill-defined, runs close aboard the N shore of the island N of the W end of Hog Island and leads to Goose Creek. Private poles and markers may at times mark the preferred route. Goose Creek contains numerous oil wells, pipelines, pilings, and other hazards; local knowledge is advised. The creek is used by oil well supply and commercial fishing vessels.

(298) The highway bridge 2.8 miles above the entrance has a 48-foot fixed span with a clearance of 9 feet. In April 2005, the highway bridge was under construction with a reported design clearance of 10 feet. Two highway and two railroad bridges between the entrance and this bridge have fixed spans with a minimum width of 32 feet and minimum clearance of 14 feet. Overhead power cables crossing the creek between the mouth and the highway bridge 2.8 miles above the entrance have a least clearance of 36 feet.

(299) **Barbours Cut,** opposite Hog Island, extends about 1.2 miles W from Houston Ship Channel. A privately dredged area extends W about 0.6 mile into the cut from Houston Ship Channel. A turning basin, at the head of the cut and W of the dredged area, provides excellent shelter in depths of 20 to 26 feet for vessels up to 150 feet long.

Security Zones

(300) The Captain of the Port (COTP) Houston-Galveston has established a Security Zone at Morgans Point including Barbours Cut Ship Channel and Turning Basin. (See **165.30 through 165.33 and 165.814**, chapter 2, for limits and regulations.) Unauthorized vessels/persons are excluded from these areas without express permission of the COTP.

(301) The Port of Houston, Barbours Cut Terminal is on the S side of Barbours Cut. The terminal, owned by the Port of Houston Authority, has four container wharves, a LASH/SEABEE wharf, and a roll-on/roll-off wharf. For complete information on these facilities, refer to Port Series No. 24, published and sold by the U.S. Army Corps of Engineers. (See appendix for address.) The alongside depths given for these facilities are reported depths. All berths have railway and highway connections, except the LASH Vessel Wharf without rail connections. Water is available at all but the roll-on/roll-off wharf. Electrical shore-power connections are not available.

(302) Barbours Cut Terminal, LASH Vessel Wharf (29°40'59"N., 94°59'07"W.): 282-foot wharf, 790 feet of berthing space with dolphins; 42 feet alongside; deck height, 16 feet; mooring idle vessels and barges; owned and operated by Port of Houston Authority.

(303) Barbours Cut Terminal, Roll-on/Roll-off Wharf (29°40'58"N., 94°59'21"W.): 63-foot face; 42 feet

alongside; deck height, 7 feet; 44 acres open marshalling area; forklifts up to 33-tons; receipt and shipment of roll-on/roll-off general cargo in foreign and domestic trade; mooring tugs, towboats and barges; owned and operated by Port of Houston Authority.

(304) Barbours Cut Terminal, Berth No. 1 Wharf (29º40'56"N., 94º59'28"W.): 1,000-foot face; 42 feet alongside; deck height, 18 feet; container cranes up to 50-tons; receipt and shipment of containerized and roll-on/roll-off general cargo in foreign and domestic trade; owned and operated by Port of Houston Authority.

(305) Barbours Cut Terminal, Berth No. 2 Wharf (29º40'55"N., 94º59'39"W.): 1,000-foot face; 42 feet alongside; deck height, 18 feet; container cranes up to 50-tons; 80-ton mobile crane; receipt and shipment of containerized general cargo in foreign and domestic trade; owned by Port of Houston Authority and operated by Port of Houston Authority and Sealand Service, Inc.

(306) Barbours Cut Terminal, Berth No. 3 Wharf (29º40'53"N., 94º59'50"W.): 1,000-foot face; 42 feet alongside; deck height, 18 feet; one 40-ton container crane and two electric traveling cranes up to 50 tons; receipt and shipment of containerized general cargo in foreign and domestic trade; owned by Port of Houston Authority and operated by Port of Houston Authority and Sealand Service, Inc.

(307) Barbours Cut Terminal, Berth No. 4 Wharf (29º40'51"N., 95º00'02"W.): 1,000-foot face; 42 feet alongside; deck height, 18 feet; container cranes up to 50-tons and one 80-ton mobile crane; receipt and shipment of containerized general cargo; operated by Sealand Services, Inc.

Charts 11327, 11326, 11323

(308) Morgans Point is on the NW end of Galveston Bay on the W side of Houston Ship Channel. **La Porte,** a town 2 miles SW of Morgans Point, has rail and highway connections with other parts of the State.

(309) From Morgans Point S to **Red Bluff,** (29°36.2'N., 94°59.0'W.) are summer homes with numerous boat landings along the shore. The Houston Yacht Club is in a basin formed by breakwaters about 1.3 miles NW of Red Bluff. Private lights mark the outer ends of the breakwaters, and a private **211°46'** lighted range marks the approach. The channel leading to the basin had a reported controlling depth of 8 feet in June 2002. Gasoline, diesel fuel, water, ice, open and covered berths with electricity, a launching ramp, pump-out station, and an electronic hoist to 3 tons are available.

(310) **Bayport** is a deepwater port and industrial complex operated by the Port of Houston Authority. A dredged channel leads from Houston Ship Channel close S of Atkinson Island to the shore about 0.9 mile NW of Red Bluff, thence W in a landcut to a turning basin. A Federal project provides for a depth of 40 feet. (See Notice to Mariners and latest edition of chart for controlling depths.) The channel is marked by a **269°** lighted range, lights, and a buoy. Four deep-draft wharves are in the basin:

Security Zones

(311) The Captain of the Port (COTP) Houston-Galveston has established a Security Zone in Bayport including Port of Bayport Ship Channel and Turning Basin. (See **165.30 through 165.33 and 165.814**, chapter 2, for limits and regulations.) Unauthorized vessels/persons are excluded from these areas without express permission of the COTP.

(312) Baytank (Houston) Bayport Ship Terminal Wharves Nos. 1 and 2: SW side of basin; 587-foot wharves; 40 feet reported alongside; deck heights, 14 feet; storage tanks for 957,000 barrels of petrochemicals; receipt and shipment of petrochemicals; owned and operated by Baytank (Houston), Inc.

(313) LBC Houston Bayport Terminal Ship Dock: W side of basin; 100-foot wharf, 240 feet of berthing space with dolphins; 38 feet alongside; deck height, 16 feet; storage tanks with 1,753,000-barrel capacity; receipt and shipment of petroleum products and petrochemicals; owned and operated by LBC Houston.

(314) **Clear Creek** empties into the W side of Galveston Bay 20 miles NW of Galveston; 2 miles above its mouth the creek broadens into shallow **Clear Lake,** 2.5 miles long. A dredged channel leads from Galveston Bay through Clear Creek and across Clear Lake, thence a natural channel leads for another 3.3 miles through Clear Creek to the railroad bridge at **League City.** In March 2004, the controlling depth was 9.0 feet in the entrance channel; thence in January 2005, the reported controlling depth through Clear Lake was 2.7 feet; thence in 1998, the controlling depth was 8 feet in Clear Creek; thence in 1996, 4 feet to the railroad bridge at League City. The Clear Creek entrance channel and the creek and lake channels are well marked with lights, buoys, and daybeacons. Seabrook Channel, a dredged side channel, leads N from the mouth of Clear Creek about 0.6 mile along the S waterfront of **Seabrook.** In 1988, the controlling depth was 2.0 feet. The channel from Galveston Bay to Clear Lake is reported to be highly congested with light commercial and pleasure-craft traffic, especially on weekends; a **speed limit** of 5 miles per hour is posted.

(315) At the entrance to Clear Creek, an overhead power cable crosses the creek with a clearance of 99 feet. About 0.3 mile inside the entrance, a fixed bridge has a clearance of 73 feet. Overhead power cables at the bridge have a clearance of 100 feet. An overhead power cable 5.3 miles above the entrance has a clearance of 51 feet. A fixed bridge 5.6 miles above the entrance has a clearance of 25 feet. In May 2000, the fixed bridge was under reconstruction with a design clearance of 23 feet.

(316) In August 1982, numerous unlighted piles were reported about 2 miles SE of Clear Creek Channel Light 2, in about 29°32.5'N., 94°58.5'W. Mariners are advised to exercise caution while navigating in the area.

(317) **Seabrook,** a town on the N side at the entrance to Clear Creek, is headquarters for fishing and pleasure craft. **Kemah** is a town on the S side of the entrance to Clear Creek.

(318) There are several large yacht basins at the W end of Clear Lake, and numerous marinas and boatyards are on the lake, on both sides of Clear Creek, and on the Seabrook channel. (See the small-craft facilities tabulation on chart 11326 for services and supplies available.)

(319) Most of the shrimp and fishing wharves and seafood packing plants are along the waterfront E of the bridges.

(320) **Dickinson Bayou** empties into **Dickinson Bay,** a small indentation in the W side of lower Galveston Bay, between **April Fool Point** and **Miller Point,** about 13 miles N of Galveston. A dredged channel leads from Galveston Bay through Dickinson Bay and Dickinson Bayou to the railroad bridge at Dickinson, a small settlement about 7 miles up the bayou. In October 2003, the controlling depth was 6.0 feet to Light 27, thence 2.0 feet (3.0 feet at midchannel) to the railroad bridge. The entrance channel is marked by lights, buoys, and daybeacons.

(321) Marinas and boatyards are at April Fool Point and at a basin about 1 mile NW of the point. Gasoline, diesel fuel, water, ice, marine supplies, launching ramps, cranes to 5 tons, open and covered berths with electricity, pump-out station, and storage facilities are available, engine repairs can be made. In September 1981, a sunken wreck was reported about 0.1 mile SSW of April Fool Point in about 29°28'10"N., 95°55'32"W.

(322) About 1.2 miles above the mouth of Dickinson Bayou, State Route 146 fixed highway bridge has a clearance of 45 feet. The Southern Pacific Railroad bridge, about 0.1 mile W of the highway bridge, has a swing span with a channel width of 40 feet and a clearance of 8 feet. (See **117.1 through 117.49**, chapter 2, for drawbridge regulations.) Overhead power and telephone cables at the bridges have minimum clearances of 56 feet.

(323) A marina, on the N side of the Dickinson Bayou just above the bridges, has berths for pleasure and fishing craft, gasoline, diesel fuel, and ice. The largest marine railway at the marina can handle craft up to 48 feet for hull and engine repairs and storage. An overhead power cable about 2.2 miles above the bridges has a clearance of 85 feet.

(324) At Dickinson two bridges cross the bayou. The Missouri Pacific railroad bridge has a 23-foot fixed channel span with a clearance of 15 feet. State Route 3 fixed highway bridge has a clearance of 12 feet. The overhead power cable at the railroad bridge has a clearance of 42 feet. **Moses Lake**, a shallow lagoon S of Dickinson Bay, is used as a harbor of refuge by many small craft during hurricane warnings. The entrance to the lake is through a vertical lift tide gate that has a width of 56 feet and an open clearance of 51 feet; the twin supporting towers of the gate are visible from the Houston Ship Channel. A private unmarked channel leads from Dickinson Channel through Moses Lake to Moses Bayou. In 1996, the channel had a controlling depth of 6 feet to the tide gate, thence a controlling depth of 7½ feet was reported in 1982 to Moses Bayou. Commercial traffic consists of chemical barges enroute to a plant on Moses Bayou. There are several marinas, small-craft launching ramps, and fish camps on a slip on the S side of the entrance to **Dollar Bay**. Gasoline, diesel fuel, berths. electricity, water, ice, a launching ramp, wet and dry storage, and provisions are available. A branch channel privately marked by poles with a reported depth of 3 feet in August 1982 leads from the main channel to the slip.

Charts 11323, 11324, 11325, 11327, 11328, 11329, 11326

(325) **Houston Ship Channel** extends from Galveston Harbor across Galveston Bay and through parts of San Jacinto River and Buffalo Bayou to the city of Houston, a distance of 44 miles. The entrance to the channel is at the NW end of Bolivar Roads, between Port Bolivar and Texas City channels. The entrance is marked by a **318°** lighted range and by a lighted bell buoy on the NE side of the channel. The channel through the bay is marked by lights, lighted ranges, buoys, daybeacons, and a leading light at Baytown Bend.

(326) The Coast Guard advises vessels exercise particular caution where the channel intersects the Intracoastal Waterway, about 6.6 miles above the entrance jetties and just below Lighted Buoys 25 and 26. Situations resulting in collisions, groundings, and close quarters

passing have been reported by both shallow and deep-draft vessels. The Coast Guard has requested vessels make a **SECURITE** call on VHF-FM channel 13 prior to crossing the Intracoastal Waterway, particularly during periods of restricted visibility.

(327) The Federal project provides for a 40-foot channel from Bolivar Roads for about 42 miles to Brady Island, thence 36 feet for about 2 miles to and in Houston Turning Basin. (See Notice to Mariners and latest editions of charts for controlling depths.)

(328) N of Bolivar Peninsula, spoil banks on both sides of the channel extend N to **Red Fish Bar**. About 1.5 miles below Red Fish Bar, a narrow channel marked at the entrance by Daybeacon 1, exits Houston Ship Channel to the W, leading to Dickinson Bayou. In March 1985, the controlling depth through the spoil bank was 6 feet. Along the NE side of Houston Ship Channel N of Red Fish Bar, there are several dredged openings through the spoil bank permit passage into the NE part **Upper Galveston Bay**; see that chart for depths.

(329) Part of the spoil material from the dredging of Houston Ship Channel shows above water and forms a dike protection for the channel; for several miles S of Morgans Point this dike is relatively high and is known as **Atkinson Island.** In August 1982, it was reported that the spoil banks were beginning to encroach into the openings and caution was advised.

(330) From Morgans Point to Lynchburg, a distance of 8 miles, the ship channel is marked by numerous lighted ranges and other aids. Above Lynchburg, lights are on the outside of curves as far as **Galena Park.**

(331) A ferry operates across the Houston Ship Channel at Lynchburg. A high-level fixed highway bridge with a clearance of 175 feet is about 4.2 miles above the ferry crossing. A high-level fixed highway bridge with a clearance of 135 feet crosses the ship channel at Manchester. Overhead power cables near **Mitchell Bay**, **Carpenter Bayou** and Galena Park have clearances of 162 feet or higher. There is a vehicular tunnel under the channel 2.4 miles from the upper end of Morgans Point Cut and another one between **Pasadena** and Galena Park.

Charts 11328, 11329

(332) **Morgans Point**, 23 miles NW of Bolivar Roads, marks the beginning of an extensive industrial area of oil refineries, cotton compresses, and other industrial plants lining the ship channel to Houston.

(333) A fixed highway bridge in the vicinity of Baytown Tunnel, about 2.5 miles above Morgans Point, has a clearance of 175 feet.

(334) **Baytown,** 4 miles above Morgans Point on the NE side of the channel, is the site of the Exxon Company, U.S.A., refining facilities. The oil company has a deep-water wharf and two deep-draft piers, with railroad and highway connections, and several petroleum storage tanks with 10.4-million barrel capacity, petrochemical storage tanks with 42-million gallon capacity, and chemical storage tanks with 88.2-million gallon capacity. Petroleum products and petrochemicals are received and shipped and vessel are bunkered at these facilities,

(335) Pier 1 (29º43'28"N., 95º01'12"W.) is an 820-foot wharf with 1,350 feet of berthing space with dolphins; 40 feet alongside; deck height, 9 feet.

(336) Pier 2 (29º43'38"N., 95º01'18"W.) is 432 feet long with 810 feet of berthing space with dolphins on the E and W sides; 40 feet alongside; deck height, 9 feet.

(337) Pier 3 (29º43'41"N., 95º01'23"W.) is 402 feet long with 820 feet of berthing space with dolphins on the W side; 402-feet long with 810 feet of berthing space with dolphins on the E side; 40 feet alongside; deck height, 14 feet.

(338) Two overhead power cables crossing the channel about 0.3 mile above the Baytown facilities have a minimum clearance of 162 feet. The transmission towers are prominent.

(339) About 1.5 miles above the Baytown facilities, a privately maintained channel leads in a SW direction from the main ship channel along the NW end of **Alexander Island** to the piers of a powerplant at the head of the basin. In August 1982, the reported controlling depth in the channel was 11 feet.

Charts 11325, 11329

(340) **San Jacinto River** branches N from the ship channel at **Lynchburg,** 8 miles above Morgans Point. It has a navigable depth of about 12 feet for about 5 miles, thence 5 to 6 feet to the Interstate Route 90 bridge on the Beaumont-Houston highway about 13.8 miles above the mouth. The bridge has a fixed span with a clearance of 24 feet. The overhead power cable near the river entrance at Lynchburg has a clearance of 85 feet. Twin fixed highway bridges 1.8 miles above the mouth have clearances of 22 feet. The Missouri-Pacific Railroad bridge, 4.2 miles above the mouth has a fixed span with clearance of 22 feet. **Highlands** and **Sheldon** are villages 5.5 and 13 miles, respectively, above Lynchburg.

(341) **Old River,** 8.4 miles above Morgans Point, leads NW from the ship channel. The channel in Old River is marked by private aids for 0.6 mile and has a navigable depth of about 7 feet.

(342) CEMEX USA receives cement at a 450-ton pier on the W side of the mouth of Old River. Depths of 42 feet are reported alongside. The facility has silo storage for 50,000 tons of cement and a ship unloader with a capacity of 850 tons per hour.

(343) **San Jacinto State Park,** on the S side of the channel 9 miles above Morgans Point, is the site of the battle by which the Republic of Texas won its independence. Landings are provided for small craft, and vessels should slow down to prevent wave wash and damage to boats. A monument 605 feet high is the most prominent object in the area. On its top is an occulting red light visible on clear nights from Galveston entrance. The U.S.S. TEXAS, historic battleship veteran of two World Wars, is moored permanently in a slip in the park area, just off the ship channel. A submerged breakwater extends across the entrance to the slip.

(344) An overhead power cable crossing the channel about 500 yards above the TEXAS has a clearance of 165 feet.

(345) Jacintoport Terminal slip, about 0.7 mile above the U.S.S. TEXAS on the N side of the channel, extends about 0.6 mile W with depths of 25 to 32 feet available in the slip.

(346) Port of Houston, Jacintoport Terminal Wharf (29º44'55"N., 95º06'34"W.): 1,836-foot face with 2,000 feet of berthing space; 38 feet alongside; deck height, 14 feet; receipt and shipment of conventional and containerized cargo, roll-on/roll-off cargo, miscellaneous dry bulk commodities, and project cargo; shipment of bagged and packaged commodities; owned by Port of Houston Authority and operated by Jacintoport Corp. and Harborside Refrigerated Services.

(347) Houston Fuel Oil Terminal Co., Ship Dock No. 1 (29º44'59"N., 95º06'02"W.): 75-foot face with 900 feet of berthing space with dolphins; 40 feet alongside; deck height, 15 feet; storage tanks with 2-million barrel capacity; receipt of crude oil; receipt and shipment of fuel oil; bunkering vessel at berth; owned and operated by Houston Fuel Oil Terminal Co., Inc.

(348) A large deepwater basin is on the S side of the channel opposite Jacintoport Terminal Slip entrance. In August 1982, reported depths of 40 to 45 feet were in the basin. Four deep-draft wharves are in the basin.

(349) Intercontinental Terminals, Co., Houston Ship Docks No. 1 Wharf and Nos. 2 and 3 Pier (29º44'43"N., 95º05'59"W.): 1,800 feet of berthing space; 42 feet alongside; deck height, 20 feet; storage tanks for 336 million-gallon capacity; receipt and shipment of bulk liquids, including liquefied petroleum gas and petrochemicals; receipt of ballast water; owned and operated by Intercontinental Terminals, Co.

(350) VOPAK, Deer Park Terminal, Ship Dock No. 1, Barge Dock No. 1 Wharf, and Ship Dock No. 2: E side of basin; berthing space for 900-foot vessels; 42 feet alongside; deck height, 15 feet; storage tanks for 6½ million barrels; receipt and shipment of petroleum products and petrochemicals; owned and operated by Paktank Corp.

(351) Cargill, Houston Grain Elevator Dock (29º44'27"N., 95º06'49"W.): two 780-foot berths with 44 to 46 feet alongside; deck height, 15 feet; grain elevator at the inner end of the dock has 6-million-bushel capacity; shipment of grain; owned and operated by Cargill, Inc.

(352) Cargill, Houston Grain Elevator Wharf (29º44'29"N., 95º06'52"W.): 130-foot face with 600 feet of berthing space; 34 feet alongside; deck height, 14 feet; fertilizer storage facilities with 32,000-ton capacity; receipt of grain; receipt and shipment of fertilizer; owned and operated by Cargill, Inc., Fertilizer Division.

(353) There are chemical and liquid cargo handling wharves on the S side of the channel at the mouth of Tucker Bayou and at the mouth of **Patrick Bayou**.

Charts 11325, 11329

(354) **Boggy Bayou Basin**, on the S side of the channel about 2 miles above Jacintoport Terminal slip, is the site of the Shell Oil Company refinery. On the S side of the basin are four 600-foot tanker berths with depths of 33 to 40 feet reported alongside. An 850-foot berth with depths of 41 feet alongside is just E of the mouth of the basin. All the berths have railway and highway connections, and freshwater is available. Crude oil petroleum products, petrochemicals, and chemicals are received and shipped, and vessels can receive bunker fuels.

(355) A high-level fixed highway bridge with a clearance of 175 feet is about 0.9 mile above Boggy Bayou Basin.

(356) A deepwater basin on the N side of the river opposite Boggy Bayou Basin has two piers for receipt of crude oil and aragonite and shipment of animal fats. The pier that extends from the head of the basin has 900 feet of berthing space on the E and W sides. The pier on the W side of the basin has 900 feet of berthing space. All the berths have depths of 42 feet alongside.

(357) On the S side of the channel about 1 mile W of Boggy Bayou, there is a chemical plant and wharf. The wharf has 850 feet of berthing space with platforms and a reported depth of 32 feet alongside. The Georgia Gulf Corp., Pasadena Plant, Ship Dock Wharf, 0.3 mile W of the chemical wharf, has 750 feet of berthing space with dolphins and a reported depth of 42 feet alongside. Benzene is received and acetone, phenol, cumene, and cumene heavies are shipped.

(358) **Greens Bayou** enters the main ship channel from N at a point 2.1 miles above Boggy Bayou. A Federal project provides for a 36-foot channel to about 0.3 mile

above the entrance, thence 15 feet for about 1 mile. (See Notice to Mariners and latest edition of the chart for controlling depths.) Above this point, the bayou is navigable for drafts of 8 to 10 feet for about 4 miles, thence drafts of 4 to 5 feet for another 5 miles.

(359) The bayou is crossed by a vertical lift bridge, and several fixed bridges and overhead pipelines above the limits of the Federal project. The lift bridge, about 2.4 miles above the mouth, has a clearance of 27 feet up and 18 feet down. (See **117.1 through 117.59 and 117.967**, chapter 2, for drawbridge regulations.) The least clearance of the fixed bridges and overhead pipelines is 20 feet. Three overhead power cables cross below the bridges with a least clearance of 70 feet. There are shipyards, chemical plants, and barge terminals on the bayou.

(360) Econ Rail Corp., Port of Houston Bulk Material Handling Plant Wharf (29º44'58"N., 95º09'56"W.): 650-foot face; 40 feet alongside; deck height, 20 feet; loading towers, electric, belt-conveyor system; 15 acres open storage; shipment of dry bulk commodities, including potash, petroleum coke, and fertilizer, and occasionally barite and ammonium sulfate; rail and highway connections; owned by Port of Houston Authority and operated by Econo-Rail Corp.

(361) Chevron Chemical Co., Houston Chemical Complex Terminal, Berth Nos. 4, 5, 6, 8, and 9 (29°44'35"N., 95°10'29"W.): 540-foot face, outer section with 1,780 feet of berthing; 35 feet alongside; deck height, 13 feet; and a 1,240-foot face, inner section with 22 feet alongside; deck height, 8 feet; four swivel-jointed pipeline unloading arms, and storage tanks with a capacity of 1.6 million-gallons are at the terminal; water and electric shore power are available, rail and highway connections; receipt of styrene and olefins, and shipment of olefins; owned and operated by Chevron Chemical Co.

(362) Phillips Chemical Co., Houston Chemical Complex Terminal, Berth Nos. 8 and 9 Wharf (29º44'45"N., 95º10'38"W.): 960-foot face; 22 to 25 feet alongside; deck height, 8 feet; 100-foot lower side; 25 feet alongside; deck height, 13 feet; water and electric shore power are available; rail and highway connections; mooring vessels and barges for repair; owned by Phillips Petroleum Co.

(363) Armco, Houston Ship Wharf (29º44'46"N., 95º11'20"W.): 1,080-foot face; 40 feet alongside; deck height, 12 feet; crawler cranes, container and forklift trucks; 140,000 square feet covered storage and 110 acres open storage; receipt and shipment of conventional, containerized, and roll-on/roll-off general cargo and project cargo; receipt of miscellaneous dry bulk commodities; including iron ore and vermiculite; owned by Armco Inc., and operated by Armco, Inc., d.b.a. Greens Port Industrial Park.

(364) Williams Energy Corp., Houston Terminal, Ship Dock No. 2 (29º44'32"N., 95º11'59"W.): 100-foot face with 1,000 feet of berthing space with dolphins; 40 feet alongside; deck height, 10 feet; 5-ton hydraulic crane; receipt and shipment of petroleum products, acids, caustic soda, and other chemicals; bunkering vessels and loading barges at berth; owned and operated by Williams Energy Corp.

(365) Williams Energy Corp., Houston Terminal, Ship Dock No. 1 (29º44'32"N., 95º12'04"W.): 120-foot face with 800 feet of berthing space with dolphins and a buoy; 42 feet alongside; deck height, 17 feet; nine swivel-jointed pipeline loading arms; receipt and shipment of petroleum products, acids, caustic soda, and other chemicals; bunkering vessels at berth; owned and operated by Williams Energy Corp.

(366) **Hunting Bayou,** on the N side of the channel 1.9 miles W of Greens Bayou, is the site of the Warren Petroleum Corp. Wharves, where liquified petroleum gas is shipped and received. Three wharves are on the NE side: Dock No. 1A Wharf has 400 feet of berthing space with dolphins, 17 feet alongside, deck height, 13 feet; Dock No. 1 Wharf has 650 feet of berthing space with a buoy and dolphins, 38 feet alongside, deck height, 15 feet; Dock No. 2 Wharf has 725 feet of berthing space with dolphins, 40 feet alongside, deck height, 15 feet. Three wharves are on the SW side of the bayou: Dock No. 2A Wharf has 300 feet of berthing space with dolphins, 20 feet alongside, 20 feet alongside, deck height, 7 feet; Dock No. 3 Wharf has 430 feet of berthing space with dolphins, 15 feet alongside, deck height, 10 feet; Dock No. 5 has 850 feet of berthing space with dolphins, 45 feet alongside, deck height, 25 feet. Water and highway connections are available at all wharves.

(367) **Cotton Patch Bayou** is on the S side of the channel about 0.2 mile above Hunting Bayou. A marine repair plant has wharves with 12 to 30 feet alongside; floating drydocks to 2,678-tons and cranes to 110 tons are available.

(368) Close W of Cotton Patch Bayou is the site of the Kinder Morgan terminal wharf. The wharf has a 120-foot face, 750 feet of berthing space with dolphins, a deck height of 12 feet, and a reported alongside depth of 38 feet. Petroleum products, petrochemicals, and other bulk liquid commodities are handled on the wharf.

(369) **Washburn Tunnel** crosses under the ship channel from **Galena Park** to Pasadena about 0.9 mile above Hunting Bayou. Both Galena Park and Pasadena have large petrochemical industries.

(370) The Crown Central Petroleum refinery and wharves are on the S side of the ship channel close E of

the tunnel. The wharves are in line, providing 950 feet of berthing space with dolphins and reported depths of 39 feet alongside. Storage tanks with 2¼-million-barrel capacity are at the wharves. Crude oil, petroleum products, petrochemicals, and calcined petroleum coke are handled.

(371) About 1.1 miles above Hunting Bayou on the S side of the ship channel is the Simpson Pasadena Paper Co. plant and wharf.

(372) About 1.5 miles above Hunting Bayou, on the N side of the ship channel, is the Kinder Morgan terminal and wharves. Wharf No. 1 has a 120-foot face, 600 feet of berthing space with dolphins, a deck height of 14 feet and 36 feet reported alongside. Wharf No. 2, 0.4 mile W of Wharf No. 1, has a 140-foot face, 700 feet of berthing space with dolphins, a deck height of 19 feet and 39 feet reported alongside. One barge wharf is between wharves No. 1 and No. 2. Storage tanks with 1 million-barrel capacity are at the plant. Petroleum products, chemicals, petrochemicals, vegetable oils, and other bulk liquids are handled, and vessels are bunkered. The basin off Wharf No. 1 had a reported controlling depth of 40 feet in August 1982.

(373) The Houston Light and Power Plant is on the S side of the ship opposite Kinder Morgan terminal wharf. Overhead power cables crossing the ship channel just E and W of the plant have clearances of 165 feet and 185 feet, respectively.

(374) The Lyondell-Citgo Refining Co., Houston Refinery and wharves are on the S side of the ship channel about 0.5 mile above the powerplant. Dock B has berthing space with dolphins for 800-foot vessels, 40 feet reported alongside, and a deck height of 16 feet. Dock C has 750 feet of berthing space with dolphins, 38 feet reported alongside, and a deck height of 14 feet. Storage tanks at the facility have a capacity of 7.3 million barrels. Petroleum products and petrochemicals are received and shipped, and crude oil is received.

(375) VOPAK, Galena Park Terminal Wharf is on the N side of the ship channel opposite the Lyondell-Citgo Refinery. The wharf has a 76-foot face, 700 feet of berthing space with dolphins; 34 to 36 feet alongside; deck height, 17 feet; receipt and shipment of bulk liquids. Just W of VOPAK, Galena Park Terminal are the Port of Houston Woodhouse Terminal Berths with a 6.3 million-bushel grain elevator and wharves. The elevator is one of the most prominent landmarks on the Houston Ship Channel. Berth No. 4 provides 900 feet of berthing space with dolphins and 42 feet reported alongside. NE of the Berth No. 4, Berth Nos. 2 and 3 provide a 1,250-foot face with 36 feet reported alongside. Close W of Berth Nos. 2 and 3 is Berth No. 1 with 750 feet of berthing space and 39 feet alongside. Berth Nos. 1, 2 and 3 are used for receipt and shipment of conventional, roll-on/roll-off, containerized general cargo, dry bulk commodities and project cargo in foreign and domestic trade; shipment of used motor oil and cutter stock by barge. Six acres of covered storage and 10.8 acres of open storage are available. Storage tanks have a capacity of 112,000 barrels. Cranes to 140 tons are available. Grain is shipped from the W wharf. Three spouts can load vessels at 120,000 bushels per hour.

(376) **Sims Bayou Turning Basin** is off the S side of the ship channel close E of Sims Bayou. (See Notice to Mariners and latest edition of the chart for controlling depth.)

(377) **Sims Bayou** enters Houston Ship Channel about 2.7 miles above Hunting Bayou. The Harris County Houston Ship Channel Terminal railroad bridge crossing the bayou about 0.8 mile above the mouth has a 26-foot fixed span with a clearance of 18 feet. An overhead power cable crossing at the bridge has a clearance of 46 feet. A shell-handling wharf is on the N side just below the bridge. Between the bridge and the shell-handling wharf, several sunken shell barges are reported to block the bayou and prevent navigation above this point.

(378) Texas Petrochemicals Corps., Docks A and B are on the W side of Sims Bayou Turning Basin. Dock A has 500 feet of berthing space with dolphins, and 32 feet reported alongside. Dock B has 700 feet of berthing space with dolphins, and 38 feet reported alongside. Deck heights are 14 feet. Pipelines extend from docks to storage tanks with a total capacity of 23.8 million gallons; receipt and shipment of petrochemicals.

(379) U.S. Gypsum Co. plant and wharf are on the N side of the ship channel opposite the entrance to Sims Bayou. The wharf has 600 feet of berthing space with dolphins and 28 feet reported alongside. Gypsum rock is received from self-unloading vessels.

(380) Manchester Terminal Corp. Wharf, on the S side of the ship channel, is close W of the mouth of Sims Bayou. The terminal is one of the largest privately operated general cargo terminals on the Houston Ship Channel. The terminal wharf is 1,520 feet long with depths of 34 feet reported alongside. The terminal has four storage warehouse buildings and 49 acres open storage, cranes up to 185 tons, and railway and highway connections. Conventional and containerized general cargo in foreign and domestic trade are handled.

(381) Close W of the Manchester Terminal Corp. Wharf is the Basis Petroleum, Traweek Dock Wharf. The wharf has a 152-foot face with 600 feet of berthing space with dolphins and 34 feet alongside. Several barge wharves are adjacent to the ship wharf. Crude oil, petroleum products, and methanol are handled.

(382) Arrow Terminals, Galena Park Dock, on the N side of the ship channel opposite the Manchester Terminal

Corp. Wharf, has 1,200 feet of berthing space; 12 feet alongside; receipt and shipment of dry bulk materials, including crushed stone and ferroalloys, by barge.

(383) A Coast Guard Port Safety Station is on the N side of the ship channel in about 29°43'41"N., 95°15'26"W. The area on the N side of the channel in the vicinity of the Coast Guard wharf is foul. **Fidelity Island** is a group of rocks awash S of the wharf.

(384) Port of Houston, Manchester Wharf Nos. 2 and 3 on the S side of the ship channel about 1.3 miles above Sims Bayou. The wharf has 1,500 feet of berthing space with reported depths of 32 feet alongside. There is one 2-ton hydraulic crane, and one electric traveling gantry shiploader with a belt conveyor and spout with a loading rate of 24,500 bushels per hour. The wharf has a grain elevator with 52 storage silos and 49 bins with a total capacity of 2.6 million bushels; storage for 6.4 million gallons of petrochemicals and natural latex, 19 million gallons of molasses, 2.7 million gallons of chemicals, and 3.1 millions gallons of caustic soda.

(385) A high-level fixed highway bridge with a clearance of 135 feet crosses the ship channel at Manchester, about 1.4 miles above Sims Bayou.

(386) **Harrisburg,** about 2 miles below the Houston Turning Basin, comprises the industrial section of the city of Houston. **Harrisburg Bend,** a dredged channel around **Brady Island,** has unloading rigs for sand and shell, boat repair yards, and other facilities. In March 2004, the controlling depth was 8.0 feet to the bridge, thence 10.0 feet to a point about 0.3 mile upstream from the bridge. Cypress Street Bridge to Brady Island over the bend, 0.2 mile S of Brays Bayou, has a fixed span with a clearance of 7 feet. Overhead power cables with clearances of 50 and 67 feet cross the bend immediately S and 150 yards S, respectively, of the bridge.

(387) Shipyards on Brady Island and on Harrisburg Bend have marine ways that can handle vessels up to 300 feet long, 600 feet wide, and 22-foot drafts. General repairs are made on all types of vessels, but the yards specialize in work on towboats, barges, and other small commercial craft. Machine shops are nearby.

(388) **Brays Bayou** branches off the W entrance to Harrisburg Bend. A highway bridge just above the bayou mouth has a fixed span with a clearance of 23 feet. Three highway and two railroad bridges crossing the bayou above the first bridge have fixed spans with minimum channel widths of 31 feet and clearances of 12 feet. Overhead power cables crossing the bayou have a minimum clearance of 23 feet.

(389) **Buffalo Bayou,** above the Houston Turning Basin, in April 2004, had a controlling depth of 6.0 feet to the Lockwood Drive fixed highway bridge, about 2 miles above Houston Turning Basin, thence 2.0 feet (6.0 feet at midchannel) for another 1.5 miles to the Jensen Street bridge; thence in 1997, a natural depth of 10 feet for about another 0.6 mile to the Southern Pacific Dock. It is used considerably by barge traffic. The upper light-draft channel through the bayou is crossed by many bridges of all types between the turning basin and Franklin Avenue. Minimum clearance is 21 feet for the bascule, swing, and vertical lift spans, and 9 feet for the fixed spans. (See **117.1 through 117.59 and 117.955**, chapter 2, for drawbridge regulations.) A combination bascule highway bridge (Sixty-ninth Street) and fixed pipeline bridge with design clearances of 26 feet for the highway bridge and 59 feet for the pipeline bridge is 0.7 mile above the mouth. A fixed highway bridge with a clearance of 52 feet is 2 miles above the mouth. Numerous overhead pipelines and telephone and power cables cross the bayou; minimum clearance is 46 feet. The principal commodities handled on the bayou are shell, petroleum, sand and gravel, clay, steel products, and cotton.

(390) **Houston,** the largest city in Texas, is at the head of Houston Ship Channel 22 miles above Galveston Bay and 44 miles from Galveston Entrance to the Gulf. The city is the principal distribution point for Texas and one of the main distribution points for the W and SW United States. Houston has many colleges and universities within its metropolitan area, among which are the University of Texas, Rice University, Texas Southern University, and other private and public colleges. It also has a large medical center with 16 participating institutions and medical organizations.

(391) **Port of Houston** lies within Harris County and is one of the largest ports in the United States in total tonnage handled. The port extends along Houston Ship Channel from the turning basin at the head of the channel to Morgans Point and takes in Harrisburg, Manchester, Clinton Park, Galena Park, Pasadena, Lynchburg, and Baytown. The port also includes Buffalo Bayou, Sims Bayou, Hunting Bayou, Greens Bayou, Boggy Bayou, Goose Creek, Cedar Bayou, Barbours Cut, and the new industrial development and port facilities at Bayport on Galveston Bay near Red Bluff.

(392) The principal imports include coffee, molasses, burlap, jute, lumber, wood products, newsprint, petroleum, gypsum, various ores and concentrates, steel products, and motor vehicles. The principal exports include wheats and various grains and sorghums, animal feeds, petroleum products, cotton, vegetable oils and fats, synthetic rubber, coke, clays and earths, scrap iron, steel products, machinery, coal tar products, caustic soda, alcohol, industrial chemicals, carbon black, and fertilizers.

(393) There is one public and four privately owned grain elevators in the port with capacities of up to 8½ million

bushels. In addition, the port has numerous petroleum, petrochemical, and fertilizer plants, large cotton compresses with warehouses, shipyards, and steel mills.

Anchorages

(394) Vessels are prohibited from anchoring in the Houston Ship Channel or turning basin except in case of emergency, in which circumstances they shall anchor as near as possible to the channel edge or turning basin so as not to interfere with free navigation or obstruct the approach to any pier.

Security Zones

(395) The Captain of the Port (COTP) Houston-Galveston has established a Security Zone in Houston including Houston Ship Channel and all associated turning basins. (See **165.30 through 165.33 and 165.814**, chapter 2, for limits and regulations.) Unauthorized vessels/persons are excluded from the areas without express permission of the COTP.

Tides

(396) The diurnal range of tide in the Houston Ship Channel at Morgans Point is 1 foot. At Houston there is practically no periodic tide but the waterfront is greatly influenced by winds.

Weather

(397) The climate of Houston is predominantly marine. The terrain includes numerous small streams and bayous, which together with the nearness to Galveston Bay favor the development of both ground and advective fogs. Prevailing winds are from the SE and S, except in January, when frequent passages of high-pressure areas bring invasions of polar air on prevailing N winds.

(398) Temperatures are moderated by the influence of winds from the Gulf, which results in mild winters and, on the whole, relatively cool summer nights. Another effect of the nearness of the Gulf is abundant rainfall, except for rare extended dry periods. Polar air penetrates the area frequently enough to provide stimulating variability in the weather.

(399) The annual average temperature at Houston is 68.9ºF with an average maximum of 79.2ºF and an average minimum of 58.2ºF. The temperature can be expected to surpass 90ºF an average of 97 days each year and fall below freezing only 19 days each year. The warmest temperature on record at Houston is 107ºF recorded in August 1980 and the coolest temperature on record is 7ºF recorded in December 1989. Each month, June through September, has recorded temperatures in excess of 100ºF while each month, October through April, has recorded temperatures below freezing.

(400) Monthly rainfall is evenly distributed throughout the year. In past years about 75 percent of the total precipitation has been between 30 and 60 inches and the annual average is 47.89 inches. May is the wettest month averaging 5.58 inches and February is the driest averaging 2.92 inches. Since thundershowers are the main source of rainfall, precipitation may vary substantially in different sections of the city on a day-to-day basis. Thunderstorms may occur in any month however, the peak months are June through August. An average of 65 thunderstorms occur each year.

(401) Records of sky cover for daylight hours indicate about one-fourth of the days per year as clear with maximum of clear days in October. Cloudy days are relatively frequent from November to May, and partly cloudy days are more frequent from June through September.

(402) Snow rarely occurs; however, on February 14-15, 1895, 20 inches of unmelted snow was measured.

(403) Heavy fog occurs on an average of 16 days a year, and light fog occurs about 62 days a year in the city, but the frequency of heavy fog is considerably higher at William P. Hobby Airport.

(404) Destructive windstorms are fairly infrequent, but both thundersqualls and tropical storms occasionally pass through the area. Since 1950, 15 tropical systems have approached Houston, none were severe.

(405) The National Weather Service maintains an office at the Houston International Airport; **barometers** may be compared there or by telephone. (See appendix for address.)

(406) (See page T–10 for **Houston climatological table.**)

Pilotage, Houston

(407) See Pilotage, Galveston Bay (indexed as such) this chapter.

Towage

(408) Tugs up to 4,200 hp are available at Houston.

Quarantine, customs, immigration, and agricultural quarantine

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

(410) **Quarantine** is enforced in accordance with regulations of the U.S. Public Health Service. (See Public Health Service, chapter 1.) Houston has many private hospitals.

(411) Houston is a **customs port of entry.**

Coast Guard

(412) A **Marine Safety Office** is in Houston. (See appendix for address.) **Houston Coast Guard Air Station** is at Ellington Air Force Base.

(413) **Harbor regulations.**–The Port of Houston is managed, governed, and controlled by the **Port of Houston Authority.** The regulations are enforced by the **Director of the Port** whose offices are in the Port Authority Building at 1519 Capital Avenue; telephone (713-225-0671). (See **162.75 (b)(4)**, chapter 2, for **speed limit** in the harbor.) Smoking is prohibited on any wharf except in designated smoking areas, and is also prohibited on the open decks or in the hatches of any vessel in the harbor. These regulations are strictly enforced.

Wharves

(414) Houston has over 200 piers and wharves. Only the deep-draft facilities at Houston are described. For a complete description of the port facilities refer to Port Series No. 24, published and sold by the U.S. Army Corps of Engineers. (See appendix for address.) The alongside depths for the facilities described are reported; for information on the latest depths contact the operator. Unless otherwise mentioned, all the facilities described are owned and operated by the Port of Houston Authority. Most of the piers and wharves have water and electrical shore power connections, and highway and railroad connections.

(415) General cargo at the port is usually handled by ship's tackle; special handling equipment, if available, is mentioned in the description of the particular facility.

(416) About 200 acres of open storage area, over 9 million square feet of covered storage, and 2½ million cubic feet of cooler and freezer space are available in the port. Mobile cranes up to 300 tons and a floating derrick with a capacity of 800 tons are available at the port. The Port of Houston Authority operates two 40-ton traveling container cranes and four 300-ton mobile cranes available for use at Public Wharves Nos. 23 through 31.

(417) **N side Houston Ship Channel:**

(418) Public Wharf No. 32 (29º43'35"N., 95º15'53"W.): 806-foot face; 38 feet alongside; deck height, 16 feet; 19 acres open storage; receipt and shipment of conventional and containerized general cargo, including steel, roll-on/roll-off cargo, miscellaneous dry bulk commodities, and project cargo in foreign and domestic trade.

(419) Public Wharves Nos. 30 and 31 (29°43'32"N., 95°16'06"W.): 1,176-foot face; 38 feet alongside; deck height, 15 feet; 141,000 square feet covered storage; 6 acres open storage; receipt and shipment of conventional and containerized general cargo, automobiles, steel, project cargo, and occasionally dry bulk commodities in foreign and domestic trade.

(420) Public Wharf No. 29 (29º43'35"N., 95º16'17"W.): 600-foot face; 38 feet alongside; deck height, 15 feet; 3 acres of open storage; receipt and shipment of conventional and containerized general cargo and roll-on/off cargo; including automobiles, in foreign and domestic trade.

(421) Public Wharves Nos. 27 and 28 (29º43'39"N., 95º16'24"W.): 1,200-foot face; 38 feet alongside; deck height, 15 feet; 147,400 square feet covered storage; receipt and shipment of conventional and containerized general cargo and roll-on/roll-off cargo, including automobiles, in foreign and domestic trade.

(422) Public Wharf No. 26 (29º43'48"N., 95º16'31"W.): 600-foot face; 38 feet alongside; deck height, 15 feet, 3.9 acres of open storage; receipt and shipment of conventional and containerized general cargo and roll-on/roll-off cargo, including automobiles, in foreign and domestic trade.

(423) Public Wharves Nos. 24 and 25 (29º43'56"N., 95º16'32"W.): 1,200-foot face; 38 feet alongside; deck height, 14½ feet; 144,000 square feet of covered storage; 2.1 acres open storage; receipt and shipment of conventional and containerized general cargo, roll-on/roll-off cargo, and miscellaneous dry bulk commodities in foreign and domestic trade.

(424) Public Wharf No. 23 (29º44'05"N., 95º16'36"W.): 600-foot face; 38 feet alongside; deck height, 14½ feet; 4.2 acres of open storage; receipt and shipment of conventional and containerized general cargo, roll-on/roll-off cargo, and miscellaneous dry bulk commodities in foreign and domestic trade.

(425) Public Wharves Nos. 21 and 22 (29º44'12"N., 95º16'38"W.): 1,200-foot face; 38 feet alongside; deck height, 14½ feet; 144,000 square feet covered storage; 3.2 acres open storage; receipt and shipment of conventional and containerized general cargo, roll-on/roll-off cargo, and miscellaneous dry bulk commodities in foreign and domestic trade.

(426) Public Wharf No. 20 (29º44'21"N., 95º16'45"W.): 593-foot face; 38 feet alongside; deck height, 14½ feet; 3.6 acres of open storage; receipt and shipment of conventional and containerized general cargo, roll-on/roll-off cargo, and miscellaneous dry bulk commodities in foreign and domestic trade.

(427) Public Wharves Nos. 18 and 19 (29º44'27"N., 95º16'49"W.): 1,177-foot face; 38 feet alongside; deck height, 14½ feet; 133,400 square feet covered storage, 5 acres open storage; receipt and shipment of conventional and containerized general cargo in foreign and domestic trade.

(428) Public Wharf No. 17 (27º44'34"N., 95º16'35"W.): 600-foot face; 38 feet alongside; deck height, 14½ feet, 2.6 acres of open storage; 300-ton mobile cranes, forklift trucks with 40-ton capacity; receipt and shipment of conventional and containerized general cargo in foreign and domestic trade.

(429) Public Wharf No. 16 (29°44'39"N., 95°17'00"W.): 554-foot face; 38 feet alongside; deck height, 14 feet, 2.8 acres of open storage; 300-ton mobile cranes, forklift trucks with 40-ton capacity; receipt and shipment of conventional and containerized general cargo in foreign and domestic trade.

(430) Public Wharf No. 15 (29°44'44"N., 95°17'04"W.): 526-foot face; 34 feet alongside; deck height, 14 feet; 44,410 square feet covered storage; 300-ton mobile cranes, forklift trucks with 40-ton capacity; mooring government-owned vessels.

(431) Public Wharf No. 14 (29°44'49"N., 95°17'07"W.): 480-foot face; 34 feet alongside; deck height, 15½ feet; mooring government-owned vessels.

(432) **E side of Turning Basin:**

(433) Public Wharves Nos. 12 and 13 (29°45'04"N., 95°17'24"W.): 990-foot face; 33 feet alongside; deck height, 14½ feet; mooring government-owned vessels.

(434) Public Wharf No. 11 (29°45'00"N., 95°17'13"W.): 530-foot face; 33 feet alongside; deck height, 14½ feet, 41,115 square feet of covered storage; receipt and shipment of conventional general cargo, cotton, and project cargo in foreign and domestic trade.

(435) Public Wharf No. 10 (29°45'00"N., 95°17'13"W.): 700-foot face; 33 feet alongside; deck height, 14 feet; 48,460 square feet of covered storage; receipt and shipment of conventional general cargo in foreign and domestic trade.

(436) **W side of Turning Basin:**

(437) Public Wharf No. 9 (29°45'05"N., 95°17'26"W.): 555-foot face; 34 feet alongside; deck height, 18 feet; 50,700 square feet covered storage; 9 acres open storage; receipt and shipment of conventional and containerized general cargo in foreign and domestic trade.

(438) Public Wharf No. 8 (29°44'59"N., 95°17'27"W.): 624-foot face; 38 feet alongside; deck height, 18 feet; 10 acres open storage; receipt and shipment of conventional and containerized general cargo in foreign and domestic trade.

(439) **S side of Turning Basin:**

(440) Public Wharf No. 4 (29°44'53"N., 95°17'27"W.): 779-foot face; 27 feet alongside; deck height, 8 feet; 49,155 square feet covered storage; mooring vessels for repair; transient mooring for tugs, towboats, and vessels.

(441) Public Wharf No. 3 (29°44'54"N., 95°17'18"W.): 800-foot face; 33 feet alongside; deck height, 8 feet; 1.2 acres open storage; transient mooring for tugs, towboats, and vessels.

(442) **S side of Houston Ship Channel:**

(443) Public Wharf No. 2 (29°44'50"N., 95°17'12"W.): 519-foot face; 33 feet alongside; deck height, 11½ feet, storage tanks, 15.7-million-gallon capacity; receipt and shipment of tallow; owned by Port of Houston Authority and operated by Port of Houston Authority and Jacob Stern & Sons, Inc.

(444) Public Wharf No. 1-W (29°44'46"N., 95°17'09"W.): 601-foot face; 34 feet alongside; deck height, 13 feet; storage tanks, 15.7-million-gallon capacity; receipt and shipment of tallow; owned by Port of Houston Authority and operated by Port of Houston Authority and Jacob Stern & Sons, Inc.

(445) Public Wharf No. 1-E (29°44'42"N., 95°17'08"W.): 42-foot face, 750 feet of berthing space with dolphins; 34 feet alongside; deck height, 13 feet; receipt of molasses and liquid fertilizer; shipment of tallow and vegetable oils; owned by Port of Houston Authority and operated by Port of Houston Authority, PM Ag Products, Inc., and Jacob Stern & Sons, Inc.

(446) PM Ag Products, Houston Wharf (29°44'35"N., 95°17'02"W.): 600 feet of berthing space with dolphins; 28 feet alongside; deck height, 15½ feet ; storage tanks with 25-million-gallon capacity; receipt of liquid fertilizer, caustic soda, and molasses; receipt and shipment of vegetable oils; owned and operated by PM Ag Products, Inc.

(447) Public Wharves Nos. 41 through 48 (29°44'30"N., 95°16'58"W.): 3,426-foot face; 31 feet alongside; deck height, 13 feet; 1.7 acres of open storage; mooring government-owned vessels; owned by Port of Houston Authority and operated by Port of Houston Authority and U.S. Maritime Administration.

(448) Texas Stevedores, New Terminal Wharf, Berth Nos. 1 and 2 (29°43'56"N., 95°16'40"W.): 830-foot face; 32 feet alongside; deck height, 18 feet; 23,000 square feet covered storage; shipment of conventional and containerized general cargo, miscellaneous dry bulk commodities, and occasionally roll-on/roll-off general cargo in foreign and domestic trade; owned by Dekaizer, Inc., and operated by Texas Stevedores, Inc.

Supplies

(449) All types of marine supplies and services are available at Houston. Freshwater is available at all the wharves and piers. Vessels can receive bunker fuels at many of the oil companies wharves or by oil barges.

(450) Small-craft supplies and services are available at Houston.

Repairs

(451) A shipyard adjacent to Greens Bayou has a floating drydock with a lifting capacity of 9,000 tons. The drydock is 488 feet long on the keel blocks, 101 feet wide, and has a depth of 10 feet over the keel blocks. Houston has machine shops, foundries, and other repair facilities that can handle most above- and below-waterline repairs.

Communications

(452) The Houston Belt & Terminal Railway Co. and the Port Terminal Railroad Association serve the majority of the waterfront facilities and connect with the six trunk line railroads serving the port and city. They are the Burlington Northern; Missouri Pacific; Chicago Rock Island and Pacific; Atchison, Topeka and Sante Fe; Southern Pacific; and Missouri-Kansas-Texas Line (Katy) Railroads. Over 100 steamship lines offer cargo service from Houston to world ports, and some 90 tanker operators serve the port.

(453) Millions of tons of cargo are moved annually in the coastwise service through the Port of Houston via the Intracoastal Waterway by common carrier barge lines, 20 specialized cargo, and many private barge operators. There are over 30 major motor freight carriers and numerous specialized truck lines. Buslines operate from two terminals and there is local bus service.

(454) Several airlines provide passenger, freight, and mail service, and one carrier handles only air cargo from Houston Intercontinental Airport.

Charts 11323, 11330

(455) From Galveston Entrance to San Luis Pass, a distance of 27 miles, the Gulf coast trends in a general SW by W direction. The SW end of Galveston Island is low and sandy, with no conspicuous natural marks. Except in the vicinity of the Galveston Entrance, the coast has fairly uniform depth with few outlying dangers and can be approached to within about 3 miles by deep-draft vessels.

Charts 11324, 11322, 11323

(456) **West Bay** is a shallow body of water which extends 16 miles SW from the SW part of Galveston Bay, between Galveston Island and the mainland. The bay proper is of no commercial importance.

(457) The Intracoastal Waterway crosses the E end of West Bay between **North Deer Island** and **Tiki Island.** A marina, in a basin enclosed by timber breakwaters, is on the S side of the E end of Tiki Island. A privately dredged channel, marked by privately maintained daybeacons and with a reported controlling depth of 4 feet in January 2003, leads to the marina from the Intracoastal Waterway, 0.3 mile SW from the twin causeways connecting Virginia Point and Galveston. In January 2003, depths of 6 feet were reported in the basin. The marina has open and covered slips for about 120 boats up to 50 feet, water, electricity, gasoline, ice, launching ramp and marine supplies.

(458) Tiki Island is a developed resort. A number of lagoons have been dredged into both the N and S sides of the island. From the marina, a dredged access channel with a reported depth of 5 feet in October 1998, leads around the N side of the island to a turning basin. A fixed bridge that connects Tiki Island with the mainland crosses this channel about 300 yards N of the marina; clearance is 14 feet. An overhead power cable with a clearance of 37 feet crosses the channel just N of the bridge. Another privately dredged channel with a reported controlled depth of 4½ feet in October 1998, leads from the SW side of the marina basin along the SE side of the Island to a junction with a dredged spur channel near Wilson Point; the spur channel connects with a natural channel that joins the Intracoastal Waterway N of North Deer Island.

(459) **Offatts Bayou** extends from off the S side of West Bay to the SW limits of Galveston. The entrance channel leaves the Intracoastal Waterway about 0.3 mile W of the causeway and leads close around **Teichman Point.** Off the point the channel divides, one channel leading to the Galveston Airport and the other into the bayou. The channels are marked by daybeacons. The bayou is frequented by small pleasure and fishing boats and some commercial traffic out of Galveston. A yacht club is on the S side of the bayou. Several commercial bait camps are around the bayou, and a city park is on the S shore.

(460) In May 2004, the channel controlling depth was 6.0 feet (7.8 feet at midchannel) from the waterway to the bayou. In 1982, the reported controlling depth from the fork at Teichman Point to the turning basin near the airport was about 7 feet.

(461) In July 1980, a pipe was reported in Offatts Bayou near Daybeacon 28 in about 29°17'01"N., 94°51'22"W.

(462) A boatyard at Teichman Point has a 1,000-ton marine railway that can handle 125-foot vessels for hull, engine, and electronic repairs. A marina in Offats Bayou has moorings for transients, electricity, water, ice, and a launching ramp. Hull repairs can be made. A fill for 61st Street, Galveston, crosses the bayou near its head. An opening in the fill provides a passage for small boats to a small lagoon E of 61st Street. A fixed bridge with a horizontal clearance of 38 feet and a vertical clearance of 9 feet crosses the opening. An overhead power cable with a clearance of 43 feet is on the W side of the bridge.

(463) **Chocolate Bay** extends about 2.5 miles NW from the W end of West Bay to the mouth of **Chocolate Bayou.** The Intracoastal Waterway crosses the mouth of Chocolate Bay. A barge assembly basin with mooring buoys, is on the S side of the Intracoastal Waterway on the N side of Alligator Head, the E entrance point to Chocolate Bay; depths of about 16 feet are reported in

the basin. The basin is intended only for temporary mooring of barges.

(464) A dredged channel, entered through two connecting channels and marked by buoys, daybeacons, lights, and lighted ranges, leads N from the Intracoastal Waterway to the Monsanto Chemical Co. plant basin on Chocolate Bayou, 7.3 miles above the Intracoastal Waterway. In January 2005, the controlling depth was 7.2 feet (8.0 feet at midchannel)) to the Monsanto basin. It was reported that shell barges and pleasure craft navigate the natural channel in the bayou above the Monsanto basin to a highway bridge near the town of **Liverpool,** 13 miles above the Intracoastal Waterway. There are shell-handling wharves at and just below **Snug Harbor,** about 1.6 miles below the highway bridge.

(465) The State Route 1561 fixed bridge crosses Chocolate Bayou 5.5 miles above the Intracoastal Waterway with a clearance of 50 feet. The least known clearance of the overhead power and telephone cables across the bayou is also 50 feet. Bridges crossing the bayou between Monsanto basin and Liverpool have a least clearance of 20 feet. (See **117.1 through 117.59 and 117.959**, chapter 2, for drawbridge regulations.)

(466) Chocolate Bayou is used mostly by small pleasure craft. Most of the land on both sides has been developed into resort homes. The water is brackish to fresh in the upper reaches, and is pumped from the bayou into nearby rice fields. Depths in the bayou are reported to average 8 feet or more, but are greatly affected by winds and are considerably less with N winds, which prevail during the winter months. During hurricanes, the bayou is reported to afford protection from waves and wind, but some danger still exists from heavy rain runoff.

(467) There are marinas and yacht basins on the bayou above the chemical plant. Gasoline, diesel fuel, water, marine supplies, open and covered berths with electricity, a launching ramp, and lifts are available. Boats up to 35 feet can be handled on flatbed trailers for general repairs.

(468) The principal commodities carried by barge on the bayou are shell, petroleum products, and industrial chemicals.

(469) **Scholes Field,** the airport for Galveston, is on the S side of the entrance to Offatts Bayou. The red and white checkered water tank is prominent.

(470) **Bermuda Beach** and **Palm Beach** are summer resorts on the Gulf shore about 5 and 6.5 miles SW of Scholes Field. The homes along the Gulf shore on the W half of Galveston Island are all raised on piles and are very distinctive.

(471) **Pirates Cove** and **Jamaica Beach** are resorts about 5.7 and 8 miles, respectively, SW of Scholes Field on the bay side. Numerous canals have been dredged to private waterfront homes. Privately dredged and marked channels lead to these resorts from West Bay. The reported controlling depth in the Pirates Cove channel was 4 feet in October 1999. A marina at Pirates Cove can provide berths, gasoline, water, and ice. The channel to Jamaica Beach had a reported controlling depth of 3 feet in August 1982. Jamaica Beach is the site of the Karankawa Indian burial ground.

(472) **Sea Isle** is a resort about 5.5 miles E of San Luis Pass. A privately dredged entrance channel, with a reported controlling depth of 3 feet in October 1999, leads S from the bay to three boat slips or lagoons. The entrance channel is marked by a private lighted entrance range and other aids. The ruins of a 3,000-foot pier are E of the entrance channel. A marina has berths with electricity, gasoline, diesel fuel, water, ice, and a free launching ramp; hull and engine repairs can be made.

(473) **Bay Harbor** is a resort about 4 miles E of San Luis Pass. A privately dredged channel, with a reported controlling depth of 3 feet in August 1982, leads S to a boat basin on the N shore of the island. A privately lighted entrance range and daybeacons mark the entrance channel.

(474) **San Luis Pass,** an unmarked channel 0.2 mile wide, leads NW from the Gulf and passes between the shoals S from Galveston Island and E from **San Luis Island.** In July 1981, the pass had a reported controlling depth of ½ foot. It is not recommended for strangers. Fishermen acquainted with the pass may sometimes be hired to pilot vessels, but the shoal waters of West Bay and **Christmas Bay** limit passage to lightdraft craft.

(475) A fixed highway bridge and causeway across San Luis Pass connects Galveston Island with San Luis Island; clearance is 29 feet.

(476) Off the NE side of San Luis Island are depths up to 22 feet; this deeper area offers protected anchorage for small craft, but the bottom is hard sand. The best anchorage is in **Cold Pass** on the W side of San Luis Island. A campground is on San Luis Island about 0.4 mile NW of the highway bridge. There is a marina on a dredged basin at the campground at which a launching ramp, berths, and lodging are available. The approach channel had a reported depth of 5 feet in September 2003. The basin and entrance channel from Cold Pass had a reported controlling depth of 5 feet in August 1982.

(477) A depth of 5 feet can be carried from San Luis Pass to the W side of San Luis Island, thence S in Cold Pass to **Moodys Island** and W and NW into Christmas Bay; a draft of 4 feet can then be taken to and through **Bastrop Bay.** Privately maintained aids mark the channel from the W end of Cold Pass to **Christmas Point,** and a

privately marked channel crosses Bastrop Bay and joins the Intracoastal Waterway.

(478) A channel has been dredged in **Bastrop Bayou** by private interests from the Intracoastal Waterway, Mile 382.2W, to the fixed highway bridge at Mims, Tex. Landcuts eliminate the bends in the bayou and bypass Cox Lake. In October 1998, the centerline controlling depth was reported to be about 4 feet. Total length of the channel from the Intracoastal Waterway to the fixed highway bridge is about 4.7 miles; the bridge has a clearance of 45 feet. Small-craft facilities are available at various fishing camps along the Bastrop Bayou Channel. Gasoline, diesel fuel, water, ice, limited berthing, and launching ramps are available at marinas near the highway bridge. A 5-ton fixed lift capable of handling boats up to 27 feet is also available.

(479) A channel between Bastrop Bay and **Mud Island** connects Christmas Bay and West Bay; formerly a section of the Intracoastal Waterway, this channel has been abandoned and is no longer maintained. A shallow dredged channel from the S end of Christmas Bay leads into and through **Drum Bay** and thence SW to a connection with the Intracoastal Waterway. This channel is used by small fishing craft with drafts of 1 to 2 feet.