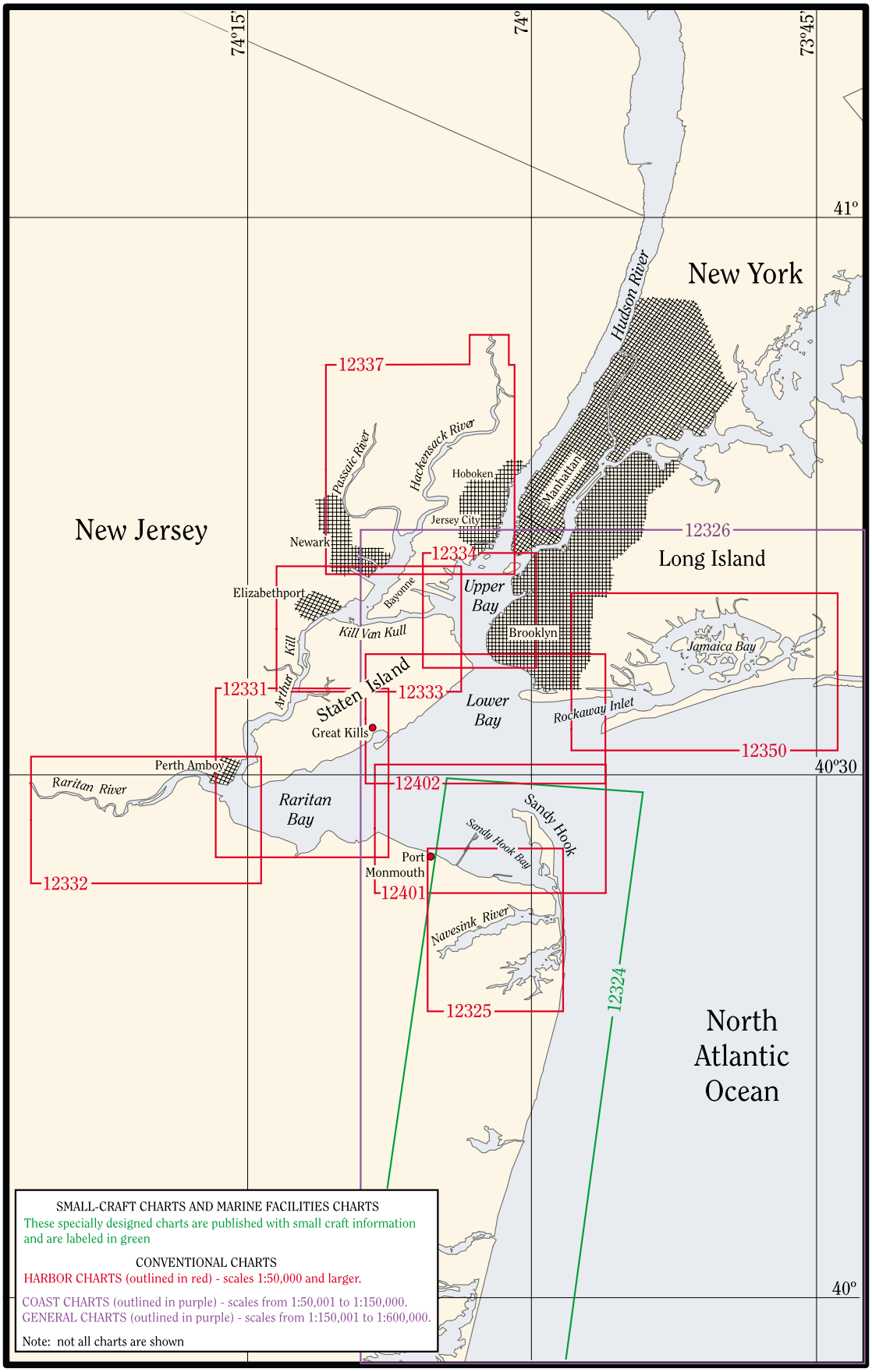
74°15'
74°
73°45'
41°
40°30
40°
New York
New Jersey
Long Island
Hudson River
Hackensack River
Passaic River
Hoboken
Jersey City
Manhattan
Newark
Elizabethport
Bayonne
Kill Van Kull
Kill
Arthur
Upper Bay
Brooklyn
Jamaica Bay
Staten Island
Great Kills
Lower Bay
Rockaway Inlet
Perth Amboy
Raritan River
Raritan Bay
Sandy Hook
Sandy Hook Bay
Port Monmouth
Navesink River
North Atlantic Ocean
12337
12326
12334
12331
12333
12350
12402
12332
12401
12325
12324
SMALL-CRAFT CHARTS AND MARINE FACILITIES CHARTS
These specially designed charts are published with small craft information and are labeled in green
CONVENTIONAL CHARTS
HARBOR CHARTS (outlined in red) - scales 1:50,000 and larger.
COAST CHARTS (outlined in purple) - scales from 1:50,001 to 1:150,000.
GENERAL CHARTS (outlined in purple) - scales from 1:150,001 to 1:600,000.
Note: not all charts are shown

New York Harbor and Approaches

(1) This chapter describes New York Harbor and its approaches and the areas adjacent to it bounded by and including Jamaica Bay to the eastward and Sandy Hook Bay to southward. Included in the text in addition to the facilities at New York City and Staten Island are the New Jersey ports of Perth Amboy, Port Elizabeth, Port Newark, Bayonne, and others which are accessible through tributaries that empty into New York Harbor such as Arthur Kill, Kill Van Kull, Passaic River, and Hackensack River. The Hudson River above New York City is discussed in chapter 12, and the East River, the approach to New York Harbor from Long Island Sound, is discussed in chapter 9.

COLREGS Demarcation Lines

(2) The lines established for New York Harbor are described in **80.165,** chapter 2.

Charts 12326, 12327, 12401

(3) The approach to **New York Harbor** from seaward is generally along the south coast of Long Island or the east coast of New Jersey, although the harbor is easily approached from any direction between east and south. During the approach, the south shore of Long Island will be seen to northward and the low sandy beaches of the New Jersey shore will be observed to westward. The Long Island shore is readily identified by sand hillocks and thickly settled beach communities, whereas the New Jersey shore is characterized by long sandy stretches and many summer resort settlements.

Prominent features

(4) The four most prominent landmarks, which can be seen for a long distance at sea, are the Fire Island Light and a tower at Jones Beach on the Long Island shore, and the Highlands of Navesink and the microwave tower at Atlantic Highlands on the north end of the New Jersey coast. When nearing the Lower Bay of New York Harbor, Ambrose Light will be seen; it marks the entrance to Ambrose Channel which is the principal deepwater passage through the Lower Bay.

(5) The south coast of Long Island from Fire Island Inlet to Rockaway Inlet has a general 263° trend for 30 miles. It is a clean shore and may be approached as close as 1 mile, with not less than 30 feet except off the inlets where the shore should be given a berth of at least 1.5 miles. This coast is characterized by sandy beaches and summer resorts at the eastern end, and amusement parks and densely settled communities at the western end.

(6) The shoreline is broken by three prominent and navigable inlets which lead to the inland waterway along the south shore of Long Island. Fire Island Inlet is at the eastern extremity, and its entrance is marked by lights and buoys. Jones Inlet is about 12 miles to the west of Fire Island Inlet. The entrance is prominently indicated by the 202-foot lighted tower at Jones Beach on the eastern side and by an elevated tank at Point Lookout on the west side of the inlet. Jones Beach State Park is on the east side of the inlet; a lighted tower in the park is a conspicuous landmark.

(7) East Rockaway Inlet, about 8 miles westward of Jones Inlet, is the extreme western entrance to the inland waterway. The inlet entrance is marked by a breakwater with a light on its seaward end. The shoreline between the two inlets is closely built up with large communities. Elevated tanks, towers, and other tall structures are prominent in this area.

(8) A fish haven is about 2 miles offshore midway between East Rockaway Inlet and Rockaway Point.

(9) **Rockaway Point**, 17 miles westward of Jones Inlet, is the southwestern extremity of Long Island and the eastern entrance to New York Lower Bay. A breakwater, marked at its seaward end by a light, extends southward from the point. Rockaway Inlet forms a large deep entrance to Jamaica Bay.

(10) **Ambrose Light** (40°27.0'N., 73°48.0'W.), 76 feet above the water and off the entrance to New York Harbor, is shown from a red tower on a square red deck house on three steel pilings with a large center tube worded "AMBROSE" in white letters; a fog signal and a radar beacon (Racon) are at the light.

(11) **Sandy Hook**, the southern entrance point to New York Harbor, is low and sandy. A Coast Guard station, a radar tower, and a radio tower are near the northern extremity of Sandy Hook. The towers and a large green standpipe to the southeast are the most prominent objects on the northern end of Sandy Hook. Southward of the standpipe are several houses and **Sandy Hook Light**

Airphoto - Jim Wark

NEW YORK CITY (Lower Manhatten and Hudson River)

(40°27'42"N., 74°00'07"W.), 88 feet above the water and shown from a white stone tower, 85 feet high. This light, established in 1764, is the oldest in continuous use in the United States.

(12) The most prominent landmark southward of the entrance to New York Harbor is the high wooded ridge forming the **Highlands of Navesink**. A tall condominium on the ridge and a microwave tower at Atlantic Highlands to the west are also prominent. The brownstone towers of the abandoned Navesink Lighthouse on the easternmost spur of the highlands are 73 feet above the ground and about 246 feet above the water. The northerly tower is octagonal, and the southerly tower is square. A private seasonal light is shown from the northerly tower.

COLREGS Demarcation Lines

(13) The lines established for New York Harbor are described in **80.165,** chapter 2.

(14) **Soundings** will be found most useful to warn vessels of too close an approach to the shore in approaching New York Harbor. Many vessels have been wrecked on the coast of New Jersey and Long Island through failure to take frequent soundings when the position was uncertain. Depth is a better indication of position off this part of the coast than the character of the bottom, as the same characteristics may be found in widely different positions. A frequent use of soundings and close study of the charts will always give sufficient warning of danger. If a vessel is not certain of her position, the depth should not be shoaled to less than 15 fathoms on the south coast of Long Island eastward of Fire Island Light, or 11 fathoms between Fire Island Light and Barnegat Lighted Horn Buoy B, or 9 fathoms southward of Barnegat Lighted Horn Buoy B.

(15) From the position of the two shores relative to each other and to the entrance to New York Harbor it follows that a course of 215° will deepen the water if the vessel is on the Long Island side of the approach and will shoal if she is off the New Jersey coast. A course of 035° will deepen the water if the vessel is off the New Jersey side of the approach and will shoal if she is off the Long Island coast.

(16) Eastward of Fire Island Light the water shoals quite rapidly toward the Long Island shore, but inside a line drawn from Nantucket Traffic Lane Lighted Horn Buoy NA to Barnegat Lighted Horn Buoy B, there is no marked difference in the soundings as either shore is approached except in Mud Gorge.

(17) Modern surveys show the existence of a canyon, evidently cut by the Hudson River in prehistoric days,

Airphoto - Jim Wark

NEW YORK CITY (Lower Manhatten and East River)

across the Continental Shelf, extending about 120 miles southeastward from off Sandy Hook. The inshore section is called the **Mud Gorge** and the offshore section the **Hudson Canyon**. In some sections of this cut the depths are considerably greater than those adjacent to it and the walls are very steep. The use of soundings permits a very accurate determination of a ship's position by the comparison of the soundings with the depth curves on the charts. The bottom of the Mud Gorge is usually of mud; on both sides of it sand predominates.

(18) **Cholera Bank**, about 10 miles southeastward of Ambrose Light, is about 2 miles long in an east-west direction and has a least depth of 10 fathoms. The bank is raised very little above the general level of the bottom, however, because the bottom is rocky in character, soundings will give useful indications in thick or foggy weather. During the summer numerous vessels may be seen on this bank.

Caution

(19) Telegraphic companies report serious interruptions of international telegraphic communications resulting from repeated breaking of their cables by vessels anchoring southeastward and eastward of Ambrose Light. The companies state that they will be glad to compensate any vessel, which, having fouled the cable, cuts away its anchor and chain in order to save the cable from interruption. Vessels making New York in thick weather and finding it necessary to anchor before entering Ambrose Channel should anchor in the area southward of Scotland Lighted Whistle Buoy S (40°26'33"N., 73°55'01"W.) and westward of the meridian passing through Ambrose Light.

Tides

(20) The mean range of tide at Sandy Hook is 4.7 feet. (See the Tide Tables for daily tide predictions.)

Currents

(21) The important currents affecting navigation in the approach to New York Harbor are those due to winds. The largest velocity likely to occur under storm conditions is about 1.5 knots. A sudden reversal in the direction of the wind produces a corresponding change in the current, either diminishing or augmenting the velocity. Sustained winds do not maintain the currents at the maximum velocities. The velocity is about 0.2 knots at Ambrose Light. The largest velocity likely to occur is 2 knots.

(22) Between Nantucket and Cape May away from the immediate vicinity of the shore, the tidal currents are generally rotary. They shift direction, usually

clockwise, at an average rate of about 30° an hour, and have velocities generally less than 0.3 knot except in the vicinities of the entrances to the larger inland waterways where the velocities increase as the entrances are approached. For a considerable distance from the inlets, strengths of flood and ebb set respectively toward and away from those entrances, and minimums of velocity, corresponding to the slacks of reversing currents, set at right angles to the direction of flood and ebb strengths.

(23) Offshore and away from the influence of the tidal flow into and out of the larger bays, the tidal current maintains an approximately uniform velocity. Shifting its direction continuously to the right, it sets all directions of the compass during each tidal cycle of 12.4 hours. (See the Tidal Current Tables for the predicted times and velocities of the tidal currents at a number of locations in the coastal waters.)

(24) Between Nantucket Island and Sandy Hook there is a general drift of the sea south-southwestward. The average velocity of this movement is about 0.1 knot.

(25) Approaching New York Harbor from the vicinity of Nantucket Shoals Lighted Horn Buoy N, a slight allowance should be made for a southwesterly set of the current. With an easterly wind it is customary to allow, in order to make the course good, a set of the current with it of at least 0.5 knot.

(26) The effect of the wind on the current should always be considered. The largest velocities likely to occur during storms are 2.5 knots about 3 miles northward of Nantucket Shoals Lighted Horn Buoy N and 1.5 knots 3 miles north of Nantucket Traffic Lane Lighted Horn Buoy NA and off Five Fathom Bank.

(27) Between Gay Head and Montauk Point the tidal currents set northward on the flood and southward on the ebb. The estimated velocity at strength where the depth is about 25 fathoms is 0.5 knot; closer inshore and near the entrance this velocity increases.

(28) Three miles north of Nantucket Traffic Lane Lighted Horn Buoy NA the tidal currents have a mean velocity at strength of about 0.2 knot in a westward direction on the flood and an eastward direction on the ebb.

Weather, New York Harbor and approaches

(29) Winds play an important role by affecting currents in the harbor. During the winter west and northwest winds prevail with northerlies and southwesterlies in secondary roles. The strongest winds are out of the west through northwest at 13 to 15 knots, from January through April. The sheltering effect of the land is apparent when looking at frequencies of winds of 28 knots or more. They blow at Ambrose Light about 8 to 9 percent of the time compared to 1 percent at Kennedy Airport and Floyd Bennett Field. Summer winds are often out of the south and southwest with a 10 to 12 knot afternoon peak. Fog in the harbor area is more closely related to land type fogs. In winter it is common on clear, calm mornings and more frequent than at Ambrose Light. Southerlies can also bring winter fogs of the advection type. During the spring and early summer the harbor as well as its approaches are susceptible to advection fog, riding in on east through south winds. A morning peak still exists in the harbor, while Ambrose Light exhibits an afternoon maximum.

North Atlantic Right Whales

(30) Endangered North Atlantic right whales may occur within the approaches to New York Harbor within 25-30 nautical miles of the New York and New Jersey coasts, (peak season: February through April and September and October). (See **North Atlantic right whale**s, indexed as such in chapter 3).

(31) **Information about the coast south of Sandy Hook is contained in United States Coast Pilot 3, Atlantic Coast, Sandy Hook to Cape Henry.**

Charts 12326, 12327, 12401, 12402

(32) **New York Harbor** is the principal entrance by water to New York City and the surrounding ports. The harbor is divided by The Narrows into Lower Bay and Upper Bay. **The Battery,** the southern tip of Manhattan, is at the junction of East River and Hudson River. The main channel from the sea to the deepwater terminals in Hudson River has a project depth of 45 feet.

(33) **Traffic Separation Scheme Off New York** has been established in the approaches to New York Harbor from sea. (See charts 12300 and 12326.) (See also **167.1 through 167.155**, chapter 2, for limits and regulations.)

(34) (See Traffic Separation Schemes, chapter 1, for additional information, and chapter 3 for a discussion of North Atlantic Lane Routes.)

Pilot Boat Cruising Area, New York Harbor

(35) The pilot boat maintains station in the triangle-shaped cruising area west of Ambrose Light. See Pilotage, New York Harbor and Approaches (indexed as such), this chapter.

Caution

(36) Numerous fishing floats have been reported in the approach to New York Harbor in the Traffic Separation Scheme precautionary area.

(37) **Shipping safety fairways** have been established connecting the eastern approach off Ambrose of Traffic Separation Scheme Off New York and the eastern approach off Nantucket of Traffic Separation Scheme Off New York. (See **166.100 through 166.500**, chapter 2, for limits and regulations.)

Vessel Traffic Service, New York

(38) New York Harbor has a **Vessel Traffic Service.** (See **§161.1 through §161.25**, chapter 2, for regulations.)

(39) **Recommended minimum under-keel clearance for selected areas of the Harbor Safety, Navigation and Operations Committee of the Port of New York and New Jersey.–**In order to prevent groundings and to promote the safety and environmental security of the waterway resources of the Port of New York and New Jersey, the **Harbor Operations Committee of the Port of New York and New Jersey** recommends that all entities responsible for the safe movement of vessels in and through the waters of the Port of New York and New Jersey operate vessels in such a manner as to maintain a minimum clearance of two feet between the deepest draft of their vessel and channel bottom in the following named channels:

(40) ***Lower Bay:***

(41) 1) Ambrose Channel (3 ft minimum under-keel clearance due to wave and sea action)

(42) 2) Sandy Hook Channel

(43) 3) Chapel Hill Channel

(44) ***Upper Bay:***

(45) 1) Anchorage Channel (The Narrows to The Battery)

(46) 2) Bay Ridge Channel

(47) 3) Red Hook Channel

(48) 4) Buttermilk Channel

(49) ***North River:***

(50) 1) The Battery to 79th Street

(51) ***East River:***

(52) 1) The Battery to Throgs Neck Bridge

(53) ***Kill Van Kull:***

(54) 1) Constable Hook Reach

(55) 2) Bergen Point Reach

(56) 3) North of Shooters Island Reach

(57) 4) Elizabethport Reach

(58) ***Newark Bay:***

(59) 1) Newark Bay Reach - Bergen Point to Droyers Point

(60) ***Hackensack River:***

(61) 1) Droyers Point to the turning basin at Marion

(62) ***Passaic River:***

(63) 1) Kearney Point

(64) ***Arthur Kill:***

(65) 1) Gulfport Reach

(66) 2) Pralls Island Reach

(67) 3) Tremley Point Reach

(68) 4) Fresh Kills Reach

(69) 5) Port Reading Reach

(70) 6) Port Socony Reach

(71) 7) Outer Bridge Reach

(72) ***Raritan Bay:***

(73) 1) Raritan Bay West Reach

(74) 2) Raritan Bay East Reach

(75) 3) Seguine Point Bend

(76) 4) Red Bank Reach

(77) 5) Ward Point Reach

(78) A recommended standard of "always afloat" will apply to all other areas, including berths, in the Port District that abut the above listed channels. Ship related factors such as squat, turning heel and other dynamic motions should be considered and, if expected, added to this figure to insure a minimum clearance of two feet will be maintained throughout a given transit.

Conformance

(79) The owner, master, or person in charge of each vessel has the ultimate responsibility for maintaining this minimum recommended under-keel clearance. Additionally, persons directing the movement of vessels share this responsibility and are expected to advise owners, operators and persons in charge of vessels if, in their judgement, a vessel is not in conformance with these standards.

(80) In order to assist the owner, master or person in charge in evaluating under-keel clearance at the berth the **Harbor Safety, Navigation and Operations Committee of the Port of New York and New Jersey** has compiled information including available depths and survey dates for all Terminals in the Port District. This booklet (to be updated annually) is available through the Maritime Association of the Port of New York and New Jersey via telephone (212) 425-5704.

(81) If at any time a vessel's under-keel clearance is not in conformance with this recommendation and owners, masters, or other in charge of the vessel desire to proceed against the pilots recommendation, pilots are urged to report this to the USCG Captain of the Port via VTS New York. Through VTS New York, the COTP will foster communications between the concerned parties in effort to arrive at agreed upon conditions for safe vessel passage.

(82) It should be recognized that there may be instances when the master, pilot and COTP evaluate a situation and agree that a vessel movement can be made safely even though inconsistent with this recommendation. Such movements may be allowed and should be coordinated through VTS NY so as to insure the transit of the vessel in question can be assisted as appropriate.

(83) If at any time VTS NY believes a proposed vessel transit may not conform, to this recommendation, they will request an assessment be conducted prior to granting a vessel permission to transit within the VTS NY Area. This assessment process will include a review of real-time water level information from the **P.O.R.T.S.®**.

(84) **Physical Oceanographic Real-Time System (P.O.R.T.S.®)** is an information acquisition and dissemination technology developed by the National Ocean Service, NOAA. The Port of New York and New Jersey Physical Oceanographic Real-Time System can be contacted via telephone (728) 815-9668/9684 or the Internet at: **http://www.co-ops.nos.noaa.gov.**

(85) Also to be considered are the vessel's intended track including particular areas of inadequate water depth with the pilots plan for their avoidance, any other local conditions which might further restrict vessel movement, as well as special traffic routing measures that might be required. If VTS NY deems this assessment to be necessary, the VTS Watch Officer will request on VHF-FM that the pilot contact VTS via land-line or cellular telephone. Discussion on under-keel clearance plans shall not be conducted on VHF-FM. It is in the best interest of all parties to insure situations of marginal under-keel clearance are identified and thoroughly discussed well prior to a vessel's underway time. These guidelines were adopted by the Harbor Operations Committee on 20 September 1995 and became effective 1 January 1996.

Traffic in New York Harbor

(86) In the East River between the Brooklyn Bridge and Poorhouse Flats Range, shallow-draft vessels customarily keep to the west (Manhattan) side of the channel whether northbound or southbound, thereby reserving the east (Brooklyn) side of the channel for deep-draft vessels. Vessels transiting East River should be aware of this practice and anticipate northbound shallow-draft vessels crossing from east to west in the vicinity of **Corlears Hook**, and from west to east in the vicinity of Newtown Creek.

(87) The New York City Bureau of Marine and Aviation ferries generally follow a prescribed route between The Battery and **St. George** on Staten Island, placing them to the extreme right-hand side of the channel. All mariners are strongly encouraged not to transit close aboard of the ferry slips at The Battery and St. George due to ferries maneuvering.

Channels

(88) **Ambrose Channel**, the principal entrance, extends from the sea to deep water in Lower Bay. Thence, **Anchorage Channel**, an extension of Ambrose Channel leads through Upper Bay to The Battery. **Hudson River Channel** continues northward from The Battery for about 5 miles to West 59th Street, Manhattan. Project depth for these channels is 45 feet.

(89) In addition to the usual aids, Ambrose Channel in its outer portion is also marked by **West Bank Light**, shown from a brown conical tower on a black cylindrical pier, in range with **Staten Island Light**, which is shown from a light-colored octagonal brick tower on a gray limestone base on the high ground of Staten Island at Richmond.

(90) **Lower Bay** is that part of New York Harbor extending from Sandy Hook westward to Raritan River and northward to The Narrows.

Local magnetic disturbance

(91) Differences of as much as 5° from the normal variation have been reported in Lower Bay in the vicinity of 40°29.6'N., 74°04.2'W.

(92) **Sandy Hook Channel**, project depth 35 feet, provides a secondary route from the sea to deep water in Lower Bay; it connects with **Raritan Bay Channel** to the westward, **Chapel Hill Channel** to the north, and **Terminal Channel** to the south. Chapel Hill Channel has a project depth of 30 feet. The entrance to Sandy Hook Channel is marked by Scotland Lighted Horn Buoy S, equipped with a radar beacon (Racon). The channels are well marked with navigational aids. (See Notice to Mariners and the latest editions of charts for controlling depths.)

(93) **Swash Channel**, a natural buoyed passage between Ambrose Channel and Sandy Hook Channel, has a controlling depth of 18 feet, but care is necessary to avoid spots with a least depth of 13 feet near the sides of the channel and a spot cleared to a depth of 14 feet in about the middle of the channel. A lighted range, the rear marker of which is Staten Island Light, leads on a bearing of **305°** to the junction with Chapel Hill Channel.

(94) **False Hook Channel**, along and close to the eastern shore of Sandy Hook, joins Sandy Hook Channel eastward of the north end of Sandy Hook. The channel has depths of 9 to over 20 feet. Strangers should not use the channel.

(95) **Fourteen Foot Channel** enters Lower Bay just north of Ambrose Channel. The channel has a depth of about 13 feet and is unmarked.

Anchorages

(96) General, explosives, naval, and special anchorages have been prescribed for the Port of New York by Federal Regulations. (See **110.1, 110.60,** and **110.155,** chapter 2, for limits and regulations.)

(97) Vessels are especially cautioned against anchoring in the vicinity of the pipeline and cable areas as shown

on the charts. The pipeline area across The Narrows supplies the water for Staten Island. Extensive cable areas are in the vicinity of Governors Island, The Battery, and Ellis Island. (See also chart 12334.)

Dangers

(98) There are five shoal areas in the entrance to New York Harbor which are subject to change in depths and should be avoided by strangers. **False Hook**, off the northeastern side of Sandy Hook, has depths of 4 to 18 feet. **Flynns Knoll**, between Swash, Sandy Hook, and Chapel Hill Channels, has depths of 9 to 18 feet. **Romer Shoal**, between Ambrose and Swash Channels, has depths of 4 to 15 feet and is marked by Romer Shoal Light; a fog signal is sounded from the light station. **East Bank**, northward and eastward of Ambrose Channel, has depths of 5 to 15 feet. **West Bank**, westward of Ambrose Channel between West Bank (Range Front) Light and Fort Wadsworth, has depths from bare to 20 feet. Buoys mark the eastern extremity of West Bank.

(99) The tip of Sandy Hook is changeable, and the area around it is subject to severe shoaling; caution should be exercised in the area.

(100) Mariners are cautioned to maintain a sharp lookout for floating debris in the harbor and channels.

Tides

(101) The mean range of tide in New York Harbor is 4.7 feet at Sandy Hook and 4.6 feet at The Battery. Daily predictions for both places are given in the Tide Tables.

Currents

(102) The flood current entering Lower Bay from the sea attains a velocity of about 2 knots in Ambrose Channel entrance, near the outer extremities of Sandy Hook, Coney Island, and The Narrows. It sets generally parallel to the lower straight section of Ambrose Channel and tends to continue to that direction where the channel bends toward The Narrows, setting more or less diagonally across the upper straight section of Ambrose Channel. At the beginning of the flood, the current sets in at the bottom and near the shores while it is still ebbing at the surface in Ambrose Channel.

(103) The ebb in Lower Bay is generally stronger than the flood by 10 percent or more. At its strength it sets from The Narrows approximately parallel to the upper straight end of the lower straight section.

(104) In the channel northward of Governors Island, cross currents may be encountered. During the first 2 hours of flood in this channel (eastward), the current in Hudson River is still ebbing (southward). In the first 1.5 hours of ebb (westward) in the channel north of Governors Island, the current in Hudson River is still flooding (northward). At such times large vessels must take special care in navigating the channel. It is reported that the most dangerous time is about 2 hours after high water at The Battery. At this time the current is setting north in the Hudson River and westward from the East River. The effect on a large vessel coming from southward and turning into the East River is to throw her stern to port and her bow to starboard, thus causing a sheer to starboard toward the shoals off the north end of Governors Island. When coming from northward in the Hudson River the same effect tends to prevent the vessel from turning and to cause her to overrun her course. These cross currents are known locally as **The Spider**.

(105) At the seaward end of Ambrose Channel the velocity of the flood current is 1.7 knots and of the ebb current 2.3 knots.

(106) When the ebb is strong the currents in both Ambrose and Swash Channels tend to set toward Romer Shoal. Caution should be maintained to prevent being set onto Romer Shoal when using either channel. On the flood and especially with a westerly wind, caution should be exercised to prevent being set onto Romer Shoal when using Swash Channel.

(107) In The Narrows the velocity of the flood current is about 1.7 knots and of the ebb current 2 knots. (See Tidal Current Tables for the daily predictions of slack water and strength of current.)

(108) In the entrance to Hudson River the velocity of the flood and ebb currents is 1.4 knots. Off Grants Tomb, the flood and ebb strengths are 1.6 and 1.9 knots, respectively.

(109) In October 1991, tidal currents in The Narrows, Arthur Kill, Kill Van Kull, and Hell Gate were reported to deviate significantly from official predictions published by the National Ocean Service. Mariners should exercise caution and discretion in the use of published tidal current predictions for these locations. Also, previously available Tidal Current Charts for New York Harbor have been withdrawn.

Ice

(110) Navigation of the channels in the Port of New York and New Jersey is not restricted by ice. The main channels do not freeze over, and any ice in the smaller waterways is well broken up by tugs and general traffic. Freshwater ice is brought down the Hudson River in large floes during periods of thaws or winter freshets. Occasionally there are large accumulations of ice at Spuyten Duyvil where Harlem River joins the Hudson, and at such times it is difficult for low-powered vessels or tows to make much headway. Under conditions of strong winds the slips on the exposed side of the channel become packed with drift ice, causing difficulty when maneuvering in the slip or when berthing.

During extremely severe winters navigation is interfered with seriously for only short periods of time.

Weather, New York and vicinity

(111) New York City, an area exceeding 300 square statute miles (777 square km), is located on the Atlantic coastal plain at the mouth of the Hudson River. The terrain is flat and diversified by numerous waterways; all but one of the city's five boroughs are situated on islands. Elevations range from less than 50 feet (15.2 m) over most of Manhattan, Brooklyn, and Queens to almost 300 feet (91.4 m) in the northern part of Manhattan and the Bronx, and over 400 feet (122 m) in Richmond (Staten Island).

(112) Despite its nearness to the ocean and the numerous bays and rivers nearby, New York City has a climate which more closely resembles the continental type of climate than it does the maritime type. Its modified continental climate follows from the fact that weather conditions affecting the city usually approach from a westerly direction and not from the ocean on the east. Some important exceptions to this must be noted, since the oceanic influence is by no means entirely absent. During the summer, local "sea breezes," winds blowing onshore from the cool water surface often moderate the afternoon heat; and most often in winter, coastal storms, accompanied by easterly winds, produce, on occasion, considerable amounts of precipitation.

(113) From November through April the prevailing winds are from the northwest; for the remainder of the year the prevailing winds are southwesterly. Gales with velocities of 35 knots or more are predominately from the northwest.

(114) At New York/Kennedy the average annual temperature is 54°F (12.2°C). The average high is 61°F (16.1°C) and the average low is 47°F (8.3°C). July is the warmest month with an average high of 83°F (28°C) and an average low of 69°F (20.6°C). January is the coolest month with an average high of 39°F (3.9°C) and an average low of 26°F (-3.3°C). The warmest temperature on record for New York/Kennedy is 104°F (40°C) recorded in July 1966 and the coldest temperature on record is -2°F (-18.9°C) recorded in January 1985. On average, ten days each year record high temperatures in excess of 90°F (32.2°C) and 78 days record minimum temperatures below 32°F (0°C). An average of only one day each year has an extreme minimum below 5°F (-15°C).

(115) Precipitation is both moderate and distributed evenly throughout the year with a spread of only 1.06 inches (28 mm) between the wettest and driest months. May is the wettest month with an average precipitation total of 3.92 inches (991 mm) and February the driest with 2.86 inches (74 mm). Average annual precipitation is about 41 inches (1041 mm). Most of the rainfall from June through September comes from thunderstorms, therefore, is usually of brief duration, but relatively intense. Thunderstorm days average 24 each year. From October to April, however, precipitation is generally associated with widespread storm areas, so that day-long rain or snow is common.

(116) Snow falls an average 30 days each year and averages 22 inches (559 mm) in any given year. The snowiest month is February with an average of eight inches (203 mm). Snow has fallen in each month, October through April. The greatest 24-hour total snowfall was 20 inches (508 mm) which fell in February 1969.

(117) Tropical storms have influenced the area fourteen times since 1871. Most recently, Hurricane Gloria passed within 20 nautical miles east of the Kennedy airport in September 1985. Gloria had winds approaching 75 knots at time of landfall, about halfway between Kennedy airport and Islip. Only two days earlier, Gloria was a more respectable 125-knot hurricane.

(118) The National Weather Service maintains several offices in New York where **barometers** can be compared. (See appendix for addresses.)

(119) (See page T-8 for **New York City climatological table.**)

Pilotage, New York Harbor and Approaches

(120) Foreign vessels and U.S. vessels under register entering or departing from the Port of New York and New Jersey must employ a pilot licensed by the State of New York or New Jersey. Enrolled vessels must have on board or employ a pilot licensed by the Federal Government.

(121) Pilotage service for vessels entering the Port of New York and New Jersey through Lower Bay and intra-harbor movements is available from the United New York New Jersey Sandy Hook Pilot Association, 201 Edgewater Street, Staten Island, NY 10305, telephone 718 448-3900, FAX 718 876-8055 e–mail: pilotoffice@sandyhookpilots.com.

(122) The pilot boat maintains station in the triangular-shaped cruising area west of Ambrose Light. All traffic passes through a precautionary area transiting to the pilot station and most vessels choose to approach the pilot station triangle by passing to the south of Ambrose Light. Traffic within the precautionary area may consist of vessels making the transition between operating in Ambrose or Sandy Hook Channel and one of the traffic lanes. Mariners are advised to exercise extreme care in navigating within this area. The pilot boats have a black hull and white superstructure, with the name PILOT NO. 1 or PILOT NO. 2 in yellow on each side; and fly a blue flag. A pilot boat is always on

station; boarding is made from a smaller boat. The pilot boat monitors VHF-FM channels 16, 13, and 73; works on 73.

(123) Pilot services are arranged in advance through ships' agents. A 24-hour advance notice of ETA, with a 3-hour update is requested. Vessel arrival is reported to the Maritime Exchange in New York by the pilots.

(124) Pilotage for these waters for U.S. enrolled vessels in coastwise trade is also available from the Interport Pilots Agency, Port Monmouth, NJ 07758-0236; telephone 800-346-4877 or 908-787-5554 (24 hours), cable PORTPILOTS Port Monmouth, NJ. The Interport Pilots office monitors VHF-FM channels 16 and 65A, during business hours, Monday through Friday. Pilot boats are KEN JOHNSON, 47 feet long with blue hull and white superstructure, and the word PILOT displayed in blue letters on the forward side of the house; and pilot boat INTERPORT, 40 feet long with the same colors. The pilot boats monitor VHF-FM channel 13 and 16, 2 hours prior to vessels scheduled ETA, and work on channel 65A. Vessels are generally boarded in the charted, designated pilot area, outlined by a triangular magenta band west of Ambrose Light. Arrangements for pilot services are made in advance through ship's agents or directly to Interport Pilots Agency, Inc.

Pilotage, New York Harbor from Long Island Sound

(125) Foreign vessels and U.S. vessels under register entering or departing from the Port of New York and New Jersey from Long Island Sound must employ a pilot licensed by the State of New York. Enrolled vessels must have on board or employ a pilot licensed by the Federal Government. Pilotage service for vessels entering the Port of New York and New Jersey from Long Island Sound is available from the United New York New Jersey Sandy Hook Pilot Association (see above). The pilot boat boarding area is off Execution Rocks. The pilot boat ties up at a pier on the east side of City Island about 0.4 mile northward of Belden Point. The pilot station, on the pier, and the pilot boat monitor VHF-FM channel 13 when vessels are scheduled to arrive. The 48-foot pilot boat has a black hull with the word PILOT in red letters on each side of the house. Arrangements for pilots are made in advance either directly by the vessel or through ships' agents. Notification is mandatory 24 hours prior to arrival and ETA updates are required 12 and 6 hours prior to arrival.

(126) Masters of vessels entering the Port of New York and New Jersey are requested, prior to the time of boarding, to contact the pilot boat to ascertain a proper boarding speed, make a lee for the pilot boat, and have a pilot ladder over the side about 1 meter above the water.

(127) Pilotage for U.S. enrolled vessels in the coastwise trade is available from the United New York New Jersey Sandy Hook Pilot Association (see above) and Interport Pilots Agency, Inc., P.O. Box 236, Port Monmouth, NJ 07758; telephone 800-346-4877, FAX 908-787-5538, Cable PORTPILOTS. One pilot boat is the INTERPORT, 45-foot, with blue hull and white superstructure, with PILOT in blue letters on the forward side of the house. KEN JOHNSON is 45-foot in length, same colors. The pilot boat monitors channels 13 and 65A; works channel 65A. Pilot boarding area is about 1.5 miles southeast of Scotland Lighted Horn Buoy S.

Pilotage, Hudson River

(128) See Pilotage, Hudson River (indexed as such), chapter 12.

Towage

(129) The Port of New York and New Jersey has several towing companies with radio-equipped tugs with over 4,000 hp. Arrangements for tugs are usually made in advance by ships' agents. Fireboats are stationed throughout the harbor.

(130) New York is a **customs port of entry** and the headquarters of the **Regional Commissioner.**

Quarantine, customs, immigration, and agricultural quarantine

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

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

Coast Guard

(133) A Coast Guard station is at Rosebank on Staten Island. A **Captain of the Port** office and **Marine Inspection Office** are at **Fort Wadsworth,** Staten Island.

Harbor regulations

(134) The administration of the Port of New York and New Jersey and the enforcement of its laws are vested in no single body, but are divided among various departments of the Federal, State, and Municipal Governments.

Speed

(135) The Coast Guard desires to warn masters and pilots of all types of vessels that possible action may result against their licenses and criminal procedures may be exercised, when the wash of a vessel proceeding at excessive speed in confined waters endangers life, limb, or property. Damage to vessels moored at docks and terminals has been reported. The parting of a mooring

line may cause a serious oil fire or damage to pipelines or barges which are being loaded or discharged at chemical and petroleum company terminals. Damage caused by excessive speed may also lead to a possible suit by the injured party against owners, masters, or pilots for monetary recovery.

(136) The **New York City Department of Ports and Terminals** administers the piers along the New York waterfront within the city limits. The office is at The Battery Maritime Building.

(137) The **Port Authority of New York and New Jersey** is an executive body appointed by the Governors of New York and New Jersey. The Authority's Port Department serves as a bistate port development, operations, maintenance, and promotion organization. The Port Authority administers piers in Manhattan, Brooklyn, Hoboken, Port Newark, and Port Elizabeth. The office of the Authority is at the 233 Park Avenue South, New York, NY 10003.

Wharves

(138) The Port of New York and New Jersey has over 1,100 waterfront facilities. Most of these facilities are privately owned and operated, and the rest are owned or operated by either the railroads serving the port, the Port Authority of New York and New Jersey, the City of New York, the States of New York and New Jersey, the Federal Government, or other municipalities.

(139) The major steamship passenger terminal, the New York City Passenger Ship Terminal, is along the east side of the Hudson River (North River) above The Battery. Containership terminals are throughout the port, but principally at Elizabeth, Newark, Jersey City, and Weehawken, N.J. Other containership facilities are at Howland Hook, Staten Island, and Brooklyn. Breakbulk general cargo terminals are throughout the port but principally along the east side of Upper New York Bay, on the East River, and at Port Newark. Petroleum and other liquid cargo facilities are along Arthur Kill, on the Passaic and Hackensack Rivers, and along Newtown Creek, Brooklyn.

(140) General cargo in the port is usually handled to and from vessels by ship's tackle. Heavy lifts up to 500 tons, floating cranes up to 500 tons, and derricks are available in port. Most of the waterfront facilities throughout the port have highway and railroad connections.

(141) The wharves and piers of New York City along the waterfronts of the Hudson and East Rivers are numbered beginning at The Battery and follow in sequence eastward along the East River and northward along the Hudson River. For a complete description of the waterfront facilities throughout the Port of New York and New Jersey refer to Port Series No. 5, published and sold by the U.S. Army Corps of Engineers. (See appendix for address.)

Supplies

(142) Provisions and supplies of all kinds are available in the Port of New York and New Jersey. All grades of heavy marine bunker fuel, lubricants, and diesel fuel can be obtained. Large vessels are usually bunkered at their berths by tank barges or self-propelled tankers. Water is available at most of the piers and wharves.

Repairs

(143) The Port of New York and New Jersey has extensive facilities for making all types of repairs to vessels of all sizes. The shipyards at Brooklyn, Hoboken, Staten Island, Queens, and Perth Amboy can drydock some of the largest ocean-going vessels, and can make major repairs to hull, electronic equipment, machinery, and propulsion plants. Also within the port area, a number of firms without waterfront facilities are engaged in various types of marine repair work. These firms maintain ships and portable equipment for making above-waterline repairs and for installation of equipment, gear, and machinery on all types of craft at berth. Several salvage companies also perform all types of salvage work.

(144) The largest floating drydock, east of Red Hook Channel and on the east side of Erie Basin, has a lifting capacity of 16,000 tons, an overall length of 580 feet, a maximum clear inside width of 100 feet, and a depth of 28 feet over the keel blocks. The largest graving dock is on the east side of Wallabout Bay at the site of the former New York Naval Shipyard. The dock has a clear length of 1,092 feet, clear gate width of 143 feet, top and bottom inside widths of 150 feet, and 34 feet over the keel blocks; cranes to 200 tons are available. The largest marine railway, on the east side of East Mill Basin in Jamaica Bay, can handle vessels up to 300 tons of 120 feet long.

Communications

(145) The Port of New York and New Jersey is served by three trunkline and one short-line railroads, numerous trucking firms engaged in long- and short-haul freight service, and several bus companies. Over 100 steamship companies connect the port with the principal U.S. and foreign ports.

(146) Three major airports, John F. Kennedy (New York) International, La Guardia, and Newark, provide frequent scheduled service between New York and domestic and overseas points.

Airphoto - Jim Wark

ROCKAWAY INLET

Chart 12350

(147) **Rockaway Inlet** the entrance to Jamaica Bay, is between **Rockaway Point** on the southeast side and **Manhattan Beach** and **Barren Island** on the north side. The inlet is obstructed by a shifting sandbar. A jetty, marked near the outer end by a light, extends south from Rockaway Point. The entrance channel extends westward of the jetty and is marked by lighted and unlighted buoys. The channel has depths of about 15 feet or more at midchannel. A shoal with depths of less than 1 foot and marked by breakers is west of the entrance channel. Obstructions at the entrance to the inlet are: covered 22 feet about 0.6 mile south-southwest of the jetty light in about 40°31'55"N., 73°57'00"W.; covered 20 feet about 0.5 mile south-southeast of the jetty light in about 40°31'55"N., 73°56'11"W.; covered 19 feet about 0.6 mile south-southeast of the jetty light in about 40°31'55"N., 73°56'00"W.; covered 15 feet about 0.3 mile southwest of the jetty light in about 40°32'15"N., 73°56'48"W.; and covered 19 feet about 0.3 mile south of the jetty light in about 40°32'08"N., 73°56'27"W.

(148) There are two sunken wrecks farther inside the inlet; the first in 40°34'09"N., 73°53'56"W., about 0.6 mile westward of the Gil Hodges Memorial Bridge, has 15- and 9-foot depths immediately westward and southward, respectively, from it; the second is in 40°34'30"N., 73°52'30"W., about 0.4 mile eastward of the bridge.

(149) In July 1980, shoaling to about 3 feet was reported in the inlet about 1.75 miles west of the Gil Hodges Memorial Bridge in about 40°34'21"N., 73°55'29.5"W.

(150) **Gil Hodges Memorial (Marine Parkway) Bridge,** crossing Rockaway Inlet between Rockaway Point and Barren Island, has a vertical lift span with a clearance of 55 feet down and 152 feet up. The bridgetender monitors VHF-FM channel 13 (156.65 MHz); call sign, KIL–819. (See **117.1 through 117.59 and 117.795**, chapter 2, for drawbridge regulations.) **Rockaway Coast Guard Station** is just west of the bridge on Rockaway Point.

(151) The mean range of **tide** at Rockaway Inlet is about 5 feet. In the entrance channel near Rockaway Point the **tidal current** has a velocity of about 2.2 knots. The ebb attains a greater velocity than the flood and probably exceeds 3 knots at times. In August 1975, a strong east-to-west current, believed to have been the result of tidal flow, was observed at the entrance to Rockaway Inlet near the seaward end of the jetty. This current is of

sufficient strength to cause a vessel to veer suddenly off course when entering or exiting the channel. South of Barren Island the velocity is about 2 knots; east of Barren Island it is about 1.5 knots. (See Tidal Current Tables for predictions.)

(152) **Jamaica Bay** is on the south shore of Long Island about 15 miles southeastward of The Battery, New York City. The bay is characterized by numerous meadows, hassocks, and marshes. The north and east shores are bordered by marshlands which extend inland for a short distance. Several small tidal creeks enter the bay from the north. Channels and basins have been dredged to project depths of 12 to 20 feet for use of craft operating in the bay. Rockaway Beach forms the south shore. The bay is about 7 miles long and 3.5 miles wide, and covers an area of about 22.5 square miles. The greater portion of the bay is in the Boroughs of Brooklyn and Queens, New York City, and a small section of the eastern extremity, consisting of parts of Motts Basin and Head of Bay, is in Nassau County.

(153) **Special anchorages** are in Jamaica Bay. (See **110.1, and 110.60 (s) and (s–1),** chapter 2, for limits and regulations.)

(154) The commercial vessel traffic in Jamaica Bay consists of motor tankers, barges, and tugs. The bay is used extensively by pleasure craft.

(155) Jamaica Bay has excellent transportation facilities. Highways connect with all of Long Island and New York City, and a branch of the New York City subway system crosses the central part of the bay and extends eastward and westward along the Rockaway peninsula with stations at Far Rockaway and Inwood serving the Motts Basin area.

(156) **Ice** is a problem in Jamaica Bay, mainly in the tributaries and basins, from early January to about mid-March.

(157) **Sheepshead Bay**, on the northern side of the eastern extremity of Coney Island and northward of **Manhattan Beach**, is well protected and is used by numerous pleasure and party fishing craft. The entrance channel is marked by buoys. In June 2002, the channel had a depth of 6 feet except for shoaling to 3.7 feet along the west edge of the channel, just north of Buoy 7. In July 2002, depths of 7 to 9 feet were available inside the bay to the bridge near the head of navigation except for shoaling to 2 feet along the edges. A private light marks the outer limit of an sewer outfall that extends southward from the bay.

Anchorages

(158) Special anchorages are in Sheepshead Bay. (See **110.1 and 110.60(x),** chapter 2, for limits and regulations.)

Small-craft facility

(159) A small-craft facility in the bay can handle craft to 1½ tons. Berths, electricity, gasoline, diesel fuel, water, ice, marine supplies, storage, and engine repairs are available.

(160) **Plumb Beach Channel**, northward of Rockaway Inlet, is the common approach to **Gerritsen Inlet**, **Shell Bank Creek**, Gerritsen Creek, and Mill Creek. A fixed highway bridge with a clearance of 35 feet crosses the inlet. The channel is marked by buoys. It was reported that with local knowledge a depth of 12 feet can be carried at midchannel through the channel and inlet to the head of Shell Bank Creek. Mariners are advised to follow the buoys through the inlet closely, as a reported shoal area with a least depth of 2½ feet is about 0.1 mile southeastward of Plumb Beach Channel Buoy 7 and a reported obstruction is 0.3 mile eastward of the buoy.

(161) From the highway bridge over Gerritsen Inlet, Shell Bank Creek leads westerly and **Gerritsen Creek** and **Mill Creek** lead northwesterly. There are dangerous pilings and remains of old barges along the south side of Shell Bank Creek, and several submerged wrecks in Gerritsen and Mill Creeks. The fixed highway bridge over Mill Creek is in ruins; mariners are advised to exercise caution in this area as some parts of the bridge structure have fallen into the water and are an obstruction to navigation.

Small-craft facilities

(162) Small-craft facilities on Shell Bank Creek can provide berths with electricity, gasoline, diesel fuel, water, ice, marine supplies, lifts to 60 tons, and a 90-foot marine railway; complete hull and engine repairs are available.

(163) **Dead Horse Bay** makes into the southwest side of Barren Island eastward of the highway bridge across Gerritsen Inlet. A marina, on the north side of the bay, has berths and moorings.

(164) **Island Channel** leads northerly from just eastward of Barren Island to Bergen Beach, thence northeasterly in **North Channel** to Howard Beach. In March-April 1998, depths of about 12 feet can be carried to Howard Beach. The channels are marked by lighted and unlighted buoys.

(165) **Big Fishkill Channel** and **Pumpkin Patch Channel** lead in a northeasterly direction from Runway Channel just west of **Ruffle Bar** and joins North Channel 0.3 mile west of the North Channel Bridge at Howard Beach.

(166) **Mill Basin** is northward of Barren Island on the west side of Jamaica Bay. Commercial traffic in the basin consists of occasional barge shipments of

petroleum. In May 1981, a reported depth of 13 feet could be taken to the north end of the basin.

Small-craft facilities

(167) Small-craft facilities in the basin can provide berths with electricity, gasoline, water, ice, marine supplies, and complete hull and engine repairs; a 50-ton marine railway and lifts to 20 tons are available.

(168) The Shore Parkway bascule highway bridge with a clearance of 34 feet crosses Mill Basin between Barren Island and Brooklyn. (See **117.1 through 117.59 and 117.795**, chapter 2, for drawbridge regulations.) The bridgetender monitors VHF-FM channel 13; call sign KX–8185. Mariners are requested to avoid causing bridge openings during peak commuter hours of 0700 to 0900 and 1600 to 1800 Monday through Friday.

(169) **East Mill Basin** is about 0.4 mile northeastward of Mill Basin. In May 1981, a reported midchannel depth of 13 feet could be taken to the head of the basin. Small-craft facilities in the basin can provide berths with electricity, water, marine supplies, a 15-ton forklift, and marine railways to 300 tons; complete hull and engine repairs are available.

(170) **Bergen Beach** is a community about 2 miles north of Barren Island. **Paerdegat Basin**, just north of Bergen Beach, has a midchannel depth of about 11 feet. A fixed highway bridge across the basin near the mouth has a clearance of 29 feet. A marina at the head of the basin can haul out craft up to 15 tons. Gasoline, marine supplies, water, and engine and hull repairs are available. In May 1981, a reported depth of 8 feet could be taken to the marina. Several yacht clubs are also in the basin.

(171) **Canarsie**, a town on the northwestern shore of Jamaica Bay, is a part of New York City. Canarsie Pier, on the northwest shore of Jamaica Bay between Paerdegat Basin and Fresh Creek, has two prominent flagpoles near its center. The pier is structurally unsafe, and landing is not permitted. The pier is a part of Gateway National Recreation Area.

(172) **Fresh Creek**, 0.6 mile northeastward of the pier at Canarsie, has a midchannel depth of about 8 feet. A highway bridge across the creek near the entrance has a 43-foot fixed span with a clearance of 21 feet. **Hendrix Creek**, 0.4 mile northeastward of Fresh Creek, is the site of a sewage treatment plant. **Old Mill Creek**, 1.1 miles northeastward of Fresh Creek, bares at low water just above the entrance. Fresh, Hendrix, and Old Mill Creeks were little used in 1971.

(173) **Howard Beach**, about 2.5 miles eastward of Canarsie, on the north side of Jamaica Bay, has several basins for boats. North Channel Bridge, just south of Howard Beach, has a fixed span with a clearance of 26 feet.

(174) **Shellbank Basin**, extending northward about 1 mile from North Channel and just west of Howard Beach, had a reported controlling depth of 5 feet in May 1981. The basin has numerous small piers, float landings, and other **small-craft facilities** along the west side. Berths with electricity, water, a 15-ton lift, and complete hull and engine repairs are available. The bascule span of a former highway bridge across the basin has been permanently removed leaving a channel width of 40 feet.

(175) **Hawtree Basin**, about 0.2 mile eastward of Shellbank Basin, has a depth of about 11 feet. A fixed pedestrian bridge, about 0.3 mile above the mouth, has a clearance of 17 feet.

(176) A railroad bridge across North Channel, at **Hamilton Beach**, 0.5 mile east of the North Channel Bridge, has a fixed span with a clearance of 26 feet.

(177) **Rockaway Beach** is a popular summer resort on the barrier beach forming the southern extremity of Jamaica Bay. Train and bus transportation is available to New York City. Excursion boats operate between New York and Rockaway Beach during the summer only. Berths, electricity, gasoline, water, ice, limited supplies, storage, a 100-foot marine railway, and a 12-ton lift are available at Rockaway Beach in **Vernam Basin**, about 0.7 mile northeastward of Cross Bay Memorial Bridge. Hull and engine repair facilities are also available.

(178) **Beach Channel** is on the north side of Rockaway Beach. A Federal project provides for a channel 18 feet deep from Rockaway Inlet to about 700 yards above Gil Hodges Memorial Bridge, thence 15 feet deep to the junction with Grass Hassock Channel. In March-April 1998, the controlling depth was 18 feet to the junction of Island Channel and Beach Channel, thence 13 feet (15 feet at midchannel) to Grass Hassock Channel. The north draw of the railroad swing bridge about 3.8 miles above Gil Hodges Memorial Bridge had 15 feet and the south draw 13 feet.

(179) A **056°–236° measured nautical mile** is along the south shore of Jamaica Bay parallel with the concrete and wood flood barrier of Beach Channel Drive southward of **Nova Scotia Bar**. The structures are maintained by the Brooklyn Power Squadron; the front markers are black and yellow chevrons, and the rear markers are orange squares.

(180) Cross Bay Memorial Bridge, crossing Beach Channel at Rockaway Beach, has a fixed span with a clearance of 52 feet. The railroad bridge over Beach Channel, 0.5 mile eastward, has a swing span with a clearance of 26 feet. (See **117.1 through 117.49**, chapter 2, for drawbridge regulations.) **East Broad Channel** is blocked off by the railroad trestle of this bridge.

(181) **Winhole Channel**, a natural channel marked by buoys, seasonal lights, and a daybeacon, extends 1 mile northward to Grassy Bay from the junction of Beach Channel with Grass Hassock Channel. Winhole Channel has a least depth of about 11 feet, except for reported shoaling to 4 feet extending into the channel northeast from Winhole Channel Light 3 in about 40°36.8'N., 73°48.4'W. Winhole Channel Shoal Daybeacon marks the center of a shoal near the north end of the channel. The daybeacon should not be passed close aboard. A lighted buoy marks the junction of Beach, Grass Hassock, and Winhole Channels.

(182) **Grass Hassock Channel** joins Beach Channel off **Brant Point** and continues in a northeasterly direction to Head of Bay. In March-April 1998, the controlling depth was 12 feet (15 feet at midchannel). The shallowest water is abeam Brant Point between Buoy 14 and Buoy 16 and at the junction with Negro Bar Channel in the vicinity of Lighted Buoy 23.

(183) **Sommerville Basin**, about 1.2 miles eastward of the railroad bridge at Rockaway Beach, has depths of 27 to 40 feet inside. In May 1981, depths of about 15 feet were reported in the approach. Several charted sunken wrecks are in the basin. A boatyard at the head of the basin has berths, electricity, gasoline, water, ice, limited marine supplies, storage facilities, a launching ramp, a 45-foot marine railway, and a 7-ton mobile hoist; engine and hull repairs can be made.

(184) **Motts Basin**, a tidal inlet in the eastern part of Jamaica Bay, entered through **Negro Bar Channel**, partially separates the communities of **Inwood** and **Far Rockaway**. Two branch channels lead from inside the entrance to the northeasterly and southeasterly ends of the basin. In March-April 1998, the controlling depth was 10 feet (15 feet at midchannel) in the entrance channel, thence 11 feet (15 feet at midchannel) in the northeastern branch, thence 9 feet (15 feet at midchannel) in the southeastern branch to just below the head of each channel. **Ice** may obstruct vessel movement in the basin during severe winters.

(185) Overhead power cables across Motts Basin have the following clearances: one over the northerly arm, 70 feet; two over the southerly arm, least clearance 92 feet; and one over the cut on the south side of the southerly arm, 60 feet. A retractable boom is on the south shore of the basin about 90 yards northwest of the overhead cable tower. A light is shown from the boom when it is extended into the water.

(186) Depths alongside the wharves in Motts Basin range from 10 to 20 feet. Waterborne commerce in the basin is chiefly in petroleum products.

(187) **Head of Bay** joins Grass Hassock Channel near **Northwest Point** and extends in a northeasterly direction on the south side of **John F. Kennedy (New York) International Airport.** Depths of about 15 feet are in the entrance channel and channel in the bay; aids mark the channels. In May 1981, it was reported that a draft of 15 feet could be taken to the oil piers at **Uncle Daniels Point** at high water. Several small marinas in the bay can provide berths, electricity, water, ice, marine supplies, storage facilities, and a launching ramp; minor engine and hull repairs can be made.

(188) **Thurston Basin,** at the northeastern extremity of Head of Bay, has reported depths of 10 feet at the entrance decreasing to 2 feet at the head.

(189) **Grassy Bay**, along the southwestern side of John F. Kennedy (New York) International Airport in the northeastern part of Jamaica Bay, is blocked at the southeastern end by an airport runway. The runway continues into the marshlands on the southerly side of the bay.

(190) **Bergen Basin**, at the northern extremity of Grassy Bay, has depths of about 15 feet with lesser depths in the eastern arm of the basin. The entrance is marked by buoys. Conspicuous are a yellow brick circular tank about 40 feet high on the southwestern side of the entrance and the numerous oil storage tanks at the head of the basin on the eastern shore. Coastal tankers and sand-and-gravel barge tows account for most of the commerce in the basin. In January 1988, a sunken wreck was reported in the eastern arm of the basin in about 40°39.7'N., 73°49.1'W.

Chart 12402

(191) **Coney Island**, on the northern side of the entrance to New York Harbor, is a large summer amusement resort. Numerous stacks, towers, and amusement rides, including a red steel parachute tower 303 feet high, are prominent on the island. **Coney Island Light** (40°34.6'N., 74°00.7'W.), 75 feet above the water, is shown from a white square skeleton tower on **Norton Point**, the westernmost extremity of the island.

(192) **Coney Island Channel** is a buoyed passage along the south side of Coney Island that leads from deep water in Lower Bay to Rockaway Inlet. In July 2002, the controlling depth was 11.7 feet. It is used principally by vessels going to Jamaica Bay and Coney Island.

(193) **Gravesend Bay**, northward of Coney Island, affords good anchorage in depths of 11 to 50 feet. A **general anchorage** is in the bay. (See **110.1 and 110.155(e),** chapter 2, for limits and regulations.) The southeasterly part of the bay is shoal with depths of 1 to 6 feet.

(194) **Coney Island Creek** is at the southeastern end of Gravesend Bay and on the north side of Coney Island. Commercial traffic on the creek consists mainly of occasional barge shipments of sand and gravel. The area

Airphoto - Jim Wark

THE NARROWS (Verrazanno Narrows Bridge)

northward of the entrance to the creek is being filled, and piling is along the northern side of the creek at the filling site. Numerous obstructions and wrecks are in the creek. In February 1991, depths of about 9 feet were available to just below the Cropsey Avenue bridge, about 1 mile above the entrance, but local knowledge is required to carry the best water, thence shoaling to bare to a point about 0.2 mile above the Cropsey Avenue bridge. The creek is crossed by four fixed bridges having a least clearance of 2 feet. A boatyard about 0.8 mile above the creek entrance provides berths, electricity, gasoline, water, ice, storage, marine supplies, and hull and engine repairs. Lifts to 14 tons are available. In May 1981, a reported depth of 4 feet could be carried to the boatyard.

(195) A buoyed channel with a least depth of 10 feet leads from deep water northward of Coney Island to off the docks in the eastern part of Gravesend Bay.

Small-craft facility

(196) A small-craft facility on Gravesend Bay can provide berths, electricity, gasoline, diesel fuel, water, ice, storage, marine supplies, and hull and engine repairs. Lifts up to 30 tons are available. In May 1981, a reported depth of 15 feet could be carried to the marina.

Charts 12334, 12402, 12327

(197) **The Narrows**, connecting Lower Bay and Upper Bay of New York Harbor, has a clear width of over 0.6 mile at its narrowest point between Fort Wadsworth and Fort Hamilton. The **Verrazano Narrows Bridge**, a fixed suspension span, crosses The Narrows at these two points linking Staten Island with Brooklyn. The bridge has a vertical clearance of 215 feet for a midchannel width of 2,000 feet. **Note:** A traveling maintenance platform, when in operation, reduces the vertical clearances by 15 feet. A fog signal is sounded from the eastern end of the bridge.

(198) Coast Guard Station New York, numerous deep-draft piers, and ferry terminals are on the east side of Staten Island between Fort Wadsworth and St. George.

(199) **Upper Bay** is that portion of New York Harbor between The Narrows and The Battery. **Anchorage Channel**, marked by lighted buoys, is the main passage through the middle of the bay. **Bay Ridge Flats** is a shoal area with depths of 8 to 20 feet east of Anchorage Channel. **Gowanus Flats** is at the north end of Bay Ridge Flats. **Jersey Flats**, the area on the New Jersey side west of Anchorage Channel, is much shoaler with

depths up to 9 feet. Channels have been dredged through these shoal areas to provide access to the piers on both sides of the bay.

Channels

(200) **Bay Ridge Channel**, **Red Hook Channel**, and **Buttermilk Channel** follow the Brooklyn piers from The Narrows to East River. Midchannel depths in these channels are generally 35 to 40 feet with lesser depths on the sides; see the latest chart for guidance. Caution should be exercised when docking and undocking vessels along the southeasterly side of Bay Ridge Channel because the current may flow in a direction opposite to the normal channel flow, especially between the piers.

(201) **Gowanus Bay**, at the junction of Bay Ridge and Red Hook Channels, is a bight in the Brooklyn shore at the mouth of **Gowanus Canal**. A dredged channel leads from Gowanus Bay to the Hamilton Avenue Bridge, about 1 mile above the mouth of the bay. In April 1990, the controlling depths were 21 feet (25 feet at midchannel) to Sigourney Street, about 0.15 mile below the head of the project, thence 22 feet to the Hamilton Avenue Bridge.

(202) The improved section of Gowanus Canal above Hamilton Avenue has depths of about 8 to 12 feet. The Third Street, Carroll Street, and Union Street bridges across the canal have the following minimum clearances: drawbridges, 3 feet; fixed bridges, 90 feet. The fixed bridge across that part of the canal which extends southward along Fifth Street has a clearance of 20 feet. (See **117.1 through 117.59 and 117.787**, chapter 2, for drawbridge regulations.)

(203) The Hamilton Avenue and Ninth Street drawbridges, 1 and 1.2 miles above the entrance of Gowanus Bay, respectively, are equipped with radiotelephones. The bridgetenders monitor VHF-FM channel 13; call signs KX–8183 and KX–8186, respectively.

(204) **Erie Basin**, just north of Gowanus Bay, is entered from the Red Hook Channel. The basin has drydock and repair facilities for vessels. A graving dock here can handle vessels up to 550 feet in length and 26 to 28 feet in draft; cranes to 50 tons are available. A floating drydock in the basin has a lifting capacity of 16,000 tons, length of 580 feet, a clear inside width of 100 feet, and a depth of 28 feet over the blocks. The entrance is marked by a light and the basin is marked by private lighted and unlighted buoys.

(205) **East River** is a 14-mile-long tidal strait that connects Upper Bay with Long Island Sound. For description of East River and the route to New York Harbor from Long Island Sound, see East River (indexed as such), chapter 9.

(206) **Governors Island** is at the Upper Bay entrance to East River. **Fort Jay** is on the northern part of the island, and **Castle William** is on its northeast side. The main channel is westward of the island. Lights and fog signals are near the southern tip and on the northwest side of the island. The hexagonal shaped structure of Fort Jay is prominent on the northeast side.

(207) **Liberty Island**, on the eastern part of Jersey Flats across the main channel from Governors Island, is marked by the **Statue of Liberty**, a colossal structure more than 305 feet high; the figure faces southeastward. In January 1998, the channel leading to the pier on the west side of the island had a controlling depth of 13 feet, with depths of 11 feet along the northwestern and eastern edges of the dredged area near the pier.

(208) **Robbins Reef Light** (40°39.4'N., 74°04.0'W.), 56 feet above the water, is shown from a conical tower, with the lower half brown and the upper half white, on the southeastern part of Jersey Flats.

(209) **Pierhead Channel** leads from the main channel about 0.7 mile southward of Liberty Island, thence along the New Jersey pierhead line to Kill Van Kull. The channel, through connecting branch channels, leads to the Caven Point Pier, Claremont Terminal, the ConRail car float facility, and Global Terminal Wharf. In February-March 1999, the controlling depths were 6½ feet (7½ feet at midchannel) to a line connecting Buoy 4 and the southeast end of Caven Point Pier, just north of Claremont Terminal Channel, thence 11 feet (14 feet at midchannel) to Buoy 16, thence 13 feet (18 feet at midchannel) to Kill Van Kull except for shoaling to 3½ feet off of the eastern end of Global Marine Terminal. The Military Ocean Terminal, to the south of Global Terminal Wharf, can also be reached through a channel northward of Robbins Reef Light. The channels are well marked with navigational aids. Note that the buoyage system changes southward of Military Ocean Terminal.

Charts 12327, 12401

(210) **Sandy Hook Bay** is the southern part of Lower Bay, westward of Sandy Hook and eastward of Point Comfort. The bay is an excellent anchorage, the depths of water ranging from 30 feet just inside Sandy Hook to 15 feet near its southern part; the shoaling is gradual and the bottom is good holding ground. In 1983, shoaling to depths of 14 to 17 feet was reported on a line from Sandy Hook Point Obstruction Buoy 1 to the mouth of Shrewsbury River. The best anchorage during easterly and southeasterly winds is in the eastern part of the bay. Vessels of more than 24-foot draft will not find good anchorage out of the channel until above Fort Wadsworth. Extensive shoals make off northward and

Airphoto - Jim Wark

SANDY HOOK

eastward from Point Comfort, but as the depths of water decrease gradually, soundings will give sufficient warning of too close an approach to the shore. Shallow-draft vessels can reportedly find satisfactory anchorage in **Horseshoe Cove**, on the east side of the bay. In August 1999, the spit of land that forms Horseshoe Cove was reported visible only at extreme low water. Shoals extend an additional 200 yards southeastward from the end of the charted spit to about 40°26.7'N., 73°59.9'W. Mariners are cautioned not to navigate over this finger of land. Heavy fish traps extend out to a depth of 20 feet in places on the shoals on the southwest side of Sandy Hook Bay between Atlantic Highlands and Point Comfort.

(211) A **110°**-290° measured nautical mile is on the south side of Sandy Hook Bay off the Municipal Yacht Basin. The private range markers are reported to be difficult to identify.

(212) **Sandy Hook**, the southern point at the entrance to New York Harbor and the northern point of the New Jersey coast, is low and sandy. The hook, including Plum Island at the mouth of the Shrewsbury River, is part of Gateway National Recreation Area. Large areas of the park are bird nesting areas, and landing is not permitted. A light, **Sandy Hook Coast Guard Station**, a standpipe, a radar tower, and a radio tower on the north end of Sandy Hook are prominent. The area around Sandy Hook is changeable and subject to severe shoaling; extreme caution is advised.

Charts 12325, 12324

(213) **Shrewsbury River** and **Navesink River** empty through a common entrance into the southern extremity of Sandy Hook Bay eastward of the Highlands of Navesink.

(214) A Federal project provides depths of 12 feet from Sandy Hook Bay to a point just above the bascule bridge at Highlands, thence 9 feet in Shrewsbury River to the Branchport Avenue Bridge at Long Branch, about 7.4 miles above the mouth. The Navesink River has a project depth of 6 feet from where it connects with the Shrewsbury River to the head of the project at Red Bank, about 4.9 miles above the mouth. (See Notice to Mariners and the latest editions of charts for controlling depths.)

(215) In December 1992, shoaling to bare was reported in the vicinity of Oceanic Bridge in the Navesink River.

Airphoto - Jim Wark

SHREWSBURY RIVER & NAVESINK RIVER

Caution

(216) All cables within the area in about 40°24.2'N., 73°59.0'W., in Shrewsbury River have been abandoned. Mariners are cautioned that the cables remain in place.

Tides

(217) The mean range of tide is as follows: Highlands, 3.8 feet; Red Bank, 3 feet; Sea Bright, 1.7 feet; Branchport, 1.7 feet. Strong southerly and westerly winds lower the water surface, and northerly and easterly winds raise it.

Currents

(218) At Highlands bridge, the currents have a velocity of about 2.6 knots. At Sea Bright bridge the velocity is about 1.6 knots.

Ice

(219) Navigation in Shrewsbury and Navesink Rivers is generally suspended because of ice from December to March, inclusive.

Supplies

(220) Gasoline, lubricants, marine supplies, and provisions can be obtained at most of the towns along the shores of the Shrewsbury and Navesink Rivers.

Communications

(221) Railroad, ferry, or bus connects with New York to points on the New Jersey coast.

(222) **Highlands** is a summer resort on the west side of Shrewsbury River 1.5 miles inside the entrance. There are good small-craft facilities here. (See the small-craft facilities tabulation on chart 12324 for services and supplies available.)

(223) The railroad bridge across Shrewsbury River at Highlands is in ruins; caution is advised. The State Route 36 highway bridge (Highlands Bridge) 100 yards above the railroad bridge has a bascule span with a clearance of 35 feet. (See **117.1 through 117.59 and 117.755**, chapter 2, for drawbridge regulations.) The fender system from the center pier of the railroad bridge to the east side of the highway bascule opening is continuous. The east side of the river northward of the bridge and the west side 0.3 mile southward of the bridges are used as anchorages for small craft.

(224) Caution should be exercised at the junction of the Shrewsbury and Navesink Rivers, about 0.6 mile southward of the State Route 36 highway bridge at Highlands, to avoid the submerged stone jetty. Craft entering Navesink River should pass westward of the

Airphoto - Jim Wark

SHREWSBURY RIVER

lighted junction buoy. The submerged jetty is marked by three seasonal buoys.

(225) The State Route 520 highway bridge (Sea Bright Bridge) over Shrewsbury River between **Rumson** and **Sea Bright** has a bascule span with a clearance of 15 feet at the abutment. (See **117.1 through 117.59 and 117.755**, chapter 2, for drawbridge regulations.)

(226) There are numerous **small-craft facilities** at Sea Bright. (See the small-craft facilities tabulation on chart 12324 for services and supplies available.)

(227) **Pleasure Bay**, at the southeast end of Shrewsbury River, is crossed by a fixed highway bridge with a clearance of 25 feet. **Branchport** is a small town on the east side of Pleasure Bay at the head of navigation.

(228) There are numerous **small-craft facilities** in Pleasure Bay. (See the small-craft facilities tabulation on chart 12324 for services and supplies available.)

(229) The privately dredged and marked channels in **Little Silver Creek, Town Creek, Oceanport Creek, Parker Creek**, and **Blackberry Creek** had controlling depths of about 5 feet in 1965-67.

(230) A fixed highway bridge with a clearance of 24 feet crosses the westerly part of Shrewsbury River, just eastward of its junction with Parker and Oceanport Creeks.

(231) The tributaries that empty into the southeasterly and southwesterly sides of Shrewsbury River are crossed by bridges with the following clearances: **Manhassett Creek**, fixed highway, 6 feet; **Troutmans Creek**, fixed highway, 6 feet; Oceanport Creek, Conrail railroad (Oceanport Bridge) with swing span, 4 feet; and Parker Creek, fixed railroad, 4 feet. (See **117.1 through 117.59 and 117.736**, chapter 2, for drawbridge regulations.)

(232) The channel in Navesink River is crooked but well marked by seasonal buoys. The Oceanic highway bridge across the river between Rumson and **Locust Point** has a bascule span with a clearance of 22 feet. (See **117.1 through 117.59 and 117.734** for drawbridge regulations.)

(233) **Rumson** is a town on the south side about 1.7 miles above the entrance to Navesink River. Small-craft facilities just west of the bridge at Rumson can provide berths, electricity, gasoline, water, ice, and storage. Hull and engine repairs can be made, and a 7-ton mobile hoist is available. In May 1981, a reported depth of 5 feet could be carried to the boatyards.

(234) **Fair Haven** is on the south side of Navesink River about 1 mile above the bridge at Rumson. A boatyard and two yacht clubs are at Fair Haven. The boatyard can provide berths, electricity, gasoline, water, ice, storage, marine supplies, and hull, engine, and radio repairs; lifts to 15 tons are available. In June-September 1987, a

reported depth of about 7 feet could be taken to the boatyard.

(235) **Red Bank**, a town near the head of navigation on the Navesink River, has several **small-craft facilities.** (See the small-craft facilities tabulation on chart 12324 for services and supplies available.) The town has railroad connections with New York.

(236) The dredged channel that extends for 1.5 miles above the landings at Red Bank had a reported midchannel controlling depth of 2 feet to the second highway bridge, and thence less than 1 foot for the rest of the dredged section in 1985. The channel is privately marked by buoys and stakes. The Route 35 highway bridge crosses the river 4.8 miles above the mouth and has a fixed span with a clearance of 12 feet. A railroad bridge crosses the river 450 yards southwest of the Route 35 bridge and has a fixed span with a clearance of 9 feet.

Charts 12327, 12401, 12402

(237) **Atlantic Highlands** is a town on the south side of Sandy Hook Bay about 2 miles west of Sandy Hook. A breakwater, marked by a light at its eastern end, forms an anchorage basin. In June 2002, depths of 4.9 to 8 feet were available in the basin. The entrance to the basin is marked by a private **270°** lighted range. Small-craft facilities in the basin can provide berths, electricity, gasoline, diesel fuel, water, ice, storage, marine supplies, launching ramps, pump-out station and hull and engine repair; mobile lifts up to 50 tons are available. The basin is used by numerous pleasure and party fishing craft. Numerous piles and ruins of former wharves are westward of the basin.

(238) **Terminal Channel**, entered from Sandy Hook Channel about 1 mile west-southwestward of Sandy Hook, leads south-southwestward to a turning basin and to two deepwater ammunition handling piers of the U.S. Naval Ammunition Depot at **Leonardo**, N.J., a town on the south side of Sandy Hook Bay. Federal project depth is 35 feet in the channel and turning basin. (See Notice to Mariners and latest editions of the charts for controlling depths.) The channel is marked by a private **207°30'** lighted range and by lighted and unlighted buoys. A dredged and marked side channel leads southward from the southeastern end of the turning basin to an ammunition barge-loading pier; depths of about 11 feet can be carried to and alongside the pier. The deepwater piers and barge pier are connected to the shore by a trestle that extends 1.6 miles across the flats from Leonardo. The waters adjacent to the piers and trestle are **prohibited** to navigation. (See **110.155 (f) (1),** chapter 2, for rules and regulations.)

(239) **Security zones** have been established in the vicinity of the U.S. Naval Ammunition Depot and Terminal Channel. (See **165.1 through 165.7, 165.30, 165.33, and 165.130,** chapter 2, for limits and regulations.)

(240) A **restricted area** surrounds Terminal Channel, turning basin, and piers of the U.S. Naval Ammunition Depot. (See **334.1 through 334.6 and 334.102**, chapter 2, for limits and regulations.)

(241) A dredged channel, about 0.4 mile eastward of the trestle at Leonardo, leads southward from Sandy Hook Bay to the entrance and basin of a State marina. In November 2003, the controlling depths were 1.1 feet (3.5 feet at midchannel) to the breakwater; thence in 1991-June 2002, 2.2 feet at midchannel to the basin; thence in 1983, a reported depth of 6 feet was in the basin. The channel is marked by private aids to navigation.

(242) Berths, electricity, and water are available in the basin. A boatyard with a 45-foot marine railway is about 0.5 mile eastward of the boat basin; complete hull and engine repairs can be made.

(243) **Compton Creek**, 4 miles westward of Sandy Hook, is used extensively as a harbor of refuge by small fishing craft. The creek is entered through a dredged channel that leads from Sandy Hook Bay, thence through **Belford (Shoal) Harbor,** and thence to about 0.4 mile above the mouth. In September 2003, the midchannel controlling depth was 9.6 feet to the turn in the channel at 40°26'02"N., 74°04'47"W., thence 3.5 feet to the head of the project. The entrance channel is marked by a private **199°** lighted range, a lighted buoy, and unlighted buoys. The creek is navigable by small boats for 1 mile to a railroad bridge. Several fixed bridges over the creek have a minimum clearance of 2 feet. A seasonal auxiliary marine police station is on the east side of the creek.

(244) A boatyard is on the south side of Compton Creek about 0.45 mile above the mouth. Marine supplies, hull and engine repair facilities, and a 90-foot marine railway are available. A town dock, supervised by a dockmaster, is just downriver of the boatyard.

(245) **Port Monmouth**, a village at the head of Compton Creek, is a shipping point for fresh fish, shellfish, and inedible animal products. Several private landings and a town landing are available.

(246) **Pews Creek,** about 1 mile northwest of Compton Creek, is marked at the entrance by a private light. In May 1981, it was reported that 3½ feet could be carried to a marina in the creek. Berths with electricity, gasoline, water, ice, marine supplies, a pump-out station, storage, a 15-ton lift, a 40-foot marine railway, and hull and engine repairs are available. A highway bridge crosses the creek about 0.2 mile above the mouth and has a 31-foot fixed span with a clearance of 12 feet.

(247) **Staten Island** forms the northwest side of Lower Bay. The high wooded ridge of the island has elevations of 100 to over 400 feet. **South Beach** and **Midland Beach** are summer resorts and amusement areas on the southeast side of the island.

(248) **Staten Island Flats** are extensive shoals making off from the southeast side of Staten Island. Parts of these flats are **Old Orchard Shoal** and **West Bank,** which border on the main channel up the bay. **Hoffman Island** and **Swinburne Island** (see also chart 12349), artificial islands on West Bank, are part of Gateway National Recreation Area; landing is not permitted. A channel, used by local vessels of less than 8-foot draft, leads westward of West Bank. From the gong buoy 0.6 mile southward of Fort Wadsworth, steer southwestward through the dredged channel and then steer a course for Old Orchard Shoal Light.

Charts 12331, 12327

(249) **Raritan Bay** is that part of Lower Bay lying westward of Point Comfort and southward of Staten Island. The bay is full of shoals with depths of 7 to 18 feet.

Channels

(250) A Federal project provides for a 35-foot channel extending through Lower Bay, the northern part of Raritan Bay, to the junction with Arthur Kill. (See Notice to Mariners and latest editions of the charts for controlling depths.)

Anchorages

(251) General anchorages are in Raritan Bay. (See **110.1 and 110.155 (j)** chapter 2, for limits and regulations.)

Tides

(252) The mean range of tide in Raritan Bay is about 5 feet.

Ice

(253) In ordinary winters ice does not seriously interfere with navigation in Raritan River or Arthur Kill, but in severe winters the ice sometimes prevents the movements of vessels for periods of 2 weeks at a time. In easterly winds the drift ice in Lower Bay collects in Raritan Bay and obstructs navigation, but usually only for a short time, as the prevailing westerly winds drive the ice out of the bay.

Pilotage, Raritan River and Arthur Kill

(254) Pilotage for ports in the States of New York and New Jersey is compulsory for foreign vessels and U.S. vessels under register. Pilotage for vessels bound for Perth Amboy, South Amboy, or up the Raritan River and Arthur Kill is available from the United New York New Jersey Sandy Hook Pilot Association. Pilotage is also available from the Interport Pilots Agency, Inc. See Pilotage, New York Harbor and Approaches (indexed as such) earlier this chapter.

Towage

(255) Tugs are used by the larger vessels and are available in New York. (See Towage, New York Harbor, discussed earlier in this chapter.)

(256) **Customs, quarantine, immigration, and agricultural quarantine** inspections are discussed earlier in this chapter under New York Harbor.

Supplies

(257) Water can be had at most of the wharves in Perth Amboy and South Amboy. Provisions and marine supplies can be had at Perth Amboy, Tottenville, New Brunswick, and South Amboy.

Chart 12331

(258) **Great Kills Harbor**, a shallow bight on the south side of Staten Island northwestward of Old Orchard Shoal Light, is used as an anchorage by small craft. The harbor is entered through a dredged channel that leads from deep water in Lower New York Bay along the southwesterly side of **Crookes Point,** thence along the westerly side of the harbor to the head. In September 2000, the controlling depths were 4 feet in the left half with shoaling to bare in the right half of the entrance channel to the mouth of the harbor, thence 10 feet in the harbor channel to the head of the project. The channel is marked by buoys and a light. **Great Kills Light** (40°31.3'N., 74°07.9'W.), 35 feet above the water, is shown from a skeleton tower with a red and white diamond-shaped daymark on a red concrete base east of the channel entrance.

Anchorage

(259) A **special anchorage** is in Great Kills Harbor. (See **110.1** and **110.6 (r-1),** chapter 2, for limits and regulations.)

(260) **Great Kills**, on the west side of Great Kills Harbor, has several small-craft facilities with berths, electricity, gasoline, diesel fuel, water, ice, storage, and marine supplies. A public launching ramp is located in the northeast corner of the harbor.

(261) **Lemon Creek**, 0.2 mile westward of Seguine Point, is a narrow shallow stream used only by local boats which enter at high water. The midchannel controlling

depth over the bar is about 2 feet with deeper water inside. The abutment of a former bridge is on the south side of the creek just inside the mouth. Overhead power cables crossing the creek at the bridge abutment have a clearance of 47 feet.

(262) A small marina on the creek can haul out craft up to 8 tons for minor engine and hull repairs; berths, electricity, water, ice, and outside storage are available.

(263) A prominent tower of a former lighthouse with a statue on top is on the south side of Staten Island, 0.8 mile westward of Seguine Point. Prominent buildings are near the point at **Red Bank**, 0.3 mile southwestward of the tower.

(264) **Keansburg**, on **Point Comfort** on the south side of Raritan Bay, is a summer resort. The wharves on the west side of Point Comfort are in ruins and no longer used.

(265) A **special anchorage** is adjacent to the amusement pier. (See **110.1 and 110.6 (z)**, for limits and regulations.)

(266) **Waackaack Creek** and **Thorns Creek,** about 0.6 mile southwest of Point Comfort, have a common entrance protected by floodgates. The gates are lowered, thereby closing the harbor, when tides above 4½ feet are sustained for a period of time. An overhead power cable with a clearance of 32 feet crosses the creek entrance at the floodgates. Small-craft facilities on Thorns Creek provide berths, electricity, ice, water, gasoline, marine supplies, and a 20-ton forklift and a 12-ton mobile hoist for hull and engine repairs. In May 1982, the channels into the creeks were reported dredged to 7 feet.

(267) **Keyport Harbor**, 3 miles westward of Point Comfort, is a shallow harbor on the south side of Raritan Bay between **Conaskonk Point** and **Matawan Point**. A buoyed approach channel leads southward from the bay to a dredged marked channel that leads through the harbor to the mouth of Matawan Creek. In August 2003, the dredged channel had a controlling depth of 4.8 feet (6.0 feet at midchannel).

(268) **Matawan Creek**, entered at the head of Keyport Harbor, is used mostly by local craft. In December 2003, the controlling depth was 4.0 feet to the first highway bridge, thence 2.6 feet to the Route 35 highway bridge, thence in 1981, 2 feet to shoaling to bare was reported to the railroad bridge about 1.5 miles above the mouth. Greater depths are available with local knowledge. (See chart 12327.) Three fixed bridges, one railroad and two highway, cross the creek; least clearances are 49 feet horizontal and 6 feet vertical. Least clearance of overhead power cables crossing the creek is 54 feet.

(269) **Keyport** is a town on the east side of the entrance to Matawan Creek.

Small-craft facilities

(270) There are several small-craft facilities on Matawan Creek and on the southeast side of Keyport Harbor at Keyport. Berths with electricity, gasoline, diesel fuel, water, ice, marine supplies, sewage pump-out, lifts to 30 tons, marine railways to 40 feet, and complete hull and engine repairs are available. Vessels proceed to the small-craft facilities at Keyport at high water.

Tide

(271) The mean range of **tide** is about 5 feet.

(272) A privately dredged channel, about 25 feet wide in places, leads about 0.3 mile southwesterly from the mouth of Matawan Creek to a marina basin at the entrance to **Luppatatong Creek.** In May 1981, a reported depth of 4 feet was available to the marina.

(273) **Cheesequake Creek** and **Stump Creek**, sharing a common entrance and leading southwesterly and southeasterly, respectively, are on the south side of Raritan Bay 6 miles westward of Point Comfort. The entrance is between two stone jetties. The east jetty is awash at high water. The outer ends of jetties are marked by a light. A dredged channel leads between the jetties to the Conrail railroad bridge about 0.3 mile above the jetties. In September 2003, the controlling depth was 5 feet, except an extensive severe shoal that bares gradually from about midchannel to the lower half of the east jetty. In 1987, the reported controlling depth was 3½ feet in Stump Creek. The mean range of **tide** is about 5 feet.

(274) Local boats from Lower Bay usually head for a point about 1.6 miles east-northeastward of the jetties, and then shape a course to enter between the jetties at the entrance to Cheesequake and Stump Creeks. Caution should be exercised to avoid the sunken wrecks, 0.2 mile eastward of the east jetty.

(275) The State Route 35 highway bridge, 0.2 mile inside the jetties, has a bascule span with a clearance of 25 feet. The overhead power cable just north of the bridge has a clearance of 89 feet. The Conrail bridge, 0.3 mile inside the jetties, has a bascule span with a clearance of 3 feet. The bridgetender monitors VHF-FM channel 13; call sign KT-3859. (See **117.1 through 117.59 and 117.709**, chapter 2, for drawbridge regulations.) The twin fixed highway bridges over Cheesequake Creek, 1.1 miles inside the jetties, have clearances of 16 feet.

(276) **Laurence Harbor** is a summer resort on the east side of Stump Creek, and **Morgan** is a settlement on the west side of Cheesequake Creek.

Small-craft facilities

(277) There are small-craft facilities that can provide berths with electricity, gasoline, diesel fuel, water, ice,

Airphoto - Jim Wark

RARITAN RIVER (mouth)

marine supplies, a pump-out station, storage facilities, lifts to 35 tons, and a 50-foot marine railway; complete hull and engine repairs are available.

Chart 12332

(278) **Raritan River** empties into the western end of Raritan Bay between Perth Amboy and South Amboy. The channel from South Amboy to **New Brunswick** is 11 miles long and very crooked, but is well marked with navigational aids. Waterborne commerce on the river is in coal, ore, and petroleum products.

Channels

(279) Vessels enter Raritan River from the east by way of Great Beds Reach and from the north by way of Arthur Kill via Raritan River Cutoff Channel. A Federal project provides for a 20-foot channel in Raritan River Cutoff, a 25-foot channel from Great Beds Reach in Raritan Bay to the head of Red Root Reach about 1.9 miles above Garden State Parkway bridge, and thence a 15-foot channel to the junction with Washington Canal. (See Notice to Mariners and latest editions of the charts for controlling depths.) Above Washington Canal, the controlling depth in Raritan River was about 9 feet at midchannel to New Brunswick in 1962.

(280) A dredged channel in Titanium Reach and South Channel branches south from Raritan River about 0.6 mile above Garden State Parkway bridge. The Federal project depths are 25 feet in Titanium Reach and 15 to 10 feet in South Channel to Crossman Dock. (See Notice to Mariners and latest editions of the charts for controlling depths.) In 1991, the channels were not being maintained near project depth and the project above Crossman Dock was not being maintained.

(281) A dredged channel in **Washington Canal** branches south from Raritan River about 4.3 miles above Garden State Parkway bridge and connects with **South River**. A dredged channel leads south for about 3.4 miles in South River. In 1961, the midchannel controlling depths were 12 feet in Washington Canal, thence 10 feet in South River to the first highway bridge, thence 8 feet for about 1 mile, thence ½ foot to a point 800 yards north of the highway bridge at **Old Bridge**.

(282) A sunken drydock, marked by a light, is on the east side of the river, 1.5 miles above the Garden State Parkway fixed bridge. The wreck extends 60 feet into the channel and is visible at all stages of the tide.

Bridges

(283) Several drawbridges and fixed bridges cross Raritan River and South River. The distances above the mouth of the Raritan River and clearances follow: ConRail bridge with center-pier swing span, 0.4 mile, 8 feet, overhead power cable at the bridge has a clearance of 140 feet; Victory Highway Bridge with center-pier swing span, 1.4 miles, 28 feet. The bridgetender monitors VHF-FM channels 16 and 13, call sign WXY-2676. In 2000, a bridge was under construction to replace the existing swing bridge with a fixed span and a design clearance of 106 feet. Mariners are advised to use the south span only; Thomas Edison Memorial Bridge with high-level fixed span, 1.9 miles, 135 feet. In 1999, a second span was under construction adjacent to and just west of the existing Thomas Edison Bridge. The new bridge will have a fixed span with a design clearance of 110 feet. Garden State Parkway with fixed span, 2 miles, 135 feet; overhead power cable near Crab Island, 5.2 miles, 128 feet; New Jersey Turnpike with fixed span, 8.7 miles, 45 feet; overhead power cables, 8.9 miles, 114 feet; and U.S. Highway No. 1 Bridge with two fixed spans, 9.6 miles, 90 feet. The highway bridge over South River at the town of South River has a fixed span with a clearance of 25 feet. The railroad bridge, 0.4 mile upstream, has a swing span with a clearance of 4 feet. (See **117.1 through 117.59, 117.747, and 117.756**, chapter 2, for drawbridge regulations.) In January 1987, the fender system of the south draw of the ConRail swing bridge sustained significant damage and may be protruding into the channel. Mariners are advised to exercise caution and navigate the north draw only. Mariners are requested to avoid bridge openings of this bridge during peak commuter hours of 0700 to 0815 and 1700 to 1815, Monday through Friday. The bridgetender monitors VHF-FM channel 13; call sign KT-4204.

Tides and currents

(284) The mean range of tide is about 5 feet at South Amboy, 5.8 feet at New Brunswick, and 5.5 feet at the highway bridge on South River at the town of South River. (For predictions, consult the Tide Tables.) The tidal current has a velocity of about 1.5 knots at the Victory Highway Bridge at Perth Amboy.

(285) **South Amboy** is a city on the south side of the entrance to Raritan River. Waterborne commerce at the port is in fuel oils, coal, sand, and gravel. Depths alongside the wharves and piers range from about 6 to 30 feet. Water, provisions, and marine supplies can be obtained here, and berths with electricity, water, ice, and winter dry storage are available at a boat club.

(286) **Sayreville** is 6 miles above South Amboy on the south bank of the Raritan River. Most of the wharves are privately owned.

(287) **South River** is a town on the west side of South River 7.5 miles above South Amboy. A marina about 200 yards north of the highway bridge at Old Bridge provides berths, water, marine supplies, a 2-ton lift, and engine repairs. In May 1981, a reported depth of about 1 foot could be carried to the marina.

(288) The **Delaware and Raritan Canal**, closed to navigation since 1933, had its entrance to the Raritan River at New Brunswick.

(289) **Highland Park** is across Raritan River opposite New Brunswick. In 1981, a reported depth of about 3½ feet was available from the head of the Federal project to Highland Park, the practical head of navigation.

Charts 12333, 12331

(290) **Arthur Kill** is the narrow body of water separating Staten Island from New Jersey. The cities of Perth Amboy, Tottenville, Elizabeth, many large factories, and oil refineries and storage facilities are on its shores. Northern Arthur Kill and Kill Van Kull are the major channels for bulk, containerized, and petroleum cargo in New York Harbor.

Channels

(291) Federal project depth in Arthur Kill is 35 feet. (See Notice to Mariners and latest editions of charts for controlling depths.)

Caution

(292) Numerous sunken and visible wrecks are adjacent to both sides of the channel in Arthur Kill; caution is advised.

(293) A liquefied petroleum gas (LPG) facility is on the west side of Arthur Kill immediately south of **Morses Creek**. A moving **safety zone** has been established around loaded LPG vessels transiting between Scotland Lighted Horn Buoy S at the entrance to Sandy Hook Channel and the LPG facility. (See **165.1 through 165.7, 165.20 through 165.25, and 165.160**, chapter 2, for limits and regulations.)

Anchorages

(294) General anchorages are in Arthur Kill. (See **110.1 and 110.155 (i),** chapter 2, for limits and regulations.)

Tides and currents

(295) The mean range of tide in Arthur Kill is about 5 feet. Throughout Arthur Kill the flood sets from

Airphoto - Jim Wark

KILL VAN KULL

Raritan Bay to Newark Bay and the ebb in reverse direction. Velocities of current vary with the location from about 1 to 1.5 knots.

(296) In October 1991, tidal currents in Arthur Kill were reported to deviate significantly from official predictions published by the National Ocean Service. Mariners should exercise caution and discretion in the use of published tidal current predictions.

Chart 12331

(297) **Perth Amboy** is on the point at the junction of Raritan River and Arthur Kill at the western end of Raritan Bay. The principal wharves are along the west bank of Arthur Kill. The greatest draft entering is about 30 feet. The wharves have depths of 14 to 30 feet alongside. Good anchorage is found abreast some wharves in 30 feet.

Anchorage

(298) A **special anchorage** is south of Perth Amboy. (See **110.1 and 110.60 (aa)**, chapter 2, for limits and regulations.)

(299) Perth Amboy is a **customs port of entry.**

Repairs

(300) Several ship and boat repair yards are in Perth Amboy. Drydocks are available; the largest floating drydock can handle vessels to 7,000 tons, 350 feet long, 73 feet wide. Small-craft engine and hull repairs can be made.

Supplies

(301) Diesel oil, diesel fuel, gasoline, water, lubricants, and marine supplies are available at Perth Amboy.

(302) **Outerbridge Crossing Bridge,** 1.7 miles above **Ward Point**, has a fixed span with a clearance of 143 feet across Arthur Kill between Perth Amboy and **Tottenville**. A private fog signal is at the bridge. A marina at Tottenville provides berths, electricity, water, storage facilities, and a 15-ton mobile hoist for do-it-yourself repairs. In May 1981, a reported depth of about 5 feet could be carried to the facility.

(303) **Port Socony**, on the east side of Arthur Kill 2.9 miles above Ward Point, is a bulk oil storage terminal. A privately maintained dredged channel leads from the main channel in Arthur Kill to the oil company dock. In 1988, a reported depth of about 30 feet was alongside

the south half of the dock. with 15 to 21 feet reported alongside the north half.

(304) **Smith Creek** enters Arthur Kill from northward about 3.3 miles above Ward Point. The entrance channel is privately marked by buoys. In 1981, a reported depth of 3 feet was available to just above the first bend in the channel. The creek is used principally by small craft.

(305) Several **small-craft facilities** are along Smith Creek. Berths with electricity, gasoline, water, ice, marine railways to 40 feet, and partial hull and engine repairs are available.

(306) **Port Reading**, 4.5 miles above Ward Point on the north side of Arthur Kill, has several oil storage facilities. Depths of 18 to 36 feet are reported alongside.

(307) **Fresh Kills** enters Arthur Kills from eastward about 6 miles above Ward Point. Fresh Kills is used as a New York City garbage landfill and is closed to all navigation except garbage scows.

Chart 12333

(308) **Rahway River** enters Arthur Kill from westward, about 7.2 miles above Ward Point, and extends westward for about 4.5 miles to the town of **Rahway**. It is used only by small craft. In May 1981, a reported depth of 5 feet could be taken to Lamberts Wharf about 2.1 miles above the mouth and about 0.5 mile above the New Jersey Turnpike bridge.

(309) Name or location, type of span, distance above mouth, and clearances of the bridges over Rahway River are as follows: East Rahway, bascule, 1.7 miles, 6 feet; Linden and Carteret, fixed, 1.8 miles, 36 feet; Lawrence Street, fixed, 3.8 miles, 6 feet; U.S. Route 1/9, fixed, 3.9 miles, 23 feet; Milton Avenue, fixed 42-foot span, 4.2 miles, 4 feet; Monroe Avenue, fixed 30-foot span, 4.4 miles, 7 feet. (See **117.1 through 117.59 and 117.743**, chapter 2, for drawbridge regulations.)

(310) An overhead power cable with a clearance of 165 feet crosses Arthur Kill about 1.7 miles north of the Rahway River entrance.

(311) The **Goethals Bridge**, 10 miles above Ward Point, has a fixed span with a clearance of 137 feet over Arthur Kill just southward of Elizabethport. The railroad bridge, 200 yards above Goethals Bridge, has a vertical lift span with a clearance of 31 feet down and 135 feet up. The bridgetender at the railroad bridge monitors VHF-FM channel 13; call sign KXS-237.

(312) **Elizabethport**, about 11 miles above Ward Point, is the eastern part of the city of **Elizabeth**. It is at the northern end of Arthur Kill at its junction with Newark Bay.

(313) Most of the wharves along the Elizabeth waterfront are of the bulkhead-marginal type. Depths alongside range from 3 to 32 feet. Waterborne commerce at these wharves is in petroleum, sand and gravel, chemicals and petrochemicals, and vegetable and animal oils.

(314) **Elizabeth River** enters Arthur Kill from westward at Elizabethport. The overhead power cable just above the entrance has a clearance of 59 feet. South Front Street Bridge, just above the mouth of the river, has a bascule span with a clearance of 3 feet; South First Street Bridge, 0.5 mile above the mouth has a bascule span with a clearance of 5 feet; and Elizabethport railroad bridge, 0.8 mile above the mouth, has a bascule span with a clearance of 14 feet. (See **117.1 through 117.59 and 117.719**, chapter 2, for drawbridge regulations.) The bridges above the railroad bridge have a least clearance of 3 feet.

(315) **Kill Van Kull** separates the southern shore of the city of Bayonne from Staten Island and connects the Upper Bay of New York Harbor with Newark Bay and Arthur Kill. Kill Van Kull is a major channel for petroleum and bulk cargo in New York Harbor, and has extensive through traffic and large factories on its shores.

Channels

(316) A Federal project provides for a 35-foot dredged channel leading through Kill Van Kull and north of **Shooters Island** to Arthur Kill. The dredged channel south of Shooters Island has a project depth of 30 feet. (See Notice to Mariners and latest editions of charts for controlling depths.)

(317) Shoals, obstructions, and numerous wrecks are along both sides of the dredged channel in Kill Van Kull. Numerous sunken and visible wrecks are in the channel southward of Shooters Island; caution is advised. Kill Van Kull channel, between Newark Bay and the Upper Bay of New York Harbor, is a **regulated navigation area**. (See **165.1 through 165.13, and 165.165**, chapter 2, for limits and regulations.)

(318) **Bayonne Bridge**, a fixed span with a minimum clearance of 138 feet over the channel (151 feet centerline), crosses Kill Van Kull from just east of **Bergen Point**, the southwestern end of the city of Bayonne, and connects with Staten Island.

Tides and currents

(319) The mean range of tide in Kill Van Kull is about 4.5 feet. The flood current sets westward and the ebb eastward. In the bight on the south side of the channel between West New Brighton and Port Richmond there is more or less of an eddy when the current is at strength.

(320) In October 1991, tidal currents in Kill Van Kull were reported to deviate significantly from official predictions published by the National Ocean Service. Mariners should exercise caution and discretion in the use of published tidal current predictions.

(321) **Constable Hook** and **Port Johnson**, on the north shore of Kill Van Kull, are parts of the city of **Bayonne**. They are commercially important for the shipment of petroleum and other products. A dredged channel 23 feet deep, marked by buoys, leads from the easterly end of Kill Van Kull to the wharf on the north side of Constable Hook.

(322) Several private yacht and boat clubs, and a public marina are on the southwestern shore of Bayonne above Bergen Point. A 90-ton crane at the marina can haul out craft for engine and hull repairs; berths, electricity, gasoline, water, ice, and marine supplies are available.

(323) **New Brighton**, **Port Richmond,** and **Mariners Harbor** are on the south shore of Kill Van Kull. The largest of several shipyards and floating drydocks on the south shore can handle vessels up to 6,400 tons, 400 feet long, 85 feet wide, and 26 feet in draft. All kinds of repairs can be made.

Charts 12333, 12337

(324) **Newark Bay** has a length of about 4 miles from Kill Van Kull to the junction of the two channels leading to Passaic and Hackensack Rivers. The greater part of the bay is very shoal, but a dredged channel leads through the bay to the rivers. The channel is well marked by lights and buoys. Strangers in small vessels should have no difficulty when using the chart as a guide. Deep-draft vessels should employ a pilot.

Channels

(325) Federal project depth in the main channel leading to the branch channels to the Port Elizabeth Marine Terminal and Port Newark Terminal, and thence to the junction of Passaic and Hackensack Rivers is 35 feet. (See Notice to Mariners and latest editions of charts for controlling depths.)

Anchorages

(326) General and special anchorages are in Newark Bay. (See **110.1, 110.60 (q), (r), and 110.155 (h),** chapter 2, for limits and regulations.)

Tides

(327) The mean range of **tide** in Newark Bay is about 5 feet.

Ice

(328) **Ice** sometimes closes navigation during a part of January and February.

(329) The **Port Elizabeth Marine Terminal** operated by the Port Authority of New York and New Jersey, is on Newark Bay in Elizabeth, N.J., on the south side of Elizabeth Channel south of Port Newark. The facility is about 8 miles from The Narrows via Kill Van Kull. It is adjacent to the New Jersey Turnpike and Newark Airport in the heart of the New Jersey industrial area, about 25 minutes by highway from Manhattan.

(330) The terminal has 25 deep-draft berths with depths of 32 to 40 feet reported alongside, and deck heights of 12 feet. In 1996, a rock with 36 feet of water over it was reported in about 40°40'26.6"N., 74°7'57.1"W., about 200 yards NNE of Buoy 14.

(331) A large container-handling complex with extensive lift-on/lift-off and roll-on/roll-off systems is at the terminal. Included in this complex are cranes up to 50 tons, mobile straddle carriers with 32-ton capacities, cargo-handling buildings with more than 1-million square feet of storage space, and a large area for open storage. ConRail provides the terminal with direct rail services. Excellent cargo handling and storage facilities are available.

Channels

(332) Federal project depth in Elizabeth Channel, leading to the terminal from the main channel in Newark Bay, is 40 feet. (See Notice to Mariners and latest editions of charts for controlling depths.)

(333) **Port Newark Terminal**, operated by the Port Authority of New York and New Jersey, is on the western side of Newark Bay 2.7 miles above the south entrance, northward of the Port Elizabeth Marine Terminal. It is in the heart of the New Jersey industrial area, adjacent to the New Jersey Turnpike and Newark Airport. There are 37 deep-draft berths; reported depths alongside, 32 to 35 feet; deck heights, 11 to 12 feet; many transit and storage areas and excellent cargo handling facilities, used for the receipt and shipment of general cargo, metals, vegetable oils, petroleum, automobiles and machinery, and for the receipt of bananas, rubber products, lumber and pulpwood, and chemicals. ConRail provides the terminal with direct rail service.

Channels

(334) Federal project depth in Port Newark Channel and Port Newark Pierhead Channel, leading to the terminal from the main channel in Newark Bay, is 40 feet. (See Notice to Mariners and latest editions of charts for controlling depths.)

(335) The New Jersey Turnpike (Interstate 78) bridge, 0.7 mile above the entrance to Port Newark Terminal, has a fixed span with a clearance of 135 feet. The railroad bridge, 0.2 mile above the New Jersey Turnpike bridge, has a vertical-lift span with a clearance of 35 feet down and 135 feet up. (See **117.1 through 117.59 and 117.735**, chapter 2, for drawbridge regulations.) The bridgetender at the railroad bridge monitors VHF-FM channel 13; call sign KS–9968.

(336) A marina on the east side of Newark Bay about 0.9 mile above the New Jersey Turnpike bridge provides berths, gasoline, diesel fuel, water, electricity, ice, storage, marine supplies, and a 25-ton lift; hull and engine repairs can be made.

Chart 12337

(337) **Passaic River**, which flows into the northwest end of Newark Bay, is used by vessels to **Passaic**, a manufacturing city at the head of navigation 13 miles above the mouth. Above the Wall Street bridge at Passaic the river is obstructed by boulders partly showing above the water for 1.5 miles to the **Dundee Dam.** The city of **Newark** extends along the river for a distance of nearly 5 miles above the mouth. The towns of **Belleville, Arlington, Rutherford, and Nutley,** and several villages are on the river between Newark and Passaic. The channel entrance is well marked. Waterborne commerce on the river consists of barge shipments of sand, gravel, and petroleum products.

Channels

(338) A Federal project provides for a 30-foot channel from Newark Bay to a point about 0.5 mile above the Lincoln Highway Bridge; thence 20 feet to the Jackson Street bridge; thence 16 feet to the ConRail bridge at Arlington; thence 10 feet to the Eighth Street Bridge at Passaic. (See Notice to Mariners and latest editions of charts for controlling depths.)

Bridges

(339) More than 20 draw and fixed bridges cross the Passaic River between the mouth and Passaic. The minimum clearance of the bridges with fixed spans is 100 feet at the New Jersey Turnpike Bridge, 2.4 miles above the mouth. In October 1980, the draws of the railroad bridge at Arlington, 7.2 miles above the mouth, were so restricted that mariners were advised to utilize the west fixed span, clearance 35 feet. The minimum clearance of the bridges with drawspans is 7 feet. (See **117.1 through 117.59 and 117.739**, chapter 2, for drawbridge regulations.) The bridgetenders at the railroad drawbridges 2.3, 4.3, 5.0, 7.0, and 10.2 miles above the entrance monitor VHF-FM channel 13. The call signs for the railroad bridges at mile 2.3 and mile 4.3 are KR-6938 and WRY-593, respectively. The Second Street and Eighth Street bascule span highway bridges and the Gregory Avenue swing span highway bridge at Passaic remain in the closed position with a clearance of 5 feet for the bascule spans and 12 feet for the swing span. The fixed highway bridge between Passaic and Garfield has a clearance of 5 feet. The minimum clearance of the cables over Passaic River is 135 feet.

(340) The center pier and approach spans of a former railroad swing bridge remain in Passaic River channel about 1.1 miles above the mouth. An obstruction, covered 15 feet, was reported in the channel east of the center pier. Mariners should used extreme caution when passing between the former bridge remains. In 1981, the unused railroad swing bridge at Harrison was reportedly being maintained in the open position.

Tides

(341) The mean range of tide in Passaic River from the mouth to Passaic is about 5 feet.

(342) **Freshets** overcome the flood current down as far as Newark and sometimes to the mouth of the river. Ordinary freshets usually of a few hours duration cause a rise of about 2 feet and a current velocity of about 3 knots at Newark. Destructive freshets occasionally occur at intervals of years, generally in the spring and fall.

Small-craft facilities

(343) There are several boatyards along the Passaic River between the entrance and Passaic. A marine railway at Arlington can handle vessels to 40 feet long for complete engine and hull repairs. Berths, electricity, gasoline, water, ice, storage, and marine supplies are available along the river below Kearny.

(344) **Hackensack River** flows into the northeast end of Newark Bay and is navigable for about 17.8 miles to the dams at **New Milford**.

Channels

(345) A Federal project provides for a 30-foot channel from Newark Bay to a 25-foot turning basin about 0.3 mile above the ConRail bridge at **Marion**. (See Notice to Mariners and latest editions of charts for controlling depths.) Above this point in 1948-February 1971, depths of 11 feet were available for varying widths with local knowledge to the N.Y.S. & W.R.R. bridge at Hackensack, 14.2 miles above the mouth. The channel is well marked with aids.

Bridges

(346) More than 15 draw and fixed bridges cross the Hackensack River between the mouth and Hackensack. The minimum clearance of the bridges with fixed spans is 35 feet at the State Route 46 bridge at Little Ferry about 11.5 miles above the mouth. The minimum clearance of the bridges with drawspans is 2 feet at Hackensack, 14.2 miles above the mouth. (See **117.1 through 117.59 and 117.723**, chapter 2, for drawbridge regulations.) The fixed bridges above Hackensack have a minimum clearance of 2 feet. The minimum clearance of the cables over Hackensack River to Hackensack is 89 feet; thence 26 feet to the dams at New Milford.

(347) In September 1980, the fender system of the Court Street swing bridge 14.1 miles above the mouth was reported to be in poor condition. Mariners should exercise caution when transiting the bridge. Only one barge at a time should transit the bridge.

(348) The railroad drawbridges over the Hackensack River are equipped with radiotelephones. The bridgetenders monitor VHF-FM channel 13. The call signs of the railroad bridges, identified by mileage above the mouth, follow: mile 2.6, KQ-7198; mile 2.9, KR-6939; mile 4.4, KMC-297; mile 4.7, KR-6972; mile 6.0, KR-7035; and mile 6.7, KR-7034. To expedite opening of the ConRail bridge 2.6 miles above the entrance, mariners are requested to give 1 hour advance notice by calling 201-963-2552.

Tides

(349) The mean range of tide is about 5 feet at the mouth of Hackensack River, 5.3 feet at Little Ferry, and 5.3 feet at Hackensack. (See the Tide Tables for predictions.) The river has little freshet flow, and the tidal currents are rarely affected by it.

Small-craft facilities

(350) There are several boatyards and marinas on the Hackensack River at **Little Ferry** and at **Carlstadt,** opposite **Secaucus.** A mobile hoist at Carlstadt can handle boats to 50 tons, and a marine railway can handle craft to 32 feet long for complete engine and hull repairs. Berths, electricity, gasoline, water, ice, storage, and marine supplies are available.

(351) **Berrys Creek Canal** flows into the Hackensack River from westward 6.8 miles above the mouth. A midchannel depth of about 11 feet is available to the bridge about 1 mile above the entrance. Two fixed highway bridges with a least clearance of 35 feet cross the creek just above the entrance. The bridge about 1 mile above the entrance has a clearance of 40 feet, and the overhead power cable close southward of the bridge has a clearance of 45 feet. The overhead power cable 0.8 mile upstream from the bridge has a clearance of 54 feet.

(352) **Overpeck Creek** flows into the Hackensack River from eastward 11.1 miles above the mouth. The bridges at the entrance have bascule and swing spans with a minimum clearance of 3 feet. (See **117.1 through 117.59 and 117.738**, chapter 2, for drawbridge regulations.) A dam, about 0.8 mile above the mouth, forms the head of navigation on the creek.