Chart Coverage in Coast Pilot 5—Chapter 10
NOAA's Online Interactive Chart Catalog has complete chart coverage
http://www.charts.noaa.gov/InteractiveCatalog/nrnc.shtml
95°30'W
95°W
94°30'W
94°W
93°30'W
30°N
29°30'N
29°N
T E X A S
L O U I S I A N A
G U L F O F M E X I C O
Orange
Beaumont
Port Arthur
SABINE LAKE
SABINE PASS
INTRACOASTAL WATERWAY
LAKE ANAHUAC
BAY
GALVESTON
Houston
HOUSTON SHIP CHANNEL
Texas City
Galveston
CHOCOLATE BAYOU
SAN LUIS PASS
Freeport
11331
11326
11325
11324
11323
11322

Sabine Pass to San Luis Pass

(8)

METEOROLOGICAL TABLE – COASTAL AREA OFF GALVESTON, TEXAS
Between 27°N to 30°N and 92°W to 96°W

WEATHER ELEMENTS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEARS OF RECORD
Wind > 33 knots [1]	1.6	1.6	1.0	0.4	0.2	0.1	0.1	0.4	0.8	0.9	1.0	1.1	0.7
Wave Height > 9 feet [1]	5.4	5.0	3.4	2.4	1.2	1.2	0.3	0.8	2.3	3.6	3.7	4.0	2.6
Visibility < 2 nautical miles [1]	2.7	2.8	3.3	1.9	0.6	0.5	0.5	0.4	0.5	0.5	0.8	2.0	1.3
Precipitation [1]	4.5	4.9	2.6	2.3	2.0	2.3	2.6	3.1	4.2	3.4	3.7	4.6	3.3
Temperature > 69° F	17.3	16.9	26.7	61.4	94.9	99.9	99.9	99.9	99.3	86.3	55.2	27.8	68.2
Mean Temperature (°F)	61.9	63.4	66.3	71.3	76.8	81.9	84.0	84.0	82.0	76.3	69.8	64.5	74.2
Temperature < 33° F [1]	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mean RH (%)	79	79	80	82	82	80	78	77	77	75	76	77	78
Overcast or Obscured [1]	33.9	32.6	30.7	24.0	16.0	8.5	9.2	9.8	14.9	15.0	21.8	30.2	19.7
Mean Cloud Cover (8ths)	4.9	4.8	4.8	4.4	4.0	3.6	3.8	4.0	4.2	3.8	4.2	4.7	4.2
Mean SLP (mbs)	1020	1019	1017	1016	1015	1015	1017	1016	1015	1017	1019	1020	1017
Ext. Max. SLP (mbs)	1041	1042	1035	1038	1031	1030	1032	1030	1030	1037	1041	1041	1042
Ext. Min. SLP (mbs)	999	990	998	989	997	992	1001	1001	987	994	994	990	987
Prevailing Wind Direction	N	SE	SE	SE	SE	SE	S	SE	E	E	SE	SE	SE
Thunder and Lightning [1]	0.5	1.0	0.8	1.0	1.5	1.6	2.2	2.4	2.6	1.2	1.3	0.9	1.5

[1] Percentage Frequency

(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.

(2)

COLREGS Demarcation Lines

(3) The lines established for this part of the coast are described in **33 CFR 80.840** and **80.845**, chapter 2.

(4)

Weather

(5) 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 north occasionally penetrate the Gulf region of Texas. These systems and their fronts produce low temperatures and "northers," strong, cold winds from north. 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 north winds and cold spells.

(6) 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.

(7) 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.

(29)

Sabine-Neches Waterway Navigation Guidelines

The Sabine Pilots and VTS (Vessel Traffic Service) Port Arthur 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.

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

(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.

(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.

(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.

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

(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.

(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.

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:

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

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

(3) Port Arthur turning basin, Taylor Bayou.

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

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

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

(9)

ENCs - US3GC02M, US3GC03M
Charts - 11330, 11340

(10) 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 west-southwest direction for 50 miles to Galveston Entrance. Except in the east 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.

(11) 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.

(12)

Shipping safety fairways and fairway anchorages

(13) 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.

(14) **Shipping fairways** and **fairway anchorages** have been established off the entrances to the ports. These should generally be free of oil well structures. (See **33 CFR 166.100** through **166.200**, chapter 2, for regulations governing the fairways and anchorages.)

(15)

ENC - US3GC02M
Chart - 11330

(16) **Sabine Pass**, 244 miles west of Southwest Pass, Mississippi River, and 50 miles east-northeast 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.

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

(18)

Prominent features

(19) The most prominent objects seen when approaching Sabine Pass are the east jetty light, an abandoned lighthouse, a white/brown 81-foot tower on the east side of the pass, several large storage tanks on the east and west sides of the pass and the dredging range towers. Also prominent are the entrance range lights and a radar tower at the pilot station on the west side of the pass.

(20) **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 south end of the jetty.

(21) **Sabine Coast Guard Station** is on the west side of the pass, about 5.8 miles above the east jetty light.

(22) Vessels should approach Sabine Pass through the prescribed Safety Fairway. (See **33 CFR 166.100** through **166.200**, chapter 2.)

(23)

COLREGS Demarcation Lines

(24) The lines established for Sabine Pass are described in **33 CFR 80.840**, chapter 2.

(25)

Channels

(26) The entrance to Sabine Pass is through two 3½-mile-long jetties, extending in a south direction from shore. The general depths between jetties, outside the channel, are 8 to 16 feet. There are numerous obstructions in the vicinity of, and just outside Sabine Bank Channel and Outer Bar Channel; caution is advised. Federal project depths are 42 feet in Sabine Bank Channel and Outer Bar Channel, thence 40 feet through the jetty channel to and through Port Arthur Canal, with 40 feet in the east and west turning basins and Taylor Bayou turning basin at Port Arthur. (See Notice to Mariners and latest editions of charts for controlling depths.)

(27) Outer Bar Channel is marked by lighted buoys and a **337.5°** lighted range. The channel through the jetties to Sabine Pass is marked with lighted buoys and a **347°** lighted range. Unlighted ranges, maintained by the Corps of Engineers, mark the sides of the outer bar and jetty channels and are for dredging purposes only.

(28) Inside the jetties, the pass extends northwest 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.

(30) A **regulated navigation area** and **Vessel Traffic Service (VTS)** have 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 **33 CFR 165.1** through **165.13** and **165.806**, chapter 2, for limits and regulations.)

(31)

Anchorages

(32) Deep-draft vessels usually anchor in the Sabine Fairway Anchorages outside of the pass entrance. (See **33 CFR 166.100** through **166.200**, chapter 2.) Vessels of light draft can find good holding ground 7 to 8 miles west 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.

(33) An anchorage basin, federal project depth 40 feet, is on the east side of Sabine Pass Channel opposite the town of Sabine Pass. (See **33 CFR 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 southwest of the ship channel is used as an anchorage by small light-draft vessels and was reported dredged to 21 feet in 1982.

(34)

Dangers

(35) 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.

(36) A strong westerly current known to cause groundings after tropical cyclones was reported between Sabine Bank Channel Lighted Buoys 17 and 18 and between Sabine Bank Channel Lighted Buoys 33 and 34; extreme caution is advised.

(37)

Security zones

(38) The Captain of the Port, Port Arthur has established a security zone in Sabine Bank Channel, Sabine Pass Channel and Sabine-Neches Waterway. (See **33 CFR 165.01** through **165.33** and **165.819**, chapter 2, for limits and regulations.)

(39)

Currents

(40) The currents off the entrance of Sabine Pass are dependent upon the direction and velocity of the wind. Following continued north to east winds, a southwest to west current will be found off the entrance, frequently with a velocity of 1 knot and sometimes as much as 2 knots. Following south and southwest 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 are available from the Tidal Current prediction service at *tidesandcurrents.noaa.gov*. Links to a user guide for this service can be found in chapter 1 of this book.

(41)

Weather

(42) 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 south 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 32°F and below on about 14 days annually. The average annual temperature of Port Arthur is 68.9°F. The average annual maximum is 78.1°F while the average minimum is 59.1°F. The warmest month is July with an average temperature of 83.1°F while the coolest month is January with an average temperature of 52.2°F. The warmest temperature on record is 107°F, recorded in August 1962, while the coolest temperature on record is 12°F, recorded in December 1989. Each month June through September has recorded temperatures at or above 100°F while each month October through April has recorded temperatures at or below freezing.

(43) 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.

(44) 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.

(45) 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 sound 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.

(46)

Pilotage, Port Arthur

(47) 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 Port Arthur, Texas, and a pilot station at Sabine, Texas, at the inner end of the west jetty at Sabine Pass.

(48) The five pilot boats, SABINE PILOT, SPINDLE TOP, PORT NECHES, PORT ARTHUR and SABINE BANK PILOT, 45 to 65 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 Port Arthur 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 (2.4 meters) 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 maintained 24 hours through the Port Arthur Marine Operator, by FAX 409–962–9223, by email dispatcher@sabinepilots.com or through ships' agents.

(49) 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 Buoy SB.

(50)

Towage

(51) 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.

(52)

Quarantine, customs, immigration and agricultural quarantine

(53) (See chapter 3, Vessel Arrival Inspections, and Appendix A for addresses.)

(54) **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.

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

(56)

Coast Guard

(57) A **marine safety unit** is in Port Arthur.

(58) **Texas Bayou**, on the west 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 south-southeast of the bayou's entrance on Sabine Pass.

(59) **Sabine** is a village on the west side of the pass, about 5 miles above the outer end of the jetties. The south of the two old slips is used as a small-boat harbor where gasoline, diesel fuel, water and ice are available. There

(72)

Facilities at Port Arthur, Texas

Name	Location	Berthing Space (feet)	Depths* (feet)	Deck Height (feet)	Purpose	Owned/ Operated by:
Plains Marketing, Sabine Pass Wharf	29°44'21"N., 93°53'19"W.	300	27	6	Receipt and shipment of crude oil	Plains Marketing
Premcor Refining Group Port Arthur Refinery Tug Mooring Wharf	29°51'05"N., 93°58'18"W.	300	17	7	• Shipment of liquid sulphur • Occasional mooring of tug-boats	Premcor Refining Group, Inc.
Premcor Refining Group Port Arthur Refinery Berths Nos. 0 to 6	29°50'47"N., 93°58'07"W.	1,200	40	7	Receipt and shipment of crude oil, petroleum products, petrochemicals and liquid caustic soda	Premcor Refining Group, Inc.
Great Lakes Carbon Corp. Wharf	29°50'03"N., 93°57'51"W.	980	40	8	Shipment of calcined petroleum coke	Rice Carden Corp./ Great Lakes Carbon Corp.
United Marine Enterprise Port Arthur Shipyard Motiva Enterprises No. 3 Dock	29°50'23"N., 93°57'20"W.	1,400	28-30	12	• Mooring and maintenance of vessels • Mooring of offshore drilling rigs for repair	Motiva Enterprises, LLC./ United Marine Enterprise, Inc.
Motiva Enterprises Port Arthur Terminal No. 1 Dock Wharf Berths Nos. 6 and 7	29°49'59"N., 93°57'25"W.	1,500	37	10	• Receipt of methyl tertiary butyl ether and ballast water • Shipment of petro products	Motiva Enterprises, LLC
Motiva Enterprises Port Arthur Terminal No. 2 Dock Wharf, Berths Nos.1 and 2	29°49'43"N., 93°57'36"W.	700 (No. 1) 1,100 (No. 2)	37	9.2	• Receipt of ballast water • Shipment of petroleum products	Motiva Enterprises, LLC
Port of Port Arthur Public Ocean Terminal Upper Wharf, Berths Nos. 1 and 2	29°51'45"N., 93°56'12"W.	1,380	40	15	Receipt and shipment of conventional and containerized cargo	Port of Port Arthur Navigation District of Jefferson County
Port of Port Arthur Public Ocean Terminal, Lower Wharf, Berths Nos. 3 to 5	29°51'32"N., 93°56'25"W.	1,820	40	15	Receipt and shipment of conventional and containerized cargo	Port of Port Arthur Navigation District of Jefferson County
Atlantic Shippers of Texas Wharf	29°55'35"N., 93°52'44"W.	700	28	12	Receipt and shipment of ingredients for livestock feed	Atlantic Shippers of Texas, Inc.
Global Terminaling Services Wharf	29°55'49"N., 93°52'31"W.	800	40	15.7	• Shipment of petroleum coke	Kansas City Southern Industries/ Global Terminaling Services, Inc.

* The depths given above are reported. For information on the latest depths contact the port authorities or the private operators.

is a menhaden plant and wharf, and many shrimp boats base here. Several oil companies have bases for supplying offshore oil wells.

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

(61) **Sabine Pass** is a village on the west side of the pass about 1.5 miles north of Sabine. Shrimp boats base here.

(62) **Sabine Lake** has an average depth of about 6 feet in its 15-mile length. At the south end, where it empties into Sabine Pass, the depth is 1 to 4 feet. A fixed highway bridge over the south end has a clearance of 65 feet. An overhead power cable close northwest 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 south 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.

(63) A 1.5-mile-long bulkhead is off the Port Arthur waterfront on the west 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.

(64) **Johnson Bayou**, the extreme southwest part of Louisiana, empties into the southeast part of Sabine Lake, directly east 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 north-northwest across Sabine Lake from Johnson Bayou to the Sabine-Neches Canal.

(65) **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 west shore of Sabine Lake. Lights and lighted ranges mark the channel to Taylor Bayou.

(66) **Port Arthur**, an important shipping center, is on the west 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.

(67) The principal industrial development is on Taylor Bayou, at the southwest 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.

(68)

Harbor regulations

(69) 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.

(70)

Wharves

(71) Port Arthur has more than 90 wharves and piers—only the deep-draft facilities are listed in the table. 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.

(73)

Supplies

(74) 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.

(75)

Repairs

(76) Port Arthur has two shipyards on the west 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.

(77)

Communications

(78) The port is served by two Class II railroads, buslines and an airline. The Jefferson County Airport is northwest of the city.

(79) **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.

(80) 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, northeast to the mouth of Neches River, thence east through the open water of the north 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.

(81) 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.

(82) 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.

(83)

ENC - US5TX73M
Chart - 11343

(84) **Neches River** empties into Sabine Lake from the northwest 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 east of State Route 87 highway bridge and just east of McFadden Bend Cutoff. These are the least overhead cable clearances between Port Arthur and the turning basin at Beaumont.

(86) On the west 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 west of the south end of State Route 87 highway bridge. Gasoline and berths are available. In 1982, reported depths of about 5 feet could be carried to the marina.

(109)

Facilities at Beaumont, Texas

Name	Location	Berthing Space (feet)	Depths* (feet)	Deck Height (feet)	Purpose	Owned/ Operated by:
South side Neches River						
Fina Oil and Chemical Co. Port Arthur Terminal No.1 Dock	29°58'49"N., 93°52'40"W.	900	40	14	Receipt and shipment of crude oil, xylene, naptha and petroleum products	Fina Oil and Chemical Co., Inc., subsidiary of TotalFinaElf SA
Fina Oil and Chemical Co. Port Arthur Terminal, No.1 Dock A	29°58'50"N., 93°52'48"W.	550	35	12½	Receipt and shipment of benzene, toluene and petroleum products	Fina Oil and Chemical Co., Inc., subsidiary of TotalFinaElf SA
Fina Oil and Chemical Co. Port Arthur Terminal Dock B	29°58'50"N., 93°52'54"W.	500	30	12½	Receipt and shipment of asphaltene, xylene, benzene, toluene and petroleum products	Fina Oil and Chemical Co., Inc., subsidiary of TotalFinaElf SA
Port Neches						
Huntsman Corp. Oxides and Olefins Facility, Port Neches No.1 Dock Wharf	29°59'22"N., 93°55'46"W.	800	38	9	Receipt and shipment of petro-chemicals and liquid caustic soda	Huntsman Corp.
Motiva Enterprises Port Neches Terminal No. 3 Dock Wharf	29°59'26"N., 93°56'03"W.	600	28	8½	Receipt and shipment of crude oil, naptha, gas oil and pyrolysis gas	Motiva Enterprises, LLC and Huntsman Corp.
Motiva Enterprises Port Neches Terminal No. 2 Dock Wharf	29°59'30"N., 93°56'13"W.	950	40	8½	Receipt of crude oil, naptha, petroleum products and gas oil	Motiva Enterprises, LLC and Huntsman Corp.
Motiva Enterprises Port Neches Terminal No. 1 Dock Wharf	29°59'34"N., 93°56'23"W.	800	40	8½	Receipt and shipment of crude oil, petroleum products and methanol	Motiva Enterprises, LLC and Huntsman Corp.
Huntsman Petrochemical Corp., Port Neches No. 2 Dock Wharf	29°59'37"N., 93°56'33"W.	500	27-30	11	Receipt and shipment of butadiene, methanol, styrene and other liquified petroleum gases	Ameripol Synpol Co. and Huntsman Corp./Huntsman Petrochemical Corp.
Huntsman Petrochemical Corp., Port Neches No. 3 Dock Wharf	29°59'39"N., 93°56'38"W.	310	24	14	Receipt and shipment of crude butadiene, methanol, styrene and liquified petroleum gases	Ameripol Synpol Co. and Huntsman Corp./Huntsman Petrochemical Corp.
Union Oil Co. of CA Beaumont Terminal Main Dock Berths 1 through 5 and 7	30°00'31"N., 93°58'26"W.	1,170	40	4½ to 14½	• Receipt and shipment of crude oil, petroleum products, petrochemicals, ballast water and bunker fuel • Bunkering/loading of tankers berthed at wharf	Union Oil Co. of CA
Sun Marine Terminals Ship Dock No. 1	30°00'27"N., 93°58'58"W.	875	40	18	• Receipt and shipment of crude oil, petroleum products, petrochemicals and ballast water • Bunkering tankers	Sun Marine Terminals, Inc.
Sun Marine Terminals Ship Dock No. 2	30°00'32"N., 93°59'20"W.	1,000	40	18	• Receipt and shipment of crude oil and ballast water • Bunkering tankers berthed	Sun Marine Terminals, Inc.
Sun Marine Terminals Ship Dock No. 3	30°00'36"N., 93°59'33"W.	1,000	40	18	• Receipt and shipment of crude oil and ballast water • Bunkering tankers berthed	Sun Marine Terminals, Inc.
Sun Marine Terminals Ship Dock No. 4	30°00'39"N., 93°59'46"W.	1,000	40	18	• Receipt and shipment of crude oil and ballast water • Bunkering tankers berthed	Sun Marine Terminals, Inc.
Sun Marine Terminals Ship Dock No. 5	30°00'49"N., 94°00'19"W.	1,000	40	18	• Receipt and shipment of crude oil and ballast water • Bunkering tankers berthed	Sun Marine Terminals, Inc.
Beaumont						
Du Pont Beaumont Industrial Park, Main Wharf	30°01'10"N., 94°01'28"W.	785	36	12.8	Receipt and shipment of methanol, acrylonitrite, sulfuric acid and anhydrous ammonia	E.I. Du Pont de Nemours & Co., Inc.
Oiltanking Beaumont South Wharf	30°01'53"N., 94°02'01"W.	700	40	12	Receipt and shipment of petroleum products	Oiltanking Beaumont, LP
Oiltanking Beaumont North Wharf	30°02'00"N., 94°02'02"W.	800	40	18	Receipt and shipment of petroleum products	Oiltanking Beaumont, LP
Martin Gas Sales Stanolind Cut Terminal D Dock Pier	30°02'17"N., 94°02'46"W.	800 (SE side) 300 (NW side)	25 to 35	7	Receipt and shipment of liquid sulphur and sulphuric acid	Martin Gas Sales, Inc.
Neches Industrial Park Dock No. 1 Barge Wharf	30°03'41"N., 94°02'09"W.	750	34	10	Receipt and shipment of ammonia, ammonium biosulfate, thiosulfate fertilizers and liquid sulphur by barge	Neches Industrial Park, Inc., Martin Gas Sales, Inc., and A&A Fertilizer, Ltd.

Facilities at Beaumont, Texas

Name	Location	Berthing Space (feet)	Depths* (feet)	Deck Height (feet)	Purpose	Owned/ Operated by:
Exxon Mobil Refining & Supply Co. Beaumont Refinery Wharf No. 5	30°04'34"N., 94°03'52"W.	850	40	13	• Receipt of crude, lubricating oils and ballast water • Shipment of petroleum products	Exxon Mobil Refining & Supply Co., Division of Exxon Mobil Corp.
Exxon Mobil Refining & Supply Co. Beaumont Refinery Wharf No. 4	30°04'37"N., 94°04'02"W.	750	40	13	• Receipt and shipment of petroleum products, lubricating oils and ballast water • Loading and bunkering tankers	Exxon Mobil Refining & Supply Co., Division of Exxon Mobil Corp.
Exxon Mobil Chemical Co. Beaumont Olefins/ Aromatics Plant Wharves Nos. 2 and 3	30°04'26"N., 94°03'31"W.	650	38	14	• Receipt and shipment of toluene, benzene, cutter stock, paraxylene and propylene • Tugboat mooring	Exxon Mobil Chemical Co., Division of Exxon Mobil Corp.
Louis Dreyfus Corp. Port of Beaumont Navigation District, Grain Wharf	30°04'31"N., 94°04'40"W.	1,100	40	16	Shipment of grain	Port of Beaumont Navigation District of Jefferson County/ Louis Dreyfus Corp.
Port of Beaumont Navigation District, Carroll Street Wharf	30°04'31"N., 94°04'48"W.	950	40	16	• Receipt and shipment of general cargo, lumber and steel products • Receipt of aggregate by self-unloading vessels	Port of Beaumont Navigation District of Jefferson County/ Trans-Global Solutions, Inc., d.b.a. Beaumont Bulk Terminal
Port of Beaumont Navigation District, Harbor Island Marine Terminal Wharf	30°04'34"N., 94°05'18"W.	1,880	40	15-16	Receipt and shipment conventional, heavy-lift, roll-on roll-off and project cargo	Port of Beaumont Navigation District of Jefferson County
Port of Beaumont Navigation District, Wharf No. 1	30°04'38"N., 94°05'28"W.	576	30	16	• Receipt and shipment of roll-on/ roll-off general cargo • Mooring of government-owned vessels	Port of Beaumont Navigation District of Jefferson County/U.S. Department of Transportation, Maritime Administration
Port of Beaumont Navigation District, Wharves Nos. 2, 3, and 4	30°04'41"N., 94°05'17"W.	1,385	38	16	Receipt and shipment of conventional, roll-on/roll-off cargo and dry bulk commodities	Port of Beaumont Navigation District of Jefferson County
Port of Beaumont Navigation District, Wharves Nos. 5, 6 and 7	30°04'49"N., 94°05'18"W.	1,450	36	16	Receipt and shipment of conventional and containerized cargo	Port of Beaumont Navigation District of Jefferson County

* The depths given above are reported. For information on the latest depths contact the port authorities or the private operators.

(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 north 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 **33 CFR 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 east 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.

(92)

Anchorages

(93) 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 west of the cutoff about a mile above McFadden Bend Cutoff. There is little swinging room.

(94) 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 north of Deer Bayou. Moorings spaced about 175 feet apart on concrete deadmen are on the northeast side of the basin.

(95) 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.

(96) 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 7 feet down and 140 feet up. (See **33 CFR 117.1** through **117.59** and

117.971, 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 45 feet.

(97)

Pilotage, Beaumont

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

(99)

Towage

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

(101)

Quarantine, customs, immigration and agricultural quarantine

(102) (See chapter 3, Vessel Arrival Inspections, and Appendix A for addresses.)

(103) **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.

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

(105)

Harbor regulations

(106) 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.

(107)

Wharves

(108) Beaumont has more than 70 wharves and piers—only the deep-draft facilities are listed in the table. The alongside depths are reported; for information on the latest depths contact the private operator. The port's waterfront facilities extend along the south 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.

(110)

Supplies

(111) 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.

(112)

Repairs

(113) A shipyard that builds offshore oil well drilling towers and barges up to 500 feet is on the west 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.

(114)

Small-craft facilities

(115) 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 1982, leads to the private boat club's berthing facilities.

(116)

Communications

(117) The Port Authority controls the terminal's rail trackage at the Port of Beaumont. It connects with the four Class I railroads serving the city. 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.

(118) **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.

(119) 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 east side of the bridge has a clearance of 47 feet. Highway and railroad bridges 6.8 miles above the mouth at Voth, TX, have a minimum channel width of 40 feet and clearance of 21 feet.

(120) **Sabine River** empties into Sabine Lake from the north. **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.

(121)

Channels

(122) 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 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 **33 CFR 117.1** through **117.59** and **117.981**, chapter 2, for drawbridge regulations.)

(123)

Anchorages

(124) 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.

(125)

Currents

(126) Currents in the Sabine River are about 2.5 knots during high stages.

(127)

Pilotage, Orange

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

(129)

Towage

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

(131)

Quarantine, customs, immigration and agricultural quarantine

(132) (See chapter 3, Vessel Arrival Inspections, and Appendix A for addresses.)

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

(134) Orange has two hospitals.

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

(136)

Harbor regulations

(137) 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.

(138) A **restricted area** for vessels of a Navy reserve center has been established at Orange. (See **33 CFR 334.790**, chapter 2, for limits and regulations.)

(139)

Wharves

(140) Deep-draft vessels at the Port of Orange berth alongside the long wharf on the southwest 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 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 south end of Orange Harbor Island.

(141) 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.

(142)

Supplies

(143) 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.

(144)

Small-craft facilities

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

(146)

Repairs

(147) Orange has several shipyards that build vessels, offshore oil rigs and barges. The largest yard is at the north 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 west side of the channel 0.6 mile south-southeast of the south end of Orange Harbor Island have floating drydocks up to 2,500 tons and 185 feet long. A repair yard west 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.

(148)

Communications

(149) Three Class II 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 north of the city, and State Route 87 connects with Port Arthur over the Rainbow Bridge.

(150) **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**. 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 **33 CFR 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.

(151) **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. 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. 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.

(152)

ENC - US5TX61M
Chart - 11331

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

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

(155)

ENC - US4TX52M
Chart - 11323

(156) **High Island**, a small settlement on the mainland about 30 miles west 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 north are two 132-foot towers for a transmission line crossing the Intracoastal Waterway.

(157) 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.

(158) **Rollover Pass**, about 6.5 miles west-southwest 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.

(159) **Heald Bank**, lying 34 miles east of Galveston and 27 miles offshore, is nearly 5 miles long in a northeast and southwest 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 southeast. In a heavy sea Heald Bank should be avoided by all vessels, including those of moderate draft that could pass over it in smooth water.

(160)

Currents

(161) 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 southwest direction was observed; a north 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 west direction.

(162)

ENC - US3GC03M
Chart - 11340

(163) **East Flower Garden Bank** and **West Flower Garden Bank**, covered 8 and 9 fathoms, respectively, and **Stetson Bank**, covered 8¾ fathoms, are coral reefs about 108 miles south of Sabine Pass. These reefs, together, make up 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.)

(164) Flower Garden Banks covers an area that has been designated as a **Prohibited Lightering Zone**. See **33 CFR 156.300** through **156.330**, chapter 2, for limits and regulations, and **Lightering Zones**, indexed as such, chapter 3.

(165) 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).

(166)

ENC - US4TX52M
Chart - 11323

(167) **Bolivar Peninsula**, southwest 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 south 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.

(168)

Galveston Entrance

(169) Vessels should approach Galveston Bay through the prescribed Safety Fairways. (See **33 CFR 166.100** through **166.200**, chapter 2.)

(170) **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 South Jetty Light 5A.

(171) 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.

(172) Due to heavy vessel traffic, mariners are advised not to anchor or linger in the precautionary areas. See Traffic Separation Schemes, chapter 1, and **33 CFR 167**, chapter 2, for additional information.

(173)

ENCs - US4TX52M, US5TX53M, US5TX58M, US4TX58M
Charts - 11323, 11324, 11326

(174) **Galveston Bay** is a large irregularly shaped shallow body of water on the coast of Texas, about 285 miles west from Southwest Pass and 690 miles northwest from Dry Tortugas. The bay is about 30 miles long in a general north-northeast and south-southwest 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. North of Red Fish Bar the bay is known as the Upper Bay and south as the Lower Bay. The northeast end of the upper bay is Trinity Bay.

(175) 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.

(176) **Galveston Entrance**, the approach to Galveston Bay, lies between two converging stone-rubble jetties that are about 1.2 miles apart at the outer ends. From deep water in the Gulf, the north jetty extends to Bolivar Peninsula and the south jetty extends to the north end of Galveston Island. Mariners should be alert to the possibility of strong cross-currents in the Galveston Bay Entrance Channel; caution is advised.

(177) **Bolivar Roads** is the large deepwater area between the jetties extending west between Bolivar Peninsula on the north and Pelican Island and Galveston Island on the south. On the south and west it connects with the ship channels to Galveston, Texas City and Houston. The Intracoastal Waterway crosses its northwest side.

(178) **Galveston** occupies the entire width of the east end of **Galveston Island**. The wharves are built along Galveston Channel on the north side of the city, and the south 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 southwest, is essentially and primarily a place of maritime commerce and industry.

(179) 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 are grain, bulk fertilizer, bulk liquid, bananas/fruit, general cargo (Ro-Ro and containerized) and automobiles.

(180) **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.

(181) 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.

(182) Daily predictions for Galveston Bay Entrance are published in the Tidal Current Tables. See the Tidal Current prediction service at *tidesandcurrents.noaa.gov* for specific information about times, directions, and velocities of the current at numerous locations throughout the area. Links to a user guide for this service can be found in chapter 1 of this book.

(183) **Pelican Island**, an artificial island, is on the north side of Galveston Channel and protects the channel from northers. A radio station, an offshore drilling service facility, Texas A&M University at Galveston (TAMUG), 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 east 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.

(184)

Prominent features

(185) Approaching the entrance to Galveston Bay, among the first objects sighted on a clear day will be the two 363-foot high condominium towers at the east end of Galveston Island and the 358-foot high American National Insurance Co. Building at about 29°18.4'N., 94°47.4'W., which displays aircraft warning lights, two grain elevators on Galveston Channel in the vicinity of Pier 29, the numerous hotels and motels along the seawall. The 116-foot abandoned lighthouse on Bolivar Point 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 east near the coast will first sight High Island, and those approaching from southwest will probably first sight the American National Insurance Co. Building.

(186) **Galveston South Jetty Light 5A** (29°19'40"N., 94°41'20"W.), 30 feet above the water, is shown from a steel pile with a square green daymark at the outer end of the south jetty.

(187) **Galveston Bay Entrance Lighted Buoy GB** (29°14'44"N., 94°32'41"W.) is 9.6 miles off Galveston South Jetty Light 5A.

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

(189) **Vessel Traffic Service Houston/Galveston** is an information hub, using radar, closed-circuit television and VHF-FM 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.

(190) 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 **33 CFR 161.1** through **161.35**, chapter 2.

(191)

COLREGS Demarcation Lines

(192) The lines established for Galveston Bay are described in **33 CFR 80.845**, chapter 2.

(193)

Channels

(194) The federal project provides for a 45-foot Entrance Channel and an Outer Bar Channel, from the Gulf to about 2 miles west of the outer end of the jetties, and in the Inner Bar Channel to Bolivar Roads, thence 40 to 45 feet in Galveston Channel. For detailed channel information and minimum depths as reported by the U.S. Army Corps of Engineers (USACE), use NOAA Electronic Navigational Charts. Surveys and channel condition reports are available through a USACE hydrographic survey website listed in Appendix A. 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.

(195)

Anchorages

(196) Vessels may anchor off the bar in the Fairway Anchorages on either side of the inbound/outbound traffic lanes. (See **33 CFR 166.100** through **166.200**, chapter 2, for limits and regulations.) Anchorage areas for temporary use are north of the Inner Bar Channel. (See **33 CFR 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.

(197) 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.**

(198) 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.

(199)

Dangers

(200) A considerable number of unmarked dangerous wrecks exist in the approaches to Galveston Bay Entrance. A spoil bank is south of Galveston Bay Entrance Channel, just outside the jetties. Heald Bank and the offshore oil well structures are the principal hazards.

(201) 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.

(202)

Regulated navigation area

(203) A regulated navigation area has been established in the eastern entrance to Galveston Channel. (See **33 CFR 165.1** through **165.13** and **165.827**, chapter 2, for limits and regulations.)

(204)

Bridges

(205) A rail and highway causeway crosses Galveston Channel and connects Galveston Island with Pelican Island. The bascule span has a vertical clearance of 13 feet and a horizontal clearance of 120 feet. The single bascule leaf overhangs the channel above a clearance of 75 feet when the bridge is open, and caution is necessary. (See **33 CFR 117.1** through **117.59** and **117.966**, chapter 2, for drawbridge regulations.) Overhead power cables cross the channel at the causeway and have a least clearance of 85 feet.

(206) Galveston is connected to the mainland by two 1.75-long, parallel causeways, crossing the Intracoastal Waterway at the southwest end of Galveston Bay. The railroad bridge has a vertical lift span with a horizontal clearance of 300 feet and vertical clearance of 8 feet down and 73 feet up. An overhead power cable immediately southwest of the bridge has a clearance of 95 feet. The fixed bridge 0.1 mile southwest of the railroad bridge has a vertical clearance of 73 feet.

(207)

Currents

(208) 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 east and southeast. A strong wind blowing steadily from the north for several days may lower the water to a level 2 or 3 feet below mean low tide. Daily predictions for Galveston Channel are available from the Tide prediction service at *tidesandcurrents.noaa.gov*. Links to a user guide for this service can be found in chapter 1 of this book.

(209) The currents are also modified frequently by the winds. East or southeast winds may cause a continuous flood current between the jetties at the entrance for a period of a day or more, and west or northwest 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.

(210)

Weather

(211) 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 74.6°F and the average low temperature is 65.2°F. Due to the lagging marine influence, August, rather than July, is the warmest month with an average temperature of 83.7°F. January is the coolest month with an average temperature of 53.9°F. The warmest temperature on record is 99°F, recorded in August 1990, and the coolest temperature on record is 14°F, recorded in December 1989. Temperatures greater than 90°F 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.

(212) The cold fronts or northers are responsible for a preponderance of north 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 that 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 sound signal operates an average of about 70 to 100 hours per month from December through March.

(213) 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.

(214) 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.

(215) The National Weather Service maintains an office in Dickinson. (See Appendix A for contact information.)

(216)

Pilotage, Galveston Bay

(217) 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.

(234)

Facilities at Galveston, Texas

Name	Location	Berthing Space (feet)	Depths* (feet)	Deck Height (feet)	Purpose	Owned/ Operated by:
Port of Houston Authority Container Terminal Galveston Facility Pier 10	29°19'00"N., 94°46'58"W.	1,346	42	11	Receipt and shipment of general cargo, steel and lumber	City of Galveston/Port of Houston Authority
Marine Spill Response Corporation, Pier 12	29°18'51"N., 94°47'02"W.	845	26-32	11	Mooring float equipment	City of Galveston/Marine Spill Response Corperation
Smith-Hamm Pier 14	29°18'52"N., 94°47'06"W.	W side 689	30-31	10	Mooring vessels and barges	City of Galveston/Smith-Hamm, Inc. and CHS Launch Services
		E side 663	22-24			
Del Monte Fresh Produce Piers 16-18	29°18'46"N., 94°47'17"W.	1,203	32	11½	Receipt of fruit	City of Galveston/Del Monte Fresh Produce North America, Inc.
Port of Galveston Pier 19 Boat Basin	29°18'30"N., 94°47'55"W.	400	30-32	8	Receipt and shipment of conventional general cargo	City of Galveston/Port of Galveston
Port of Galveston Cruise Terminal Number 1 Piers 23-25	29°18'31"N., 94°47'51"W.	964	26-32	12½	Boarding passengers and mooring vessels	City of Galveston/Port of Galveston
Port of Galveston Pier 26	29°18'30"N., 94°47'55"W.	400	30-32	8	Receipt and shipment of conventional general cargo	City of Galveston/Port of Galveston
Port of Galveston Cruise Terminal Number 2 Piers 27-28	29°18'30"N., 94°48'04"W.	1,050	36	12½	Boarding passengers and mooring vessels	City of Galveston/Port of Galveston
ADM Grain Company Galveston Elevator Piers 30-33	29°18'29"N., 94°48'17"W.	1,100	41-42	11½	Shipment of grain Occasional receipt and shipment of conventional cargo	City of Galveston/ADM Grain Company
Port of Galveston Piers 33-34	29°18'29"N., 94°48'28"W.	632	38	8½	Receipt and shipment of general/project cargo, heavy machinery and steel	City of Galveston/Port of Galveston
Agriliance Galveston Piers 35-36	29°18'30"N., 94°48'33"W.	650	38-40	11	Receipt of fertilizer	City of Galveston/ Agriliance, LLC
Port of Galveston Piers 37-38	29°18'30"N., 94°48'41"W.	W side 1,180	20	11	Receipt and shipment of Ro-Ro and project cargo	City of Galveston/Port of Galveston
		E side 1,163	30			
Port of Galveston Piers 39-40	29°18'32"N., 94°48'51"W.	W side 1,163	32	10½	Occasional receipt and shipment of conventional general cargo	City of Galveston/Port of Galveston
		E side 785	33			
Port of Galveston Pier 41	29°18'32"N., 94°48'58"W.	1,195	33	11	Receipt of cement	City of Galveston/Port of Galveston

* The depths given above are reported. For information on the latest depths contact the port authorities or the private operators.

(218)

Pilots for Galveston and Texas City	
Galveston/Texas City Pilots 1301 Pennzoil Road Pelican Island Galveston, TX 77554	409–941–1300 (phone 24 hours) 409–943–4893 (FAX) *info@galvestonpilots.com* (email) *www.galvestonpilots.com*
NW Gulf Federal Pilots P.O. Box 20695 Beaumont, TX 77720	409–781–8140 *www.nwgulffedpilot.com*
Pilots for Houston and all ports above Texas City	
Houston Pilots 203 Deerwood Glen Drive Deer Park, TX 77536	281–476–8201 (phone 24 hours) 281–478–4324 (FAX) *disp@houston-pilots.com* (email) *www.houston-pilots.com*

(219) The pilot boats come out when vessels are expected. Pilots board at Galveston Bay Entrance Channel Approach Lighted Buoy GA for large oil tankers drawing 40 feet or more and immediately north of Galveston Bay Entrance Channel Lighted Buoy 2A for vessels drawing less than 40 feet.

(220) The Galveston/Texas City Pilots operate three boats, TEXAS and GALVESTON (both 79 feet) and GALVESTON BAY (38 feet). The larger boats have a black hull and white superstructure with the word PILOT in red letters on each side of the superstructure. The GALVESTON BAY has a gray hull with white superstructure with the word PILOT in large red letters 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—pilot dispatch call sign is KOK-780. The calls signs for pilot boats TEXAS, GALVESTON and GALVESTON BAY are WX-8357, WDF-4916 and WDD-9819, respectively. The pilots carry portable radiotelephones. The sound and visual signals are four short blasts on the whistle or flashes on the signal light.

(221) The Houston pilots have five boats: M/V HOUSTON (62 feet), call sign WBQ 8986; M/V LONESTAR (50 feet), call sign WCY 9015; BAYOU CITY (75 feet); HOUSTON PILOT No. 1 (54 feet), call sign WYR 8541; and the HOUSTON PILOT No. 3 (91 feet), call sign WZR 9849. The boats have gray hulls and white superstructures. 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.

(222) Vessels should follow directions for course and speed from the pilot boat on approach in order to provide a safe lee for pilot boarding. The pilot ladder should be rigged in accordance with IMO standards, firmly made off to a fixed structure and as per the direction from the pilot boat or pilot dispatch via radiotelephone. For all vessels, the lower end of the pilot ladder must terminate 3 meters above the waterline, and for higher freeboard vessels, the pilot ladder shall be used in conjunction with a combination ladder ending at 6 meters above the waterline. The pilots will advise vessels on the radiotelephone if special procedures are necessary. All pilots carry portable radiotelephones.

(223) A Galveston/Texas City Pilot can be obtained by telephone 409–941–1300, email *dispatch@galvestonpilots.com* for operational matters, or by radiotelephone on VHF-FM channel 14 with a 4-hour advanced notice. Houston Pilots request an 8-hour advance notice.

(224)

Towage

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

(226)

Quarantine, customs, immigration and agricultural quarantine

(227) (See chapter 3, Vessel Arrival Inspections, and Appendix A for addresses.)

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

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

(230)

Harbor regulations

(231) 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.

(232)

Wharves

(233) Galveston has more than 60 wharves and piers—only the deep-draft facilities are listed in the table. The alongside depths are reported; for information on the latest depths contact port authorities. Almost all the facilities are on the south 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 table under mechanical handling. 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.

(235)

Supplies

(236) 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.

(237)

Repairs

(238) 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 east of the Container Terminal (Pier 10) 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 west 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.

(239)

Salvage

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

(241)

Small-craft facilities

(242) A marina, yacht club and yacht yard are in a basin about 400 yards east of the Container Terminal (Pier 10). 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 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 north of the marina.

(243)

Communications

(244) There are no commercial flights servicing Galveston. The closest public-use airports are located near Houston. A small airport in Galveston offers helicopter charter

(264)

Facilities at Texas City, Texas

Name	Location	Berthing Space (feet)	Depths* (feet)	Deck Height (feet)	Purpose	Owned/ Operated by:
Sterling Chemicals, Dock No. 1	29°22'40"N., 94°53'34"W.	750	40	5 and 15	Receipt and shipment of chemicals by tanker and barge	Sterling Chamicals, Inc.
Texas City Terminal Railway Co., Dock No. 15	29°22'32"N., 94°53'26"W.	400	36	15	Receipt and shipment crude oil, petroleum products and chemicals	Texas City Terminal Railway Co., operated by Valero, LP
Texas City Terminal Railway Co., Dock No. 16	29°22'27"N.,94°53'22"W.	625	40	16	Receipt and shipment of crude oil, petroleum products, petrochemicals and chemicals	Texas City Terminal Railway Co./Marathon Ashland Petroleum, LLC and Valero Energy Corp
Texas City Terminal Railway Co., Dock No. 18	29°22'22"N., 94°53'25"W.	760	36	14	Receipt and shipment of crude oil, petroleum products and petrochemicals	Texas City Terminal Railway Co./Marathon Ashland Petroleum, LLC
Texas City Terminal Railway Co., Dock No. 19	29°22'22"N., 94°53'33"W.	500	36	12	Receipt and shipment of crude oil, petroleum products and chemicals	Texas City Terminal Railway Co./Valero, LP
Texas City Terminal Railway Co., Oil Dock No. 20	29°22'20"N., 94°53'33"W.	760	36	14	Receipt and shipment of petro-leum products	Texas City Terminal Railway Co./Valero, LP
BP North America, Dock No. 32	29°22'14"N., 94°53'22"W.	850	40	18½	Receipt and shipment of crude oil and petroleum products by tanker	BP North America, Inc.
Texas City Terminal Railway Co., Tanker Dock, Berths Nos. 40 and 41	29°21'58"N., 94°53'30"W.	1,090	40	16	Receipt of crude oil by tanker	Texas City Terminal Railway Co. / BP North America, Inc., Marathon Ashland Petroleum, LLC and Valero Energy Corp.
BP Chemicals Americas, Dock No. 50	29°21'49"N., 94°54'16"W.	420	36-40	11	Receipt and shipment of chemicals by tanker and barge	Texas City Terminal Railway Co. / BP Chemicals America, Inc.
Oiltanking Texas City, Tanker Dock No. 66	29°21'39"N., 94°55'00"W.	700	36	12	Receipt and shipment of chemicals by tanker	Oiltanking Texas City, LP
Oiltanking Texas City, Tanker Dock No. 67	29°21'35"N., 94°54'54"W.	700	36	6	Receipt and shipment of chemicals by tanker and barge	Oiltanking Texas City, LP

* The depths given above are reported. For information on the latest depths contact the port authorities or the private operators.

service associated with the offshore oil industry. There are close to 100 shipping 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 Class I railroads serving the port. They are the Union Pacific and the Burlington Northern and 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.

(245) **Texas City**, on the west side of Galveston Bay about 7 miles northwest 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.

(246)

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.

(248)

Channels

(249) Texas City Channel extends west-northwest 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 45 feet in the channel and basin. For detailed channel information and minimum depths as reported by the U.S. Army Corps of Engineers (USACE), use NOAA Electronic Navigational Charts. Surveys and channel condition reports are available through a USACE hydrographic survey website listed in Appendix A. The channel is marked by lighted ranges, lights and lighted and unlighted buoys.

(250) Texas City Channel is protected by Texas City Dike on the north. The dike is earth filled and protected by stone revetment and is about 4.5 miles long. It is 900 feet north of the channel at the east end and about 2,300 feet north at the west end. The wharves are protected by

a large spoil bank known as **Shoal Point**, extending along the east side of the turning basin.

(251) **Industrial Canal**, a private industrial canal, extends from the south end of the turning basin off the Texas City wharves south and west for about 2 miles to another turning basin. The channel is marked by a private light and a **090°** lighted range.

(252)

Security Zones

(253) 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 **33 CFR 165.30** through **165.33** and **165.814**, chapter 2, for limits and regulations.)

(254)

Pilotage, Texas City

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

(256)

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.

(258)

Quarantine, customs, immigration and agricultural quarantine

(259) (See chapter 3, Vessel Arrival Inspections, and Appendix A for addresses.)

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

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

(262)

Wharves

(263) Texas City has over 40 wharves and piers. Only the deep-draft facilities are listed in the table. 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 table. A 50-ton floating crane is available at Galveston, and a 500-ton floating derrick is available from Houston.

(265)

Communications

(266) The Texas City Terminal Railroad connects with two Class I railroads serving the port. Bus lines and a motor freight line serve the city.

(267)

ENCs - US5TX58M, US4TX58M
Chart - 11326

(268) **East Bay** is a large and shallow bay extending east about 16 miles from the south end of Galveston Bay and lying north 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 south side. The chain lies east 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.

(269) **Trinity Bay** is a large body of water northeast 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 east 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 that constitute a menace to navigation are in the north and west part of the bay between Trinity River and Umbrella Point.

(270)

Caution

(271) 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.

(272) 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 northeast from Houston Ship Channel to **Smith Point**, thence follows the east shore north 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.

(273) **Double Bayou**, 8 miles northeast 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.

(274) 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.

(275) **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. The channel is marked by lights and daybeacons. Mariners should be on the lookout for floating logs.

(276) **Anahuac** is a town at the northeast 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 Canal** is used for irrigation purposes only. A highway connects Anahuac with Goose Creek and Houston.

(277) **Trinity River** is one of the largest rivers in Texas and empties into the northeast end of Trinity Bay. Entrance to the river is through Anahuac Channel and Browns Pass and not through Trinity River Channel. 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.

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

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

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

(281)

Cedar Bayou

(282) **Cedar Bayou** is a crooked stream flowing in a south direction into the northwest corner of Galveston Bay, 2.5 miles east of Morgans Point and 25 miles north of Galveston. The principal commerce is in crude oil and shells, handled mostly in barges.

(283) A dredged channel leads from the Houston Ship Channel, between **Atkinson Island** and **Hog Island**, across Galveston Bay and into Cedar Bayou for about 1.6 miles above the mouth. The channel is marked by lights, buoys and daybeacons. Two submerged jetties marking the former mouth of the bayou are on the north side of the entrance channel; the northernmost jetty is marked by a light.

(284) State Highway 99 fixed bridge, about 7.3 miles above the entrance, has a vertical clearance of 52 feet. Overhead power cables crossing the bayou between the mouth and the fixed bridge have a least vertical clearance of 85 feet.

(285) A highway bridge crossing a cutoff between **Boaz Island** and the mainland has a 13-foot fixed span with a vertical clearance of 6 feet. An overhead power cable just southwest of the bridge has a vertical clearance of 40 feet. Only very small craft use the cutoff.

(286) Shallow **Tabbs Bay** is at the northwest 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.

(287) **Goose Creek** empties into the north side of Tabbs Bay. A channel marked by private daybeacons leads northward from the Houston Ship Channel into Goose Creek to a pair of fixed bridges, under construction (2020), at **Baytown**. The channel is navigable for craft drawing up to 5 feet. 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.

(288)

Structures across Goose Creek

Name and Description	Location	Clearances (feet) Horizontal	Clearances (feet) Vertical (MHW)
Overhead power cable	29°42'24"N., 94°59'35"W.		44
State Highway 146 (two fixed spans)	29°42'49"N., 94°59'29"W.	55	6
Overhead power cable	29°42'50"N., 94°59'29"W.		50
Overhead power cable	29°43'19"N., 94°59'16"W.		38
West Main Street Bridge (fixed)	29°43'20"N., 94°59'17"W.	56	14
Overhead power cable	29°43'37"N., 94°59'25"W.		36
Railroad Bridge (fixed)	29°43'39"N., 94°59'27"W.	56	14
Overhead power cable	29°43'39"N., 94°59'24"W.		40
Overhead cable	29°43'49"N., 94°59'23"W.		N/A
Railroad Bridge (fixed)	29°43'50"N., 94°59'23"W.	32	14
Market Street Bridge (fixed)	29°43'55"N., 94°59'19"W.	48	9

(289) **Barbours Terminal Channel**, opposite Hog Island, is a dredged channel leading to a turning basin, extending west about 1.2 miles from Houston Ship Channel. The turning basin provides excellent shelter for vessels up to 150 feet long.

(290) The Captain of the Port (COTP) Houston-Galveston has established a Security Zone at Morgans Point including Barbours Terminal Channel and Turning Basin. (See **33 CFR 165.1** through **165.33** and **165.814**, chapter 2, for limits and regulations.) Unauthorized vessels/persons are

(292)

Facilities at Barbours Cut Terminal

Name	Location	Berthing Space (feet)	Depths* (feet)	Deck Height (feet)	Purpose	Owned/ Operated by:
Barbours Cut Terminal, LASH/SEABEE Vessel Wharf	29°40'59"N., 94°59'07"W.	790	42	16	Mooring vessels	Port of Houston Authority
Barbours Cut Terminal Roll-on/Roll-off Wharf	29°40'58"N., 94°59'21"W.	63	42	7	• Receipt and shipment of roll-on/roll-off cargo • Mooring for tugs, towboats and barges	Port of Houston Authority
Barbours Cut Terminal Berth No. 1 Wharf	29°40'56"N., 94°59'28"W.	1,000	42	18	Receipt and shipment of containerized and roll-on/roll-off cargo	Port of Houston Authority
Barbours Cut Terminal Berth No. 2 Wharf	29°40'55"N., 94°59'39"W.	1,000	42	18	Receipt and shipment of containerized general cargo	Port of Houston Authority/ Sealand Service, Inc.
Barbours Cut Terminal Berth No. 3 Wharf	29°40'53"N., 94°59'50"W.	1,000	42	18	Receipt and shipment of containerized general cargo	Port of Houston Authority/ Sealand Service, Inc.
Barbours Cut Terminal Berth No. 4 Wharf	29°40'51"N., 95°00'02"W.	1,000	42	18	Receipt and shipment of containerized general cargo	Port of Houston Authority/ Sealand Service, Inc.

* The depths given above are reported. For information on the latest depths contact the port authorities or the private operators.

excluded from these areas without express permission of the COTP.

(291) The **Port of Houston**, **Barbours Cut Terminal** is on the south side of Barbours Cut and is owned by the Port of Houston Authority. 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.

(293)

ENCs - US5TX58M, US4TX58M, US4TX52M
Charts - 11326, 11323

(294) Morgans Point is on the northwest end of Galveston Bay on the west side of Houston Ship Channel. **La Porte**, a town 2 miles southwest of Morgans Point, has rail and highway connections with other parts of the state.

(295) From Morgans Point south 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 northwest of Red Bluff. The channel leading to the basin had a reported controlling depth of 8 feet in 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.

(296) **Bayport** is a deepwater port and industrial complex operated by the Port of Houston Authority. A dredged channel leads from Houston Ship Channel close south of Atkinson Island to the shore about 0.9 mile northwest of Red Bluff, thence west in a landcut to a turning basin. The channel is marked lights, lighted ranges and a directional sector light.

(297) 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 **33 CFR 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.

(298) Baytank (Houston) Bayport Ship Terminal Wharves Nos. 1 and 2: southwest 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.

(299) LBC Houston Bayport Terminal Ship Dock: west 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.

(300) **Clear Creek** empties into the west side of Galveston Bay 20 miles northwest 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**. The Clear Creek entrance channel and the creek and lake channels are well marked with lights, buoys and daybeacons. 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. Submerged obstructions were reported at the bridge under construction about 0.3 mile inside the entrance; caution is advised.

(301)

Structures across Clear Creek			
		Clearances (feet)	
Name and Description	Location	Horizontal	Vertical (MHW)
Overhead power cable	29°32'54"N., 95°01'07"W.		99
State Highway 146 (fixed) (Under construction)	29°32'58"N., 95°01'23"W.	113 (main) 62 (aux)	73
Overhead power cables	29°32'57"N., 95°01'26"W.		100
Overhead power cable	29°32'02"N., 95°05'31"W.		51
Clear Creek Bridge (fixed/highway)	29°32'06"N., 95°05'46"W.	90	25
Overhead power cable	29°32'20"N., 95°05'47"W.		55
Overhead power cables	29°41'32"N., 95°05'43"W.		45

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

(303) There are several large yacht basins at the west end of Clear Lake, and numerous marinas and boatyards are on the lake, on both sides of Clear Creek and on the Seabrook channel.

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

(305) **Dickinson Bayou** empties into **Dickinson Bay**, a small indentation in the west side of lower Galveston Bay, between **April Fool Point** and **Miller Point**, about 13 miles north of Galveston. A dredged channel leads from Galveston Bay through Dickinson Bay and Dickinson Bayou to the highway bridge about 1.2 miles above the mouth of the bayou. The entrance channel is marked by lights, buoys and daybeacons.

(306) Marinas and boatyards are at April Fool Point and at a basin about 1 mile northwest 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.

(307) About 1.2 miles above the mouth of Dickinson Bayou, State Route 146 fixed highway bridge has a clearance of 45 feet. Overhead power and telephone cables at the bridges have minimum clearances of 56 feet.

(308) A marina, on the north 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.

(309) At Dickinson two bridges cross the bayou. The Missouri Pacific railroad bridge has a 23-foot fixed channel span with a vertical clearance of 15 feet. The State Highway 3 fixed bridge, 0.3 mile above the railroad bridge, has a 66-foot fixed span with a vertical clearance of 12 feet. The overhead power cable at the railroad bridge has a clearance of 42 feet.

(310) **Moses Lake**, a shallow lagoon south 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 south 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 1982 leads from the main channel to the slip.

(311)

ENCs - US4TX52M, US5TX53M, US5TX57M, US5TX58M, US4TX58M
Charts - 11323, 11324, 11325, 11326

(312) **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 northwest end of Bolivar Roads, between Port Bolivar and Texas City channels. The entrance is marked by a **319.1°** lighted range and by a lighted buoy on the northeast side of the channel. The channel through Galveston Bay is marked by lighted bouys near the entrance and lights and lighted ranges to Morgans Point.

(313) 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.

(314) The federal project provides for a 45-foot channel from Bolivar Roads for about 36 miles to Carpenter Bayou, thence 40 feet for about 11.5 miles to Clinton Island, thence 36 feet for about 4 miles to and in Houston Turning Basin. For detailed channel information and minimum depths as reported by the U.S. Army Corps of Engineers (USACE), use NOAA Electronic Navigational Charts. Surveys and channel condition reports are available through a USACE hydrographic survey website listed in Appendix A.

(333)

Facilities at Jacintoport, Texas

Name	Location	Berthing Space (feet)	Depths* (feet)	Deck Height (feet)	Purpose	Owned/ Operated by:
Port of Houston Jacintoport Terminal Wharf	29°44'55"N., 95°06'34"W.	2,000	38	14	Receipt and shipment of conventional, container-ized cargo, roll-on/ roll-off and misc. dry bulk and bagged commodities	Port of Houston Authority/ Jacintoport Corp. and Harborside Refrigerated Services
Houston Fuel Oil Terminal Co., Ship Dock No. 1	29°44'59"N., 95°06'02"W.	900	40	15	Receipt and shipment of crude oil and fuel oil	Houston Fuel Oil Terminal Co., Inc.
Intercontinental Terminals, Co., Houston Ship Docks No. 1 Wharf and Nos. 2 and 3 Pier	29°44'43"N., 95°05'59"W.	1,800	42	20	• Receipt and shipment of bulk liquids, liquefied petroleum gas and petrochemicals • Receipt of ballast water	Intercontinental Terminals, Co.
VOPAK, Deer Park Terminal Ship Dock No. 1 Barge Dock No. 1 Wharf, and Ship Dock No. 2	29°44'45"N., 95°05'40"W.	900	42	15	Receipt and shipment of petroleum products and petrochemicals	Paktank Corp.
Cargill, Houston Grain Elevator Dock	29°44'27"N., 95°06'49"W.	780	44-46	15	Shipment of grain	Cargill, Inc.
Cargill, Houston Grain Elevator Wharf	29°44'29"N., 95°06'52"W.	600	34	14	Receipt and shipment of fertilizer	Cargill, Inc., Fertilizer Division

* The depths given above are reported. For information on the latest depths contact the port authorities or the private operators.

(315) North of Bolivar Peninsula, spoil banks run along the southwest side of the channel and extend north to **Red Fish Bar**. About 1.5 miles below Red Fish Bar, a narrow channel marked at the entrance by a daybeacon exits Houston Ship Channel to the west, leading to Dickinson Bayou. Along the northeast side of Houston Ship Channel north of Red Fish Bar, there are dredged openings through the spoil bank, permitting passage into the northeast part of **Upper Galveston Bay**.

(316) 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 south of Morgans Point this dike is relatively high and is known as **Atkinson Island**.

(317) From Morgans Point to Lynchburg, a distance of 8 miles, the ship channel is marked by numerous lighted ranges and other aids. Above Lynchburg, only a few lights mark bends in the channel to the area near **Galena Park**.

(318) 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.

(319)

Morgans Point to Baytown

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

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

(322) **Baytown** is 4 miles above Morgans Point on the northeast side of the channel. It is the site of the ExxonMobil Baytown Complex which is one of the largest integrated and most technologically advanced refining and petrochemical complexes in the world. There is a deepwater wharf and two deep-draft piers with railroad and highway connections. The refinery here has the capability to process up to 584,00 barrels of crude oil per day. Petroleum products and petrochemicals are received and shipped and vessel are bunkered at these facilities.

(323) Pier 1 (29°43'28"N., 95°01'12"W.) is an 820-foot wharf with 1,350 feet of berthing space with dolphins; 40 feet alongside; deck height, 9 feet.

(324) Pier 2 (29°43'38"N., 95°01'18"W.) is 432 feet long with 810 feet of berthing space with dolphins on the east and west sides; 40 feet alongside; deck height, 9 feet.

(325) Pier 3 (29°43'41"N., 95°01'23"W.) is 402 feet long with 820 feet of berthing space with dolphins on the west side; 402-feet long with 810 feet of berthing space with dolphins on the east side; 40 feet alongside; deck height, 14 feet.

(326) An overhead power cable crosses the channel about 0.3 mile above the Baytown facilities and has a minimum clearance of 162 feet. The transmission towers are prominent.

(327)

ENC - US5TX57M
Chart - 11325

(328) **San Jacinto River** branches north from the ship channel at **Lynchburg Landing**, 8 miles above Morgans

(339)

Facilities at Greens Bayou, Texas

Name	Location	Berthing Space (feet)	Depths* (feet)	Deck Height (feet)	Purpose	Owned/ Operated by:
Econ Rail Corporation Port of Houston Bulk Material Handling Plant Wharf	29°44'58"N., 95°09'56"W.	650	40	20	Shipment of dry bulk commodities: potash, petroleum coke, fertilizer, barite and ammonium sulfate	Port of Houston Authority/ Econo-Rail Corporation
Chevron Chemical Co. Houston Chemical Complex Terminal Berth Nos. 4, 5, 6, 8 and 9	29°44'35"N., 95°10'29"W.	3,020	22 - 35	8 to 13	Receipt of styrene and olefins; shipment of olefins	Chevron Chemical Co.
Phillips Chemical Co. Houston Chemical Complex Terminal Berth Nos. 8 and 9 Wharf	29°44'45"N., 95°10'38"W.	1,060	22 - 25	8 to 13	Mooring of vessels and barges for repair	Phillips Petroleum Co.
Armco, Houston Ship Wharf	29°44'46"N., 95°11'20"W.	1,080	40	12	Receipt and shipment of conventional cargo, roll-on/roll-off, and misc. dry bulk including iron ore and vermiculite	Armco Inc.; operated by Armco, Inc., d.b.a. Greens Port Industrial Park
Williams Energy Corp., Houston Terminal, Ship Dock No. 2	29°44'32"N., 95°11'59"W.	1,000	40	10	Receipt and shipment of petroleum products, acids, caustic soda, and other chemicals; bunkering vessels and loading barges at berth	Williams Energy Corp.
Williams Energy Corp., Houston Terminal, Ship Dock No. 1	29°44'32"N., 95°12'04"W.	800	42	17	• Receipt and shipment of petroleum products, acids, caustic soda, and other chemicals • Bunkering vessels at berth	Williams Energy Corp.

* The depths given above are reported. For information on the latest depths contact the port authorities or the private operators.

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 overhead power cable near the river entrance at Lynchburg Landing 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.

(329) **Old River**, 8.4 miles above Morgans Point, leads northwest from the ship channel. The navigable depth in the channel is about 7 feet for 0.6 mile. CEMEX USA receives cement at a pier on the west 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.

(330) **San Jacinto State Park**, on the south side of the channel 9 miles above Morgans Point. 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.

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

(332) Jacintoport Terminal Slip, about 0.7 mile above the U.S.S. TEXAS, is on the north side of the channel and extends west about 0.6 mile. A large deepwater basin is on the south side of the channel opposite the Jacintoport Terminal Slip entrance. Four deep-draft wharves are in the basin. There are chemical and liquid cargo handling wharves on the south side of the channel at the mouth of **Tucker Bayou** and at the mouth of **Patrick Bayou**.

(334) **Boggy Bayou Basin**, on the south side of the channel about 2 miles above Jacintoport Terminal slip, is the site of the Shell Deer Park Complex. On the south 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 east of the mouth of the basin. All the berths have railway and highway connections, and fresh water is available. Crude oil petroleum products, petrochemicals and chemicals are received and shipped, and vessels can receive bunker fuels.

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

(336) A deepwater basin on the north side of the river opposite Boggy Bayou Basin is the site of the Stolthaven Houston Terminal. The terminal operates both as a domestic bulk facility and as an international distribution hub. Products stored include chemicals, petroleum products and vegetable oils. The pier that extends from the head of the basin has 900 feet of berthing space on the east and west sides. The pier on the west side of the basin has 900 feet of berthing space. All the berths have depths of 42 feet alongside.

(337) On the south side of the channel, about 1 mile west of Boggy Bayou, is the Trecora Chemical facility wharf. The wharf has 850 feet of berthing space with platforms and a reported depth of 32 feet alongside. The INEOS Phenol Cumene Plant wharf, 0.3 mile west of the chemical facility 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.

(338) **Greens Bayou** enters the main ship channel from north at a point 2.1 miles above Boggy Bayou. A dredged channel enters the bayou and leads upstream for about 1 mile. 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. Two overhead power cables, with a least clearance of 70 feet cross the dredged channel near the head of the project. Above the dredged channel, the bayou is crossed by several bridges and overhead pipelines. There are shipyards, chemical plants and barge terminals on the bayou.

(340) **Hunting Bayou**, on the north side of the channel 1.9 miles west of Greens Bayou, is the site of liquid petroleum gas (Targa Resources) and crude oil (Magellan Midstream Partners) operations. There is no water and bunkering is not permitted at the Magellan Terminals.

(341) **Cotton Patch Bayou** is on the south 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.

(342) Close west 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.

(343) **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.

(344) The Chevron petroleum complex, with wharves on the south side of the ship channel close east of the tunnel, ships and receives crude oil and refined products. The wharves are in line, providing 950 feet of berthing space with dolphins and reported depths of 39 feet alongside. The complex includes a refinery and tank farm with a storage capacity of 5.1 million barrels of crude oil.

(345) About 1.5 miles above Hunting Bayou, on the north 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 west 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.

(346) Overhead power cables crossing the ship channel just east and west of Wharf No. 1 at the Kinder Morgan terminal have clearances of 165 feet and 185 feet, respectively.

(347) The LyondellBasell, Houston Refinery and wharves are on the south side of the ship channel about 0.5 mile above the Kinder Morgan terminal wharves. 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.

(348) Kinder Morgan, Galena Park Terminal Wharf is on the north side of the ship channel opposite the LyondellBasell 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 west of the Kinder Morgan, Galena Park Terminal is the Ardent Mills, Galena Park Mill berth with a 6.3 million-bushel grain elevator. The elevator is one of the most prominent landmarks on the Houston Ship Channel. The berth provides 900 feet of berthing space with dolphins and 39 feet reported alongside. Three spouts can load vessels at 120,000 bushels per hour.

(349) **Sims Bayou Turning Basin** is off the south side of the ship channel close east of Sims Bayou. (See Notice to Mariners and latest edition of the chart for controlling depth.) Texas Petrochemicals Corps., Docks A and B are on the west 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.

(350) **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 north 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.

(351) United States Gypsum Company plant and wharf are on the north 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.

(352) Manchester Terminal Corp. Wharf, on the south side of the ship channel, is close west 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.

(353) Close west of the Manchester Terminal Corp. Wharf is the Valero refining complex. The wharf here 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.

(354) Arrow Terminals, Galena Park Dock, on the north 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.

(355) A **Coast Guard Port Safety Station** is on the north side of the ship channel in about 29°43'41"N., 95°15'26"W. The area on the north side of the channel in the vicinity of the Coast Guard wharf is foul.

(356) Port of Houston, Manchester Terminal is on the south side of the ship channel about 1.3 miles above Sims Bayou. There are two deep water docks totaling 3,200 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 million gallons of caustic soda.

(357) 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.

(358) **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. Cypress Street Bridge to Brady Island over the bend, 0.2 mile south 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 south and 150 yards south, respectively, of the bridge.

(359) 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.

(360) **Brays Bayou** branches off the west 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.

(361) **Buffalo Bayou**, above the Houston Turning Basin, is frequently used by barge traffic. The principal commodities handled on the bayou are shell, petroleum, clay, steel products, cotton, sand and gravel. The channel through the bayou is crossed by several bridges, all of which are fixed with the exception of two swing bridges. The minimum clearance for the swing bridges is 25 feet. The minimum clearances for the fixed bridges are 27 feet to the Main Street bridge and 9 feet to the Franklin Avenue bridge. (See **33 CFR 117.1** through **117.59** and **117.955**, chapter 2, for drawbridge regulations.) Several overhead pipeline and telephone/power cables cross the bayou with a minimum clearance of 46 feet.

(362) **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 west and southwest United States. It also has a large medical center with 16 participating institutions and medical organizations.

(363) **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.

(364) Principal cargoes imported include petroleum and petroleum products, iron and steel, crude fertilizers and minerals, organic chemicals, wood and articles of wood. Principal cargoes exported include petroleum and petroleum products, organic chemicals, cereals and cereal products, plastics, animal or vegetable fats and oils.

(365) There are 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, shipyards and steel mills.

(366)

Anchorages

(367) 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.

(368)

Security Zones

(369) 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 **33 CFR 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.

(370)

Weather

(371) The climate of Houston is predominantly marine. The terrain includes numerous small streams and bayous,

(396)

Facilities at Houston, Texas

Name	Location	Berthing Space (feet)	Depths* (feet)	Deck Height (feet)	Purpose	Owned/ Operated by:
North Side Houston Ship Channel						
Public Wharf No. 32	29°43'35"N., 95°15'53"W.	806	38	16	Receipt and shipment of general cargo, steel, roll-on/roll-off & dry bulk	Port of Houston Authority
Public Wharves Nos. 30 and 31	29°43'32"N., 95°16'06"W.	1,176	38	15	Receipt and shipment of general cargo, automobiles, steel, and project cargo	Port of Houston Authority
Public Wharf No. 29	29°43'35"N., 95°16'17"W.	600	38	15	Receipt and shipment of general and containerized cargo, automobiles	Port of Houston Authority
Public Wharves Nos. 27 and 28	29°43'39"N., 95°16'24"W.	1,200	38	15	Receipt and shipment of general and containerized cargo, automobiles	Port of Houston Authority
Public Wharf No. 26	29°43'48"N., 95°16'31"W.	600	38	15	Receipt and shipment of conventional and containerized cargo, roll-on/ roll-off, and automobiles	Port of Houston Authority
Public Wharves Nos. 24 and 25	29°43'56"N., 95°16'32"W.	1,200	38	14½	Receipt and shipment of conventional, containerized cargo, misc.dry bulk	Port of Houston Authority
Public Wharf No. 23	29°44'05"N., 95°16'36"W.	600	38	14½	Receipt and shipment of conventional, containerized cargo, misc.dry bulk	Port of Houston Authority
Public Wharves Nos. 21 and 22	29°44'12"N., 95°16'38"W.	1,200	38	14½	Receipt and shipment of conventional, containerized cargo, misc.dry bulk	Port of Houston Authority
Public Wharf No. 20	29°44'21"N., 95°16'45"W.	593	38	14½	Receipt and shipment of conventional, containerized cargo, misc.dry bulk	Port of Houston Authority
Public Wharves Nos. 18 and 19	29°44'27"N., 95°16'49"W.	1,177	38	14½	Receipt and shipment of conventional, containerized cargo	Port of Houston Authority
Public Wharf No. 17	29°44'34"N., 95°16'35"W.	600	38	14½	Receipt and shipment of conventional, containerized cargo	Port of Houston Authority
Public Wharf No. 16	29°44'39"N., 95°17'00"W.	554	38	14	Receipt and shipment of conventional, containerized cargo	Port of Houston Authority
Public Wharf No. 15	29°44'44"N., 95°17'04"W.	526	34	14	Mooring vessels	Port of Houston Authority
Public Wharf No. 14	29°44'49"N., 95°17'07"W.	480	34	15½	Mooring vessels	Port of Houston Authority
East Side of Turning Basin						
Public Wharves Nos. 12 and 13	29°45'04"N., 95°17'24"W.	990	33	14½	Mooring vessels	Port of Houston Authority
Public Wharf No. 11	29°45'00"N., 95°17'13"W.	530	33	14½	Receipt and shipment of general cargo and cotton	Port of Houston Authority
Public Wharf No. 10	29°45'00"N., 95°17'13"W.	700	33	14	Receipt and shipment of general cargo	Port of Houston Authority
West Side of Turning Basin						
Public Wharf No. 9	29°45'05"N., 95°17'26"W.	555	34	18	Receipt and shipment of conventional, containerized cargo	Port of Houston Authority
Public Wharf No. 8	29°44'59"N., 95°17'27"W.	624	38	18	Receipt and shipment of conventional, containerized cargo	Port of Houston Authority
South Side of Turning Basin						
Public Wharf No. 4	29°44'53"N., 95°17'27"W.	779	27	8	Mooring of vessels for repair; transient mooring for tugs and towboats	Port of Houston Authority
Public Wharf No. 3	29°44'54"N., 95°17'18"W.	800	33	8	Transient mooring for tugs, towboats and vessels	Port of Houston Authority
South Side Houston Ship Channel						
Public Wharf No. 2	29°44'50"N., 95°17'12"W.	519	33	11½	Receipt and shipment of tallow	Port of Houston Authority/Jacob Stern & Sons, Inc.
Public Wharf No. 1-W	29°44'46"N., 95°17'09"W.	601	34	13	Receipt and shipment of tallow	Port of Houston Authority/Jacob Stern & Sons, Inc.

Facilities at Houston, Texas

Name	Location	Berthing Space (feet)	Depths* (feet)	Deck Height (feet)	Purpose	Owned/ Operated by:
Public Wharf No. 1-E	29°44'42"N., 95°17'08"W.	750	34	13	Receipt of molasses and liquid fertilizer; shipment of tallow and vegetable oils	Port of Houston Authority/PM Ag Products/Jacob Stern & Sons
PM Ag Products, Houston Wharf	29°44'35"N., 95°17'02"W.	600	28	15½	Receipt of liquid fertilizer, caustic soda and molasses; shipment of vegetable oils	PM Ag Products, Inc.
Public Wharves Nos. 41 through 48	29°44'30"N., 95°16'58"W.	3,426	31	13	Mooring vessels	Port of Houston Authority and U.S. Maritime Administration
Texas Stevedores New Terminal Wharf Berth Nos. 1 and 2	29°43'56"N., 95°16'40"W.	830	32	18	Shipment of conventional and containerized general cargo, and misc. dry bulk	Dekaizer, Inc./Texas Stevedores, Inc.

* The depths given above are reported. For information on the latest depths contact the port authorities or the private operators.

which together with the nearness to Galveston Bay favor the development of both ground and advective fogs. Prevailing winds are from the southeast and south, except in January, when frequent passages of high-pressure areas bring invasions of polar air on prevailing north winds.

(372) 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.

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

(374) 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.

(375) 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.

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

(377) 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.

(378) 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.

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

(380)

Pilotage, Houston

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

(382)

Towage

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

(384)

Quarantine, customs, immigration and agricultural quarantine

(385) (See chapter 3, Vessel Arrival Inspections, and Appendix A for addresses.)

(386) **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.

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

(388)

Coast Guard

(389) A **Sector Office** is in Houston—see Appendix A for address. **Houston Coast Guard Air Station** is at Ellington Field Joint Reserve Base.

(390)

Harbor regulations

(391) 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 at 111 East Loop North—telephone 713–670–2400. See **33 CFR 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.

(392)

Wharves

(393) Houston has over 200 piers and wharves. Only the deep-draft facilities at Houston are listed in the facilities table. The alongside depths for the facilities listed are reported; for information on the latest depths contact the operator. Unless otherwise mentioned, all the facilities 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.

(394) 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.

(395) 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.

(397)

Supplies

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

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

(400)

Repairs

(401) 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 and 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.

(402)

Communications

(403) 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. Over 100 steamship lines offer cargo service from Houston to world ports, and some 90 tanker operators serve the port.

(404) 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. Bus lines operate from two terminals, and there is local bus service.

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

(406)

ENCs - US4TX52M, US3GC02M
Charts - 11323, 11330

(407) From Galveston Entrance to San Luis Pass, a distance of 27 miles, the Gulf coast trends in a general southwest by west direction. The southwest 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.

(408)

ENCs - US5TX53M, US5TX51M, US4TX52M
Charts - 11324, 11322, 11323

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

(410) The Intracoastal Waterway crosses the east end of West Bay between **North Deer Island** and **Tiki Island**. Tiki Island is a developed resort with several channels and lagoons on the north and south sides of the island. In 1998, a least depth of 4½ feet was reported in the channel around the island. A bridge connecting Tiki Island with the mainland, crossing the channel at the east end of the island, has a clearance of 14 feet. An overhead power cable crosses the channel just north of the bridge and has a clearance of 37 feet.

(411) **Offatts Bayou** extends from off the south side of West Bay to the southwest limits of Galveston. The entrance channel leaves the Intracoastal Waterway about 0.3 mile west 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 south side of the bayou. Several commercial bait camps are around the bayou, and a city park is on the south shore.

(412) 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 east 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 west side of the bridge.

(413) **Chocolate Bay** extends about 2.5 miles northwest from the west 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 south side of the Intracoastal Waterway on the north side of Alligator Point, the east 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.

(414) A dredged channel, entered through two connecting channels and marked by buoys, daybeacons, lights and lighted ranges, leads north from the Intracoastal Waterway to the Monsanto Chemical Co. plant basin on Chocolate Bayou, 7.3 miles above the Intracoastal Waterway. 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.

(415)

Structures across Chocolate Bayou

Name and Description	Location	Clearances (feet) Horizontal	Vertical (MHW)
Overhead power cable	29°12'43"N., 95°12'24"W.		81
Texas County Highway 2004 Bridge (fixed)	29°12'44"N., 95°12'27"W.	181	50
Overhead power cable	29°15'10"N., 95°14'00"W.		N/A
Overhead power cables	29°15'50"N., 95°13'50"W.		50
Overhead power cable	29°16'34"N., 95°14'55"W.		50
Texas County Highway 171 Bridge (fixed)	29°18'10"N., 95°15'59"W.	60	20

(416) 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 north 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. There are marinas and yacht basins on the bayou above the chemical plant.

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

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

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

(420) **Pirates Cove** and **Jamaica Beach** are resorts about 5.7 and 8 miles, respectively, southwest 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 1999. A marina at Pirates Cove can provide limited berths, gasoline, water, ice, a launching ramp and winter dry storage. The channel to Jamaica Beach had a reported controlling depth of 3 feet in 1982. Jamaica Beach is the site of the Karankawa Indian burial ground.

(421) **Sea Isle** is a resort about 5.5 miles east of San Luis Pass. A privately dredged entrance channel, with a reported controlling depth of 3 feet in 1999, leads south 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 east of the entrance channel.

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

(423) **San Luis Pass**, an unmarked channel 0.2 mile wide, leads northwest from the Gulf and passes between the shoals south from Galveston Island and east from **San Luis Island**. In 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.

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

(425) Off the northeast 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 west side of San Luis Island. A campground is on San Luis Island about 0.4 mile northwest of the highway bridge.

(426) A depth of 5 feet can be carried from San Luis Pass to the west side of San Luis Island, thence south in Cold Pass to **Moodys Island** and west and northwest 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 west end of Cold Pass to **Christmas Point**, and a privately marked channel crosses Bastrop Bay and joins the Intracoastal Waterway.

(427) 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, TX, Landcuts eliminate the bends in the bayou and bypass

Cox Lake. In 2006, the reported controlling depth was about 2 feet. For detailed channel information and minimum depths as reported by the U.S. Army Corps of Engineers (USACE), use NOAA Electronic Navigational Charts. Surveys and channel condition reports are available through a USACE hydrographic survey website listed in Appendix A.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.

(428) 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 south end of Christmas Bay leads into and through **Drum Bay** and thence southwest to a connection with the Intracoastal Waterway. This channel is used by small fishing craft with drafts of 1 to 2 feet.