PART 2 - SECTION B

COAST PILOT 3

Atlantic Coast

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covering

CHESAPEAKE BAY ENTRANCE and approaches

for

general information refer to PART 1, SECTION B

contents found on page vii

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United States Coast Pilot 3

Atlantic Coast: Sandy Hook to Cape Henry

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U.S. DEPARTMENT OF COMMERCE
Barbara Hackman Franklin, Secretary

National Oceanic and Atmospheric Administration (NOAA)
Dr. John A. Knauss, Under Secretary of Commerce for Oceans and Atmosphere, and Administrator, NOAA

National Ocean Service
W. Stanley Wilson, Assistant Administrator for Ocean Services and Coastal Zone Management

Washington, DC:
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LIMITS OF UNITED STATES COAST PILOTS

Atlantic Coast

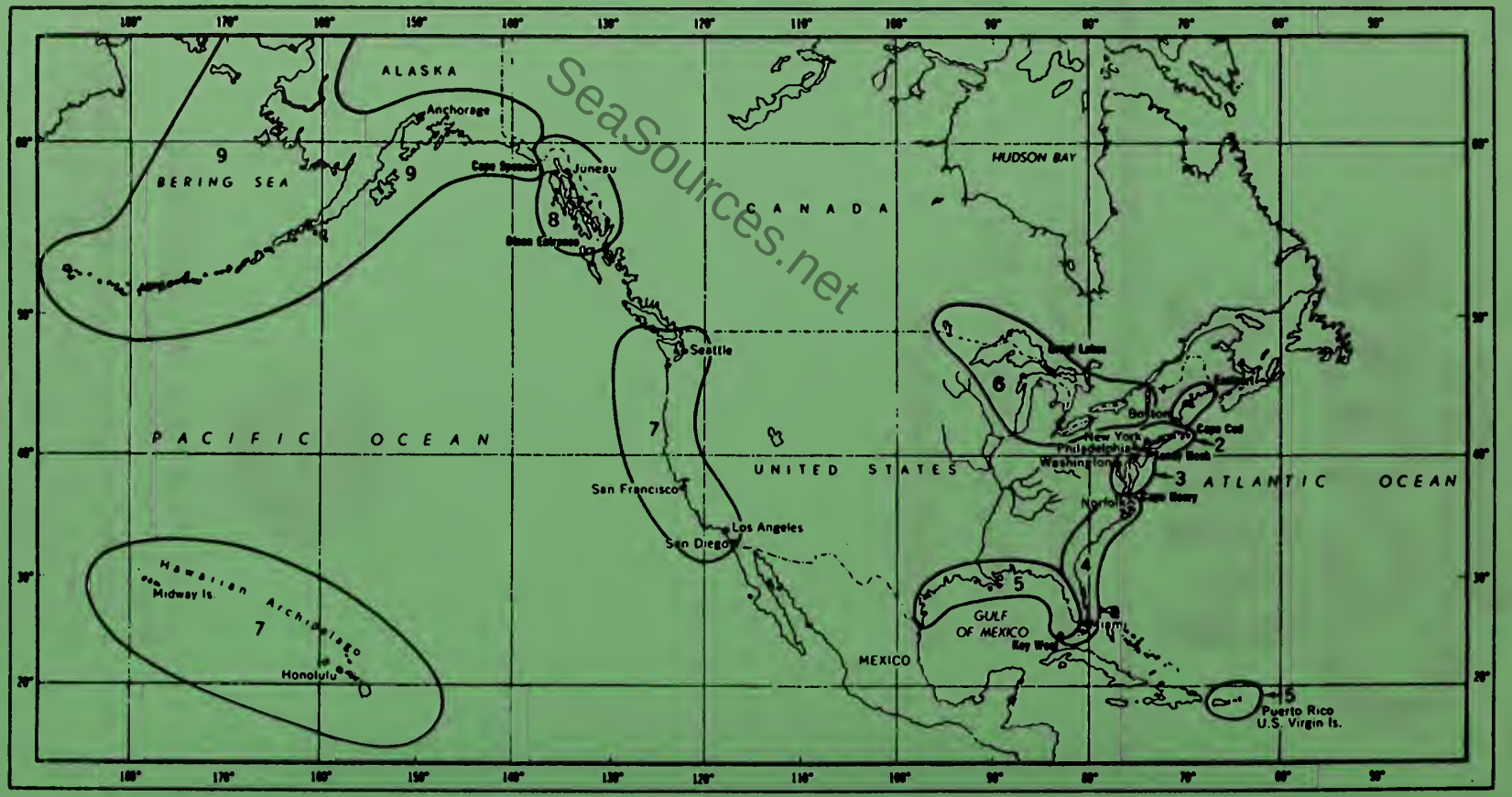
1 Eastport to Cape Cod
2 Cape Cod to Sandy Hook
3 Sandy Hook to Cape Henry
4 Cape Henry to Key West
5 Gulf of Mexico, Puerto Rico, and Virgin Islands

Pacific Coast

7 California, Oregon, Washington, and Hawaii
8 Alaska - - Dixon Entrance to Cape Spencer
9 Alaska - - Cape Spencer to Beaufort Sea

Great Lakes

6 The Lakes and their Connecting Waterways



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Preface

The United States Coast Pilot is published by the National Ocean Service (NOS), Charting and Geodetic Services (C&GS), National Oceanic and Atmospheric Administration (NOAA), pursuant to the Act of 6 August 1947 (33 U.S.C. 883a and b), and the Act of 22 October 1968 (44 U.S.C. 1310).

The Coast Pilot supplements the navigational information shown on the nautical charts. The sources for updating the Coast Pilot include but are not limited to field inspections conducted by NOAA, information published in Notices to Mariners, reports from NOAA Hydrographic vessels and field parties, information from other Government agencies, State and local governments, maritime and pilotage associations, port authorities, and mariners.

This volume of Coast Pilot 3, Atlantic Coast, Sandy Hook to Cape Henry, cancels the 1991 (28th) Edition.

Notice.–Amendments are issued to this publication through U.S. Coast Guard Local Notices to Mariners. A subscription to the Local Notice to Mariners is available upon application to the appropriate Coast Guard District Commander (Aids to Navigation Branch). Consult appendix for address. All amendments are also issued in Defense Mapping Agency Notices to Mariners.

Mariners and others are urged to report promptly to the National Ocean Service errors, omissions, or any conditions found to differ from or to be additional to those published in the Coast Pilot or shown on the charts in order that they may be fully investigated and proper corrections made. A Coast Pilot Report form is included in the back of this book and a Marine Information Report form is published in the Defense Mapping Agency Hydrographic/Topographic Center Notice to Mariners for your convenience. These reports and/or suggestions for increasing the usefulness of the Coast Pilot should be sent to

Director,
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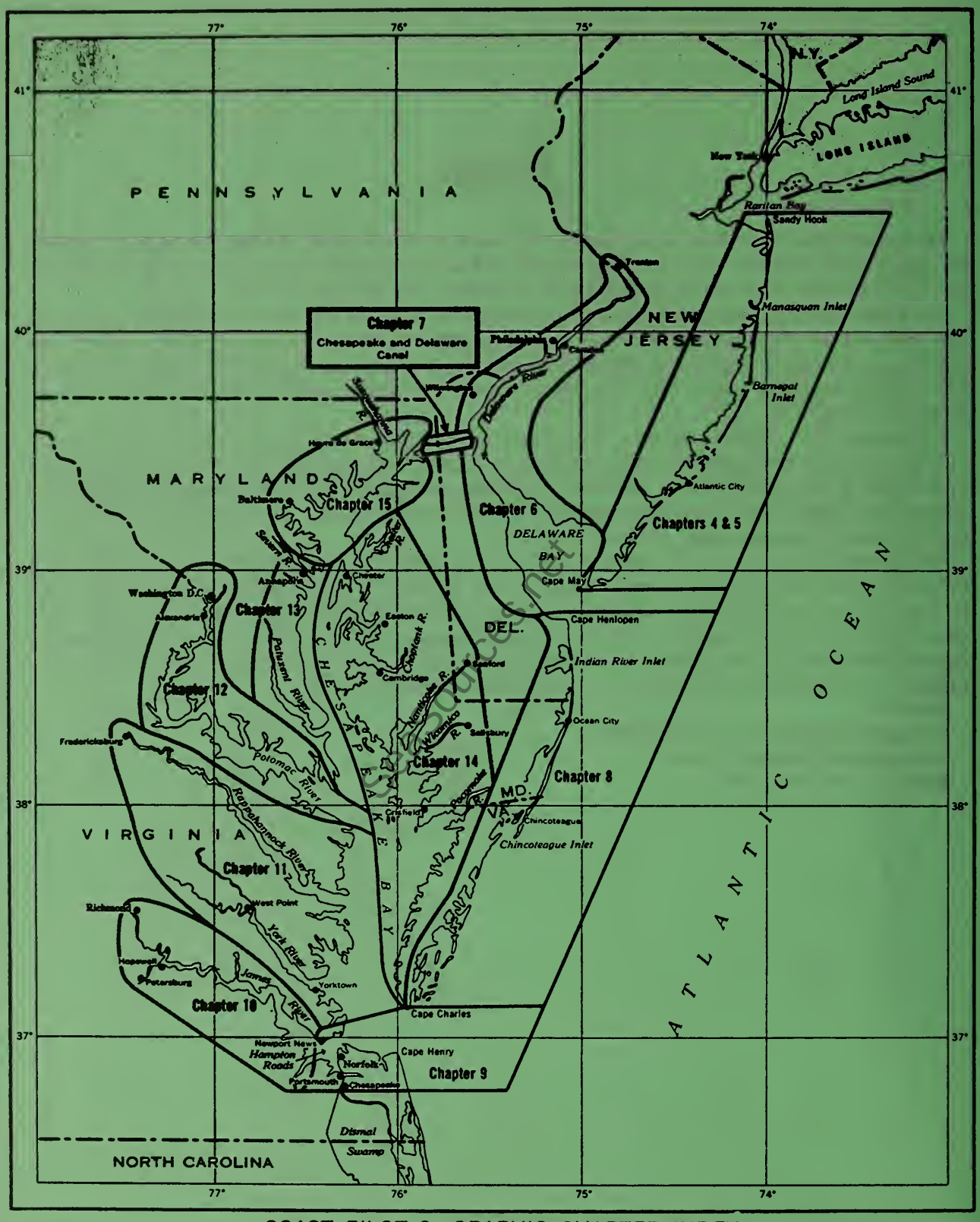

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(184) (b) The regulations. This anchorage is reserved for the exclusive use of naval vessels and except in cases of emergency, no other vessel shall anchor therein without permission from the local naval authorities, obtained through the Captain of the Port, Norfolk, Virginia. Movement of vessels through the anchorage will not be restricted.

(185) **§110.168 Hampton Roads, Virginia, and adjacent waters.**

(186) (a) Anchorage Grounds–(1) Cape Henry Anchorage. Anchorage A (Naval Anchorage). The waters bounded by the shoreline and a line connecting the following points:

(187) 36°55′33.0″N., 76°02′47.0″W.
(188) 36°57′02.8″N., 76°03′02.6″W.
(189) 36°56′45.0″N., 76°01′30.0″W.
(190) 36°55′54.0″N., 76°01′37.0″W.

(191) (2) Chesapeake Bay, Thimble Shoals Channel Anchorages–(i) Anchorage B (Naval Anchorage). The waters bounded by a line connecting the following points:

(192) 36°57′58.0″N., 76°06′07.0″W.
(193) 36°57′11.0″N., 76°03′02.1″W.
(194) 36°55′48.8″N., 76°03′14.0″W.
(195) 36°56′31.8″N., 76°06′07.0″W.
(196) 36°57′04.0″N., 76°06′07.0″W.
(197) 36°57′08.5″N., 76°06′24.5″W.

(198) (ii) Anchorage C (Naval Anchorage). The waters bounded by a line connecting the following points:

(199) 36°58′54.8″N., 76°09′41.5″W.
(200) 36°58′18.8″N., 76°07′18.0″W.
(201) 36°57′27.0″N., 76°07′37.5″W.
(202) 36°58′04.0″N., 76°10′00.0″W.

(203) (iii) Anchorage D (Naval Anchorage). The waters bounded by the shoreline and a line connecting the following points:

(204) 36°55′49.0″N., 76°10′32.8″W.
(205) 36°58′04.0″N., 76°10′02.1″W.
(206) 36°57′31.2″N., 76°07′54.8″W.
(207) 36°55′24.1″N., 76°08′28.8″W.

(208) (iv) Anchorage E (Commercial Explosive Anchorage). The waters bounded by a line connecting the following points:

(209) 36°59′58.7″N., 76°13′47.0″W.
(210) 36°59′08.2″N., 76°10′33.8″W.
(211) 36°58′13.0″N., 76°10′51.8″W.
(212) 36°59′02.0″N., 76°14′10.2″W.

(213) (A) Explosive Handling Berth E-1: (Explosives Anchorage Berth): The waters bounded by the arc of a circle with a radius of 500 yards and with the center located at:

(214) 36°59′05.0″N., 76°11′23.0″W.

(215) (3) Hampton Roads Anchorages–(i) Anchorage F, Hampton Bar. The waters bounded by a line connecting the following points:

(216) 36°59′51.6″N., 76°19′12.0″W.
(217) 36°59′25.2″N., 76°18′48.5″W.
(218) 36°58′49.1″N., 76°19′33.8″W.
(219) 36°59′25.0″N., 76°20′07.0″W.

(220) (A) Anchorage Berth F-1. The waters bounded by the arc of a circle with a radius of 400 yards and with the center located at:

(221) 36°59′16.7″N., 76°19′39.0″W.

(222) (B) Anchorage Berth F-2. The waters bounded by the arc of a circle with a radius of 400 yards and with the center located at:

(223) 36°59′31.8″N., 76°19′16.0″W.

(224) (ii) Anchorage G, Hampton Flats (Naval Explosives Anchorage). The waters bounded by a line connecting the following points:

(225) 36°59′25.0″N., 76°20′07.0″W.
(226) 36°58′49.1″N., 76°19′33.8″W.
(227) 36°57′41.4″N., 76°21′07.7″W.
(228) 36°57′34.6″N., 76°21′26.7″W.
(229) 36°57′31.1″N., 76°22′01.9″W.
(230) 36°57′07.0″N., 76°22′03.0″W.
(231) 36°58′54.8″N., 76°21′42.6″W.

(232) (A) Explosives Handling Berth G-1. The waters bounded by the arc of a circle with a radius of 500 yards and with the center located at:

(233) 36°57′50.0″N., 76°21′37.0″W.

(234) (B) Explosives Handling Berth G-2. The waters bounded by the arc of a circle with a radius of 500 yards and with the center located at:

(235) 36°58′14.0″N., 76°21′01.5″W.

(236) (C) Explosives Handling Berth G-3. The waters bounded by the arc of a circle with a radius of 500 yards and with the center located at:

(237) 36°58′34.5″N., 76°20′31.0″W.

(238) (D) Explosives Handling Berth G-4. The waters bounded by the arc of a circle with a radius of 500 yards and with the center located at:

(239) 36°58′53.4″N., 76°20′05.0″W.

(240) (iii) Anchorage H, Newport New Bar. The waters bounded by a line connecting the following points:

(241) 36°58′07.0″N., 76°22′03.0″W.
(242) 36°57′31.1″N., 76°22′01.9″W.
(243) 36°57′18.0″N., 76°24′11.2″W.
(244) 36°57′38.3″N., 76°24′20.0″W.
(245) 36°57′51.8″N., 76°22′31.0″W.

(246) (4) James River Anchorage–(i) Anchorage I, Newport News. The waters bounded by a line connecting the following points:

(247) 36°57′06.7″N., 76°24′44.3″W.
(248) 36°56′22.6″N., 76°24′28.0″W.
(249) 36°56′03.0″N., 76°24′37.0″W.
(250) 36°57′53.7″N., 76°26′41.5″W.
(251) 36°58′23.0″N., 76°27′11.0″W.
(252) 36°58′48.5″N., 76°27′11.0″W.
(253) 36°58′35.4″N., 76°26′38.4″W.
(254) 36°57′51.7″N., 76°26′02.8″W.
(255) 36°57′30.6″N., 76°25′34.5″W.

(256) (A) Anchorage Berth I-1. The waters bounded by the arc of a circle with a radius of 400 yards and with the center located at:

(257) 36°57′08.5″N., 76°25′21.6″W.

(258) (B) Anchorage Berth I-2. The waters bounded by the arc of a circle with a radius of 400 yards and with the center located at:

(259) 36°57′22.4″N., 76°25′47.7″W.

(260) (ii) Anchorage J, Newport News Middle Ground. The waters bounded by a line connecting the following points:

(261) 36°57′21.0″N., 76°22′22.1″W.
(262) 36°56′46.5″N., 76°22′39.3″W.
(263) 36°56′25.3″N., 76°23′48.0″W.
(264) 36°57′10.2″N., 76°24′09.9″W.

(265) (iii) Anchorage K, Newport News Middle Ground. The waters bounded by a line connecting the following points:

(266) 36°57′55.8″N., 76°20′20.1″W.
(267) 36°57′07.9″N., 76°20′32.2″W.
(268) 36°56′48.8″N., 76°20′32.2″W.
(269) 36°55′59.9″N., 76°22′11.7″W.
(270) 36°55′59.9″N., 76°24′00.0″W.
(271) 36°56′25.3″N., 76°23′48.0″W.
(272) 36°56′46.5″N., 76°22′39.3″W.
(273) 36°57′21.0″N., 76°22′22.1″W.
(274) 36°57′28.1″N., 76°21′11.7″W.

Subpart B–Regulated Navigation Areas

(1113) **§165.10 Regulated navigation area.**

(1114) A regulated navigation area is a water area within a defined boundary for which regulations for vessels navigating within the area have been established under this part.

(1115) **§165.11 Vessel operating requirements (regulations).**

(1116) Each District Commander may control vessel traffic in an area which is determined to have hazardous conditions, by issuing regulations–

(1117) (a) Specifying times of vessel entry, movement, or departure to, from, within, or through ports, harbors, or other waters;

(1118) (b) Establishing vessel size, speed, draft limitations, and operating conditions; and

(1119) (c) Restricting vessel operation, in a hazardous area or under hazardous conditions, to vessels which have particular operating characteristics or capabilities which are considered necessary for safe operation under the circumstances.

(1120) **§165.13 General regulations.**

(1121) (a) The master of a vessel in a regulated navigation area shall operate the vessel in accordance with the regulations contained in Subpart F.

(1122) (b) No person may cause or authorize the operation of a vessel in a regulated navigation area contrary to the regulations in this Part.

Subpart C–Safety Zones

(1123) **§165.20 Safety zones.**

(1124) A Safety Zone is a water area, shore area, or water and shore area to which, for safety or environmental purposes, access is limited to authorized persons, vehicles, or vessels. It may be stationary and described by fixed limits or it may be described as a zone around a vessel in motion.

(1125) **§165.23 General regulations.**

(1126) Unless otherwise provided in this part–

(1127) (a) No person may enter a safety zone unless authorized by the COTP or the District Commander;

(1128) (b) No person may bring or cause to be brought into a safety zone any vehicle, vessel, or object unless authorized by the COTP or the District Commander;

(1129) (c) No person may remain in a safety zone or allow any vehicle, vessel, or object to remain in a safety zone unless authorized by the COTP or the District Commander; and

(1130) (d) Each person in a safety zone who has notice of a lawful order or direction shall obey the order or direction of the COTP or District Commander issued to carry out the purposes of this subpart.

Subpart D–Security Zones

(1131) **§165.30 Security zones.**

(1132) (a) A security zone is an area of land, water, or land and water which is so designated by the Captain of the Port or District Commander for such time as is necessary to prevent damage or injury to any vessel or waterfront facility, to safeguard ports, harbors, territories, or waters of the United States or to secure the observance of the rights and obligations of the United States.

(1133) (b) The purpose of a security zone is to safeguard from destruction, loss, or injury from sabotage or other subversive acts, accidents, or other causes of a similar nature–

(1134) (1) Vessels,

(1135) (2) Harbors,

(1136) (3) Ports and

(1137) (4) Waterfront facilities– in the United States and all territory and water, continental or insular, that is subject to the jurisdiction of the United States.

(1138) **§165.33 General regulations.**

(1139) Unless otherwise provided in the special regulations in Subpart F of this part–

(1140) (a) No person or vessel may enter or remain in a security zone without the permission of the Captain of the Port;

(1141) (b) Each person and vessel in a security zone shall obey any direction or order of the Captain of the Port;

(1142) (c) The Captain of the Port may take possession and control of any vessel in the security zone;

(1143) (d) The Captain of the Port may remove any person, vessel, article, or thing from a security zone;

(1144) (e) No person may board, or take or place any article or thing on board, any vessel in a security zone without the permission of the Captain of the Port; and

(1145) (f) No person may take or place any article or thing upon any waterfront facility in a security zone without the permission of the Captain of the Port.

Subpart E–Restricted Waterfront Areas

(1146) **§165.40 Restricted Waterfront Areas.**

(1147) The Commandant, may direct the COTP to prevent access to waterfront facilities, and port and harbor areas, including vessels and harbor craft therein. This section may apply to persons who do not possess the credentials outlined in 33 CFR 125.09 when certain shipping activities are conducted that are outlined in 33 CFR 125.15.

Subpart F–Specific Regulated Navigation Areas and Limited Access Areas

(1148) **§165.501 Chesapeake Bay Entrance and Hampton Roads, Virginia and Adjacent Waters-Regulated Navigation Area.**

(1149) (a) Regulated Navigation Area. The waters enclosed by the shoreline and the following lines are a Regulated Navigation Area:

(1150) (1) A line drawn across the entrance to Chesapeake Bay between Wise Point and Cape Charles Light, and then continuing to Cape Henry Light.

(1151) (2) A line drawn across the Chesapeake Bay between Old Point Comfort Light and Cape Charles City Range "A" Rear Light.

(1152) (3) A line drawn across the James River along the eastern side of the U.S. Route 17 highway bridge, between Newport News and Isle of Wight County, Virginia.

(1153) (4) A line drawn across Chuckatuck Creek along the northern side of the north span of the U.S. Route 17 highway bridge, between Isle of Wight County and Suffolk, Virginia.

(1154) (5) A line drawn across the Nansemond River along the northern side of the Mills Godwin (U.S. Route 17) Bridge, Suffolk, Virginia.

(1155) (6) A line drawn across the mouth of Bennetts Creek, Suffolk, Virginia.

(1156) (7) A line drawn across the Western Branch of the Elizabeth River along the eastern side of the West Norfolk Bridge, Portsmouth, Virginia.

(1157) (8) A line drawn across the Southern Branch of the Elizabeth River along the northern side of the I-64 highway bridge, Chesapeake, Virginia.

(1158) (9) A line drawn across the Eastern Branch of the Elizabeth River along the western side of the west span of the Campostella Bridge, Norfolk, Virginia.

(1159) (10) A line drawn across the Lafayette River along the western side of the Hampton Boulevard Bridge, Norfolk, Virginia.

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(1160) (11) A line drawn across Little Creek along the eastern side of the Ocean View Avenue (U.S. Route 60) Bridge, Norfolk, Virginia.
(1161) (12) A line drawn across Lynnhaven Inlet along the northern side of the Shore Drive (U.S. Route 60) Bridge, Virginia Beach, Virginia.
(1162) (b) Definitions. In this section:
(1163) (1) "CBBT" means the Chesapeake Bay Bridge Tunnel.
(1164) (2) "Thimble Shoal Channel" consists of the waters bounded by a line connecting Thimble Shoal Channel Lighted Bell Buoy 1TS, thence to Lighted Gong Buoy 17, thence to Lighted Buoy 19, thence to Lighted Buoy 21, thence to Lighted Buoy 22, thence to Lighted Buoy 18, thence to Lighted Buoy 2, thence to the beginning.
(1165) (3) "Thimble Shoal North Auxiliary Channel" consists of the waters in a rectangular area 450 feet wide adjacent to the north side of Thimble Shoal Channel, the southern boundary of which extends from Thimble Shoal Channel Lighted Buoy 2 to Lighted Buoy 18.
(1166) (4) "Thimble Shoal South Auxiliary Channel" consists of the waters in a rectangular area 450 feet wide adjacent to the south side of the Thimble Shoal Channel, the northern boundary of which extends from Thimble Shoal Channel Lighted Bell Buoy 1TS, thence to Lighted Gong Buoy 17 thence to Lighted Buoy 19, thence to Lighted Buoy 21.
(1167) (c) Applicability. This section applies to all vessels operating within the Regulated Navigation Area, including naval and public vessels, except vessels that are engaged in the following operations:
(1168) (1) Law Enforcement
(1169) (2) Servicing aids to navigation
(1170) (3) Surveying, maintenance, or improvement of waters in the Regulated Navigation Area.
(1171) (d) Regulations.-(1) Anchoring restrictions.
(1172) (i) No vessel over 65 feet long may anchor or moor in this Regulated Navigation Area outside an anchorage designated in §110.168 of this title, unless:
(1173) (A) The vessel has the permission of the Captain of the Port.
(1174) (B) The vessel is carrying explosives for use on river or harbor works or on other work under a permit issued by the District Engineer, Corps of Engineers, and the vessel is anchored in or near the vicinity of the work site. The District Engineer shall prescribe the quantities of explosives allowed on the vessel and the conditions under which the vessel may store or handle explosives. The vessel may not anchor unless a copy of the permit and instructions relating to the carriage and handling of explosives from the Corps of Engineers to the vessel or contractor are provided to the Captain of the Port before the vessel anchors.
(1175) (ii) A vessel may anchor in a channel with the permission of the Captain of the Port, if the vessel is authorized by the District Engineer to engage in recovery of sunken property, to lay or repair a legally established pipeline or cable, or to engage in dredging operations.
(1176) (iii) A vessel engaged in river and harbor improvement work under the supervision of the District Engineer may anchor in a channel, if the District Engineer notifies the Captain of the Port in advance of the start of the work.
(1177) (iv) Except as provided in paragraphs (d)(1)(ii) and (iii) of this section, a vessel may not anchor in a channel unless it is unable to proceed without endangering the safety of persons, property, or the environment.
(1178) (v) A vessel that is anchored in a channel because it is unable to proceed without endangering the safety of persons, property or the environment, shall:
(1179) (A) Not anchor, if possible, within a cable or pipeline area.
(1180) (B) Not obstruct or endanger the passage of any vessel.
(1181) (C) Anchor near the edge of the channel, if possible.
(1182) (D) Not interfere with the free navigation of any channel.
(1183) (E) Not obstruct the approach to any pier.
(1184) (F) Not obstruct aids to navigation or interfere with range lights.
(1185) (G) Move to a designated anchorage or get underway as soon as possible or when directed by the Captain of the Port.
(1186) (vi) A vessel may not anchor within the confines of Little Creek Harbor, Desert Cove, or Little Creek Cove without the permission of the Captain of the Port. The Captain of the Port shall consult with the Commander, Naval Amphibious Base Little Creek, before granting permission to anchor within this area.
(1187) (2) Secondary Towing Rig Requirements. (i) A vessel over 100 gross tons may not be towed in this Regulated Navigation Area unless it is equipped with a secondary towing rig, in addition to its primary towing rig, that:
(1188) (A) Is of sufficient strength for towing the vessel.
(1189) (B) Has a connecting device that can receive a shackle pin of at least two inches in diameter.
(1190) (C) Is fitted with a recovery pickup line led outboard of the vessel's hull.
(1191) (ii) A tow consisting of two or more vessels, each of which is less than 100 gross tons, that has a total gross tonnage that is over 100 gross tons, shall be equipped with a secondary towing rig between each vessel in tow, in addition to its primary towing rigs, while the tow is operating within this Regulated Navigation Area. The secondary towing rig must:
(1192) (A) Be of sufficient strength for towing the vessels.
(1193) (B) Have connecting devices that can receive a shackle pin of at least two inches in diameter.
(1194) (C) Be fitted with recovery pickup lines led outboard of the vessels' hulls.
(1195) (3) Anchoring Detail Requirements. A self-propelled vessel over 100 gross tons, which is equipped with an anchor or anchors (other than a tugboat equipped with bow fenderwork of a type of construction that prevents an anchor being rigged for quick release), that is underway within two nautical miles of the CBBT or the I-664 Bridge Tunnel shall station its personnel at locations on the vessel without delay in an emergency.
(1196) (4) Draft Limitations. A vessel drawing less than 25 feet may not enter the Thimble Shoal Channel, unless the vessel is crossing the channel. Channel crossings shall be made as perpendicular to the channel axis as possible.
(1197) (5) Traffic Directions. (i) Except when crossing the channel, a vessel in the Thimble Shoal North Auxiliary Channel shall proceed in a westbound direction.
(1198) (ii) Except when crossing the channel, a vessel in the Thimble Shoal South Auxiliary Channel shall proceed in an eastbound direction.
(1199) (6) Restrictions of Vessels With Impaired Maneuverability.-(i) Before entry. A vessel over 100 gross tons whose ability to maneuver is impaired by hazardous weather, defective steering equipment, defective main propulsion machinery, or other damage, may not enter the Regulated Navigation Area without the permission of the Captain of the Port, unless the vessel is attended by one or more tugboats with sufficient total power to ensure the vessel's safe passage through the Regulated Navigation Area.

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(1200) (ii) After entry. The master of a vessel over 100 gross tons, which is underway in the Regulated Navigation Area, shall, as soon as possible, do the following, if the vessel's ability to maneuver becomes impaired for any reason:

(1201) (A) Report the impairment to the Captain of the Port.

(1202) (B) Unless the Captain of the Port waives this requirement, have one or more tugboats with sufficient total power to ensure the vessel's safe passage through the Regulated Navigation Area, attend the vessel.

(1203) (7) Requirements for Navigation Charts, Radars, and Pilots. No vessel over 100 gross tons may enter the Regulated Navigation Area, unless it has on board:

(1204) (i) Corrected charts of the Regulated Navigation Area.

(1205) (ii) An operative radar during periods of reduced visibility; or

(1206) (iii) A pilot or other person on board with previous experience navigating vessel on the waters of the Regulated Navigation Area.

(1207) (8) Emergency Procedures. (i) Except as provided in paragraphs (d)(8)(ii) and (iii) of this section, in an emergency any vessel may deviate from the regulations in this section to the extent necessary to avoid endangering the safety of persons, property, or the environment.

(1208) (ii) A vessel over 100 gross tons with an emergency that is located within two nautical miles of the CBBT or I-664 Bridge Tunnel (other than a self-propelled vessel that is capable of getting underway in 30 minutes, has sufficient power to avoid any bridge, tunnel island, or vessel, and whose maneuverability is not impaired by a steering equipment or main propulsion defect):

(1209) (A) Shall notify the Captain of the Port of its location and the nature of the emergency, as soon as possible.

(1210) (B) May not anchor outside an anchorage designated in §110.168 of this title, unless the vessel is unable to proceed to an anchorage without endangering the safety of persons, property, or the environment.

(1211) (C) Shall make arrangements for one or more vessels to attend the vessel, with sufficient power to keep the vessel in position.

(1212) (iii) If a vessel over 100 gross tons must anchor outside an anchorage because the vessel is unable to proceed without endangering the safety of persons, property, or the environment, the vessel shall:

(1213) (A) Not anchor, if possible, within a cable or pipeline area.

(1214) (B) Not obstruct or endanger the passage of any vessel.

(1215) (C) Not interfere with the free navigation of any channel.

(1216) (D) Not obstruct the approach to any pier.

(1217) (E) Not obstruct aids to navigation or interfere with range lights.

(1218) (F) Move to a designated anchorage or get underway as soon as possible or when directed by the Captain of the Port.

(1219) (9) Vessel Speed Limits on Little Creek. A vessel may not proceed at a speed over five knots between the Route 60 bridge and the mouth of Fishermans Cove (Northwest Branch of Little Creek).

(1220) (10) Vessel Speed Limits on the Southern Branch of the Elizabeth River. A vessel may not proceed at a speed over six knots between the junction of the Southern and Eastern Branches of the Elizabeth River and the Norfolk and Portsmouth Belt Line Railroad Bridge between Chesapeake and Portsmouth, Virginia.

(1221) (11) Restrictions on Vessel Operations During Aircraft Carrier and Other Large Naval Vessel Transits of the Elizabeth River. (i) Except for a vessel that is moored at a marina, wharf, or pier or that is anchored, no vessel may, without the permission of the Captain of the Port, come within or remain within 500 yards from a naval aircraft carrier or other large naval vessel, which is restricted in its ability to maneuver in the confined waters, while the aircraft carrier or large naval vessel is transiting the Elizabeth River between the Norfolk Naval Base, Norfolk, Virginia, and the Norfolk Naval Shipyard, Portsmouth, Virginia.

(1222) (ii) The permission required by paragraph (d)(11)(i) of this section may be obtained from a designated representative of the Captain of the Port, including the duty officer at the Coast Guard Marine Safety Office, Hampton Roads, or from the Coast Guard patrol commander.

(1223) (iii) The Captain of the Port issues a Broadcast Notice to Mariners to inform the marine community of scheduled vessel movements that are covered by paragraph (d)(11) of this section.

(1224) (iv) Notwithstanding paragraph (d)(11)(i) of this section, a vessel may not remain moored at the Elizabeth River Ferry dock at the foot of High Street in Portsmouth, Virginia, when the dock is within a safety zone for a naval aircraft carrier or other large naval vessel.

(1225) (12) Restrictions on Vessel Operations During Liquefied Petroleum Gas Carrier Movements on the Chesapeake Bay and Elizabeth River. (i) Except for a vessel that is moored at a marina, wharf, or pier or that is anchored, and which remains moored or at anchor, no vessel may, without the permission of the Captain of the Port, come within or remain within 250 feet from the port and starboard sides and 300 feet from the bow and stern of a vessel that is carrying liquefied petroleum gas in bulk as cargo, while the gas carrier transits between Thimble Shoal Lighted Buoy 3 and the Atlantic Energy Terminal on the Southern Branch of the Elizabeth River.

(1226) (ii) The permission required by paragraph (d)(12)(i) of this section may be obtained from a designated representative of the Captain of the Port, including the duty officer at the Coast Guard Marine Safety Office, Hampton Roads, or from the Coast Guard patrol commander.

(1227) (iii) A vessel that has carried liquefied petroleum gas in a tank is carrying the liquefied petroleum gas as cargo for the purposes of paragraph (d)(12)(i) of this section, unless the tank has been gas freed since liquefied petroleum gas was last carried as cargo.

(1228) (iv) The Captain of the Port issues a Broadcast Notice to Mariners to inform the marine community of scheduled vessel movements that are covered by paragraph (d)(12) of this section.

(1229) (v) Notwithstanding paragraph (d)(12)(i) of this section, a vessel may not remain moored at the Elizabeth River Ferry dock at the foot of High Street in Portsmouth, Virginia, when the dock is within a safety zone for a liquefied petroleum gas carrier.

(1230) (13) Restrictions on the Use of the Elizabeth River Ferry Dock at the Foot of High Street, Portsmouth, Virginia.

(1231) (i) No vessels, other than those being operated as ferries for the Tidewater Transportation District Commission, may embark or disembark passengers or otherwise moor at the Elizabeth River Ferry dock at the foot of High Street, Portsmouth, Virginia.

(1232) (ii) Any vessel being operated for the Tidewater Transportation District Commission may not moor at the dock longer than necessary to embark passengers awaiting

area (prohibited). A rectangular area surrounding Piers 1 and 2, Naval Weapons Station, and extending upstream therefrom, beginning at a point on the shore line at latitude 37°15′25″ N., longitude 76°32′32″ W.; thence to latitude 37°15′42″ N., longitude 76°32′06″ W.; thence to latitude 37°15′27″ N., longitude 76°31′48″ W.; thence to latitude 37°15′05″ N., longitude 76°31′27″ W.; thence to a point on the shore line at latitude 37°14′51″ N., longitude 76°31′50″ W.; and thence along the shore line to the point of beginning.

(1623) (2) Naval mine service-testing area (restrict ed). A rectangular area adjacent to the northeast boundary of the prohibited area described in subparagraph (1) of this paragraph, beginning at latitude 37°16′00″ N., longitude 76°32′29″ W.; thence to latitude 37°16′23″ N., longitude 76°32′00″ W.; thence to latitude 37°15′27″ N., longitude 76°30′54″ W.; thence to latitude 37°15′05″ N., longitude 76°31′27″ W.; thence to latitude 37°15′27″ N., longitude 76°31′48″ W.; thence to latitude 37°15′42″ N., longitude 76°32′06″ W.; thence to latitude 37°15′40″ N., longitude 76°32′09″ W.; and thence to the point of beginning.

(1624) (3) Explosives-Handling Berth (Naval). A circular area of 600 yards radius with its center at latitude 37°13′56″ N., longitude 76°28′48″ W.

(1625) (b) The regulations. (1) All persons and all vessels other than naval craft are forbidden to enter the prohibited area described in paragraph (a)(1) of this section.

(1626) (2) Trawling, dragging, and net-fishing are prohibited, and no permanent obstructions may at any time be placed in the area described in paragraph (a) (2) of this section. Upon official notification, any vessel anchored in the area and any person in the area will be required to vacate the area during the actual mine-laying operation. Persons and vessels entering the area during mine-laying operations by aircraft must proceed directly through the area without delay, except in case of emergency. Naval authorities are required to publish advance notice of mine-laying and/or retrieving operations scheduled to be carried on in the area, and during such published periods of operation, fishing or other aquatic activities are forbidden in the area. No vessel will be denied passage through the area at any time during either mine-laying or retrieving operations.

(1627) (3) The Explosives-Handling Berth (Naval) described in paragraph (a)(3) of this section is reserved for the exclusive use of naval vessels and except in cases of emergency no other vessel shall anchor therein without the permission of local naval authorities, obtained through the Captain of the Port, U.S. Coast Guard, Norfolk, Va. There shall be no restriction on the movement of vessels through the Explosive-Handling Berth.

(1628) (4) Vessels shall not be anchored, nor shall persons in the water approach within 300 yards of the perimeter of the Explosives-Handling Berth when that berth is occupied by a vessel handling explosives.

(1629) (5) The regulations of this section shall be enforced by the Commander, Naval Base, Norfolk, Virginia, and such agencies as he may designate.

(1630) **§334.270 York River adjacent to Cheatham Annex Depot, Naval Supply Center, Williamsburg, Virginia; restricted area.** (a) The area. The waters of York River bounded as follows: Beginning at a point on shore at Cheatham Annex Depot at latitude 37°17′14″ N., longitude 76°35′38″ W.; thence to a point offshore at latitude 37°17′52″ N., longitude 76°35′20″ W.; thence approximately parallel to the shore to a point at latitude 37°17′23″ N., longitude 76°34′39″ W.; thence to the shore at latitude 37°16′58″ N., longitude 76°35′03″ W.; and thence along the shore at Cheatham Annex Depot to the point of beginning.

(1631) (b) The regulations. (1) No loitering will be permitted within the area. Oystermen may work their own leaseholds or public bottom within the area, provided they obtain special permission from the Officer in Charge, Cheatham Annex Depot, Naval Supply Center, Williamsburg, Virginia.

(1632) (2) The regulations in this section shall be enforced by the Officer in Charge, Cheatham Annex Depot, U.S. Naval Supply Center, Williamsburg, Virginia.

(1633) **§334.280 James River between the entrance to Skiffes Creek and Mulberry Point, Va.; Army training and small craft testing area.** (a) The restricted area. Beginning on the shore at latitude 37°09′54″N., longitude 76°36′25″W.; thence westerly to latitude 37°09′50″N., longitude 76°37′45.5″W.; thence southerly to latitude 37°09′00″N., longitude 76°38′05″W.; thence southerly to latitude 37°08′22″N., longitude 76°37′55″W.; thence due east to the shore at latitude 37°08′22″N., longitude 76°37′22″W.; thence northerly along the shore to the point of beginning.

(1634) (b) The regulations. (1) No vessels other than Department of the Army vessels, and no persons other than persons embarked in such vessels shall remain in or enter the restricted area except as provided in paragraph (b)(2) of this section.

(1635) (2) Nothing in the regulations of this section shall prevent the harvesting and cultivation of oyster beds or the setting of fish traps within the restricted area under regulations of the Department of the Army, nor will the passage of fishing vessels to or from authorized traps be unreasonably interfered with or restricted.

(1636) (3) Vessels anchored in the area shall be so anchored as not to obstruct the arc of visibility of Deepwater Shoals Light.

(1637) (4) The Commanding General, Fort Eustis, Va., will, to the extent possible give public notice from time to time through local news media and the Coast Guard's Local Notice to Mariners of the schedule of intended Army use of the restricted area.

(1638) (5) The continuation of the restricted area for more than 3 years after the date of its establishment shall be dependent upon the outcome of the consideration of a request for its continuance submitted to the District Engineer, U.S. Army Engineer District, Norfolk, Virginia, by the using agency at least 3 months prior to the expiration of the 3 years.

(1639) (6) The regulations in this section shall be enforced by the Commanding General, Fort Eustis, Va., and such agencies as he may designate.

(1640) **§334.290 Elizabeth River, Southern Branch, Va., naval restricted areas.** (a) The areas–(1) St. Helena Annex Area. Beginning at a point at St. Helena Annex of the Norfolk Naval Shipyard, on the eastern shore of Southern Branch of Elizabeth River, at latitude 36°49′43″, longitude 76°17′26.5″; thence in a southwesterly direction to a point on the eastern boundary of Norfolk Harbor 40-foot channel at latitude 36°49′42″, longitude 76°17′33″; thence in a southerly direction along the eastern boundary of Norfolk Harbor 40-foot channel to latitude 36°49′28″, longitude 76°17′27″; thence easterly to the shore at latitude 36°49′28″, longitude 76°17′22″; and thence, northerly along the shore to the point of beginning.

(1641) (2) Norfolk Naval Shipyard Area. Beginning at a point on the shore at the northeast corner of the Norfolk Naval Shipyard, at latitude 36°49′43.5″, longitude 76°17′41.5″; thence due east approximately 100 feet to the western boundary of Elizabeth River channel; thence in a southerly direction along the western boundary of the channel to the point where it passes through the draw of the

Norfolk and Portsmouth Belt Line Railroad bridge, thence in a southwesterly direction along the northerly side of the bridge to the western shore of Southern Branch of Elizabeth River; and thence along the shore in a northerly direction to the point of beginning.

(1642) (3) Southgate Terminal Area. Beginning at a point at the northeast corner of Southgate Terminal Annex of Norfolk Naval Shipyard, at latitude 36°48′23″, longitude 76°17′39″; thence east to latitude 36°48′23″, longitude 76°17′29″; thence southerly along the western boundary of Norfolk Harbor 35-foot channel to latitude 36°48′04″, longitude 76°17′33″; thence west to latitude 36°48′04″, longitude 76°17′41″; and thence along the shore in a northerly direction to the point of beginning.

(1643) (b) The regulations. (1) No vessels other than Naval vessels and other vessels authorized to move to and from piers at the Norfolk Naval Shipyard and its two annexes described in paragraph (a) (1) and (3) of this section, and no person other than persons embarked in such vessels, shall enter the restricted areas.

(1644) (2) This section shall be enforced by the Commander, Norfolk Naval Shipyard, Portsmouth, Va., and such agencies as he may designate.

(1645) **§334.300 Hampton Roads and Willoughby Bay, off Norfolk Naval Base; naval restricted area.** (a) The area. (1) Beginning at a point on shore at the Destroyer Submarine Piers at latitude 36°56′00″N., longitude 76°19′30″W.; thence westerly to 36°55′59″N., 76°20″08.5″W.; thence northerly along the eastern limit of Norfolk Harbor Channel to 36°57′52″N., 76°20′00″W.; thence easterly to 36°57′52″N., 76°19′35″W.; thence to 36°57′47.7″N., 76°18′57″W.; thence southeasterly to 36°57′26″N., 76°18′42″W.; thence easterly to 36°57′26.2″N., 76°17′55.2″W.; thence southerly to 36°57′05″N., 76°17′52″W.; thence southeasterly to 36°56′56.2″N., 76°17′27″W.; thence northeasterly to 36°57′10″N., 76°16′29″W.; and thence to the shoreline at 36°57′18.8″N., 76°16′22″W.; at the Naval Air Station.

(1646) (2) Beginning at a point on the Naval Station shore at latitude 36°56′37.5″N., longitude 76°19′44″W.; thence westerly and northerly along the breakwater to its extremity at latitude 36°56′41.5″N., longitude 76°19′54″W.; thence westerly to a point on the eastern limit of Norfolk Harbor Channel at latitude 36°56′41.5″N., longitude 76°20′05.5″W.; thence northerly along the eastern limit of Norfolk Harbor Channel to latitude 36°57′52″N., longitude 76°20′00″W.; thence easterly to latitude 36°57′52″N., longitude 76°19′35″W.; thence to latitude 36°57′47.7″N., longitude 76°18′57″W.; thence southeasterly to latitude 36°57′26″N., longitude 76°18′42″W.; thence easterly to latitude 36°57′26.2″N., longitude 76°17′55.2″W.; thence southerly to latitude 36°57′05″N.; longitude 76°17′52″W.; thence southeasterly to latitude 36°56′56.2″N.; longitude 76°17′27″W.; thence northeasterly to latitude 36°57′10″N., longitude 76°16′29″W.; and thence to the shoreline at latitude 36°57′18.8″N., longitude 76°16′22″W.; at the Naval Air Station.

(1647) (b) The regulations. (1) No vessels other than Naval vessels and other vessels authorized to move to and from piers at the Norfolk Naval Base, and no person other than persons embarked in such vessels, shall enter the restricted areas.

(1648) (2) This section shall be enforced by the Commander, Naval Base, Norfolk, Virginia, and such agencies as he/she may designate.

(1649) **§334.310 Chesapeake Bay, Lynnhaven Roads; Navy amphibious training area.** (a) The restricted area. Beginning at latitude 36°55′47″, longitude 76°11′04.5″; thence to latitude 36°59′04″, longitude 76°10′11″; thence to latitude 36°58′28.5″, longitude 76°07′54″; thence to latitude 36°55′27.5″, longitude 76°08′42″; thence westerly along the shore and across the mouth of Little Creek to the point of beginning.

(1650) (b) The regulations. (1) No fishpound stakes or structures shall be allowed in the restricted area.

(1651) (2) No vessel shall approach within 300 yards of any naval vessel or within 600 yards of any vessel displaying the red "baker" burgee.

(1652) (3) This section shall be enforced by the Commandant, Fifth Naval District, and such agencies as he may designate.

(1653) **§334.320 Chesapeake Bay entrance; naval restricted area.** (a) The area. Beginning at a point on the south shore of Chesapeake Bay at longitude 76°03′06″; thence to latitude 37°01′18″, longitude 76°02′06″; thence to latitude 37°00′18″, longitude 75°55′54″; thence to latitude 36°58′00″, longitude 75°48′24″; thence to latitude 36°51′48″, longitude 75°51′00″; thence to the shore at longitude 75°58′48″, and thence northwesterly and southwesterly along the shore at Cape Henry to the point of beginning.

(1654) (b) The regulations. (1) Anchoring, trawling, crabbing, fishing, and dragging in the area are prohibited, and no object attached to a vessel or otherwise shall be placed on or near the bottom.

(1655) (2) This section shall be enforced by the Commandant, Fifth Naval District, Norfolk, Va.

(1656) **§334.330 Atlantic Ocean and connecting waters in vicinity of Myrtle Island, Va.; Air Force practice bombing, rocket firing, and gunnery range.** (a) The danger zone. The waters of the Atlantic Ocean and connecting waters within an area described as follows: Beginning at

(1657) 37°12′18″, 75°46′00″; thence southwesterly to

(1658) 37°08′21″, 75°50′00″; thence northwesterly along the arc of a circle having a radius of three nautical miles and centered at

(1659) 37°11′16″, 75°49′29″, to

(1660) 37°10′14″, 75°52′57″; thence northeasterly to

(1661) 37°14′30″, 75°48′32″; thence southeasterly to

(1662) 37°13′38″, 75°46′18″; and thence southeasterly to the point of beginning.

(1663) (b) The regulations. (1) No vessel shall enter or remain in the danger zone except during intervals specified and publicized from time to time in local newspapers or by radio announcement.

(1664) (2) This section shall be enforced by the Commanding General, Tactical Air Command, Langley Air Force Base, Virginia, and such agencies as he may designate.

(1665) **§334.340 Chesapeake Bay off Plumtree Island, Hampton, Va.; Air Force precision test area.** (a) The danger zone. The waters of Chesapeake Bay and connecting waters within an area bounded as follows: Beginning at latitude 37°08′12″, longitude 76°19′30″, which is a point on the circumference of a circle of 10,000-foot radius with its center on Plumtree Point at latitude 37°07′30″, longitude 76°17′36″; thence clockwise along the circumference of the circle to latitude 37°09′06″, longitude 76°18′00″; thence southeasterly to latitude 37°08′12″, longitude 76°17′48″; thence clockwise along the circumference of a circle of 4,000-foot radius (with its center at latitude 37°07′30″, longitude 76°17′36″ to latitude 37°07′48″, longitude 76°18′24″; thence northwesterly to the point of beginning.

(1666) (b) The regulations. (1) The danger zone will be in use not more than a total of 4 hours per month, which hours shall be during not more than any 2 days per month.

(1667) (2) No vessel shall enter or remain in the danger zone during periods of firing or bombing or when the zone is otherwise in use.

(1668) (3) The Commander, Tactical Air Command, Langley Air Force Base, Va., shall be responsible for publicizing in advance through the Coast Guard's "Local Notice to Mariners," in the local press, and by radio from time to time the schedule of use of the area, and shall station patrol boats to warn vessels during periods of use.

(1669) (4) This section shall be enforced by the Commander, Tactical Air Command, Langley Air Force Base, Va., or such agency as he may designate.

(1670) (c) Disestablishment of danger zone. The danger zone will be disestablished not later than December 31, 1967, unless written application for its continuance shall have been made to and approved by the Secretary of the Army prior to that date.

(1671) **§334.350 Chesapeake Bay off Fort Monroe, Va.; firing range danger zone.** (a) The danger zone. All of the water area lying within a section extending seaward a distance of 4,600 yards between radial lines bearing 83° True and 115° True, respectively, from a point on shore at latitude 37°01'30" N., longitude 76°17'54" W.

(1672) (b) The regulations. (1) No weapon having a greater range than the 30-calibre carbine is to be fired into the firing range danger zone.

(1673) (2) During periods when firing is in progress, red flags will be displayed at conspicuous locations on the beach. Observers will be on duty and firing will be suspended as long as any vessel is within the danger zone.

(1674) (3) Passage of vessels through the area will not be prohibited at any time, nor will commercial fishermen be prohibited from working fish nets within the area. No loitering or anchoring for other purposes will be permitted during announced firing periods.

(1675) (4) No firing will be done during hours of darkness or low visibility.

(1676) (5) The Commander, Fort Monroe, Va., is responsible for furnishing in advance the firing schedule to the Commander, 5th Coast Guard District, for publication in his "Local Notice to Mariners" and to the local press at Norfolk and Newport News, Va.

(1677) (c) The regulations in this section shall be enforced by the Commanding Officer, Fort Monroe, Va., and such agencies as he may designate.

(1678) **§334.360 Chesapeake Bay off Fort Monroe, Virginia; restricted area, U.S. Naval Base and Naval Surface Weapon Center.**

(1679) (a) The area. Beginning at

(1680) 37°00'30"N., 76°18'05"W.; thence to

(1681) 37°00'38"N., 76°17'42"W.; thence to

(1682) 37°00'39"N., 76°16'11"W.; thence to

(1683) 36°59'18"N., 76°17'52"W.; thence to

(1684) 37°00'05"N., 76°18'17"W.; and thence north along the seawall to the point of beginning.

(1685) (b) The regulations. (1) Anchoring, trawling, fishing, and dragging are prohibited in the danger zone, and no object, either attached to a vessel or otherwise, shall be placed on or near the bottom.

(1686) (2) This section shall be enforced by the Commander, Naval Base, Norfolk, Virginia, and such agencies as he may designate.

(1687) **§334.370 Chesapeake Bay, Lynnhaven Roads; danger zones, U.S. Naval Amphibious Base.** (a) Underwater demolitions area (prohibited)–(1) The area. A portion of the restricted area for Navy amphibious training operations described in §207.157, along the south shore of Chesapeake Bay, bounded as follows: Beginning at a point on the mean low-water line at longitude 76°08'59"; thence 200 yards to latitude 36°55'36", longitude 76°08'57"; thence 400 yards to latitude 36°55'34", longitude 76°08'43"; thence 200 yards to a point on the mean low-water line at longitude 76°08'45"; and thence approximately 400 yards along the mean low-water line to the point of beginning. The area will be marked by range poles set on shore on the prolongation of the lines forming its eastern and western boundaries.

(1688) (2) The regulations. Vessels other than those owned and operated by the United States shall not enter the prohibited area at any time unless authorized to do so by the enforcing agency.

(1689) (b) Small-arms firing range–(1) The Area. Beginning at a point on the shore line at

(1690) 36°55'27"N., 76°08'38"W.; thence to

(1691) 36°55'50"N., 76°08'37"W.; thence to

(1692) 36°57'11"N., 76°08'11"W.; thence to

(1693) 36°56'53"N., 76°07'18"W., thence to

(1694) 36°55'39"N., 76°07'46"W.; thence to

(1695) 36°55'22"N., 76°08'17"W.; thence along the shore line to the point of beginning.

(1696) (2) The regulations. (i) Passage of vessels through the area will not be prohibited at any time, nor will commercial fishermen be prohibited from working fish nets within the area. No loitering or anchoring for other purposes will be permitted.

(1697) (ii) A large red warning flag will be flown on shore during periods when firing is in progress. Observers will be on duty and firing will be suspended for the passage of vessels and for the placing and maintenance of fish nets within the area.

(1698) (c) This section shall be enforced by the Commanding Officer, U.S. Naval Amphibious Base, Little Creek, Norfolk, Virginia.

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3. SANDY HOOK TO CAPE HENRY

(1) Between New York Bay and Delaware Bay is the New Jersey coast with its many resorts, its inlets, and its Intracoastal Waterway. Delaware Bay is the approach to Wilmington, Chester, Philadelphia, Camden, and Trenton; below Wilmington is the Delaware River entrance to the Chesapeake and Delaware Canal, the deep inside link between Chesapeake and Delaware Bays. The Delaware-Maryland-Virginia coast has relatively few resorts; the numerous inlets are backed by a shallow inside passage that extends all the way from Delaware Bay to Chesapeake Bay. The last seven chapters, nearly half of this book, are required to describe Chesapeake Bay to Norfolk and Newport News, to Washington and Baltimore, and to Susquehanna River 170 miles north of the Virginia Capes.

(2) A vessel approaching this coast from seaward will be made aware of its nearness by the number of vessels passing up and down in the coastal trade. The coast of New Jersey is studded with large hotels, prominent standpipes, and elevated tanks. South of Delaware Bay, the principal landmarks are the lighthouses and Coast Guard stations.

(3) The general tendency along this mostly sandy coast is for the ocean beaches and the points on the north sides of the entrances to wash away and for the points on the south sides of the entrances to build out. Protective works have done much to stabilize the New Jersey coast, but several lighthouses have been abandoned between Delaware Bay and Chesapeake Bay because of erosion.

(4) The shores of Delaware Bay and Delaware River are mostly low and have few conspicuous marks, other than lights, below the industrial centers along the river. The shores of Chesapeake Bay are low as far north as Patuxent River, then rise to considerable heights at the head of the bay.

(5) **Disposal Sites and Dumping Grounds.**–These areas are rarely mentioned in the Coast Pilot, but are shown on the nautical charts. (See Disposal Sites and Dumping Grounds, chapter 1, and charts for limits.)

(6) **Aids to navigation.**–Lights are numerous along the section of the coast covered by this Coast Pilot. Radiobeacons and fog signals are at most of the principal light stations. Marker radiobeacons, low-powered and for local use only, are at the entrances to many of the inlets. Many coastal and harbor buoys are equipped with radar reflectors, which greatly increase the range at which the buoys may be detected on the radarscope. The critical dangers are marked.

(7) **Loran.**–Loran C stations provide the mariner with good navigation coverage along this section of the coast.

(8) **Radar**, though always a valuable navigational aid, is generally of less assistance in navigation along this coast due to the relatively low relief; the accuracy of radar ranges to the beach cannot be relied upon. Coastal buoys equipped with radar reflectors are of help in this regard. It is sometimes possible to obtain a usable radar return from the larger lighthouses, but positive target identification is usually difficult. Radar is of particular importance in detecting other traffic and in the prevention of collisions during periods of inclement weather, and in fog and low visibility.

(9) **COLREGS Demarcation Lines.**–Lines have been established to delineate those waters upon which mariners must comply with the International Regulations for Preventing Collisions at Sea, 1972 (72 COLREGS) and those waters upon which mariners must comply with the Inland Navigational Rules Act of 1980 (Inland Rules). The waters inside of the lines are **Inland Rules Waters,** and the waters outside of the lines are **COLREGS Waters.** (See **Part 80,** chapter 2, for specific lines of demarcation.)

(10) **Ports and Waterways Safety.**–(See **Part 160,** chapter 2, for regulations governing vessel operations and requirements for notification of arrivals, departures, hazardous conditions, and certain dangerous cargoes to the Captain of the Port.)

(11) **Harbor and Inlet Entrances.**–The channels into Delaware and Chesapeake Bays are broad and deep. The entrances to the inlets are comparatively shallow and are more or less obstructed by shifting sandbars. Some of the inlets have been improved by dredging and by the construction of jetties. On many of the bars the buoys are moved from time to time to mark the shifting channels. The best time to enter most of the inlets is on a rising tide with a smooth sea. Strangers should not attempt to enter the inlets without assistance when the seas are breaking on the bars. The tidal currents have considerable velocity in all of the entrances, and their direction is affected by the force and direction of the wind.

(12) **Traffic Separation Schemes (Traffic Lanes)** have been established at the entrances to New York Harbor, Delaware Bay and Chesapeake Bay, and in the main channel of Chesapeake Bay off Smith Point just south of the entrance to the Potomac River. (See chapters 4, 6, 9, and 12, respectively, for details.)

(13) **Anchorages.**–The only protected anchorage for deep-draft vessels between New York Bay and Chesapeake Bay is outside the channel limits in Delaware Bay according to draft. Absecon Inlet, Cape May Inlet, and some of the others can accommodate light-draft vessels such as trawlers and small yachts, but not medium or deep drafts. Small local craft often seek shelter inside the shallower inlets, but entrance is difficult in heavy weather, and the unimproved inlets are often difficult even in good weather, particularly for strangers.

(14) A number of anchorage areas have been established by Federal Regulations within the area of this Coast Pilot. (See **Part 110,** chapter 2, for limits and regulations.)

(15) **Dangers.**–The principal dangers along this coast are the outlying sand shoals, the fogs, and the doubtful direction and velocity of the currents after heavy gales. Depths of 7½ fathoms are found as far as 20 miles from shore. There are many wrecks along this coast, but most of them have been blasted off or cleared to safe navigational depths; the others are marked by obstruction buoys.

(16) Gales from northeast to southeast cause heavy breakers on the beaches and outlying shoals; the sea breaks in 4 to 5 fathoms of water, and shoals of that depth or less usually are marked during easterly gales. The bars across the inlets are then impassable and are defined by breakers even in comparatively smooth water with a light swell. The heaviest surf on the beach is on a rising tide near high-water springs; the least surf is encountered on a falling tide near low water. A very heavy surf makes on the beaches after a southeasterly gale followed by a sudden shift of wind to northwest.

(17) **Danger zones** have been established within the area of this Coast Pilot. (See **Part 334,** chapter 2, for limits and regulations.)

(18) **Fishweirs** are numerous along the outside coast and in Chesapeake Bay and tributaries. The stakes often become broken off and form a hazard to navigation, especially at

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swing span with a clearance of 15 feet over the main channel. (See **117.1 through 117.49,** chapter 2, for drawbridge regulations.) The town is principally a shellfish and fishing center, but pleasure craft operate from here during the summer. The wharves and piers along the waterfront have depths of 3 to 10 feet alongside. There are small-craft facilities at Chincoteague that can provide gasoline, diesel fuel, water, berths, and limited marine supplies. Hull and engine repairs can be made; a 40-ton marine railway at Chincoteague can handle craft up to 80 feet.

(79) A boat basin is at the extreme southwest end of Chincoteague Island. In May 1988, the dredged entrance channel, marked by a light, had a midchannel controlling depth of 7 feet with 7 to 8 feet in basin.

(80) **Chincoteague Coast Guard Station** is on the east side of Chincoteague Channel, 0.3 mile south of the highway bridge.

(81) **Chart 12210.**–The 35-mile stretch of coast between Chincoteague Inlet and Great Machipongo Inlet is formed by six islands of about equal length. The islands are separated from each other by narrow inlets and from the mainland by marsh and flats through which are numerous sloughs and channels.

(82) **Wallops Island,** northernmost of the six, is on the southwest side of Chincoteague Inlet.

(83) A **danger zone** extends for about 5 miles off the coast of Wallops Island and covers the entrance to Chincoteague Inlet. A strobe light is displayed at night from a tower in about 37°15′16″N., 75°29′06″W., about 30 minutes prior to the commencement of and during rocket launching operations. (See **334.130** chapter 2, for limits and regulations.)

(84) **Assawoman Inlet,** the ocean entrance between **Wallops Island** and **Assawoman Island,** is very shallow and is not used. **Gargathy Inlet,** the ocean inlet separating Assawoman Island and **Metompkin Islands,** is not used.

(85) **Metompkin Inlet,** the ocean entrance between Metompkin Islands and **Cedar Island,** is used by some small local fishing and oyster boats. The changeable entrance channel is unmarked and should not be entered without local knowledge.

(86) **Porpoise Banks,** 10 miles offshore from Metompkin Inlet, have irregular bottom with depths of 34 to 40 feet.

(87) **Wachapreague Inlet,** between Cedar Island and **Parramore Island,** is 20 miles south-southwestward of Chincoteague Inlet. The entrance is marked by a lighted bell buoy and unlighted buoys that are shifted in position with changing channel conditions. The controlling depth is about 5 feet through the inlet, which is used by many fishing boats and by some boats seeking shelter, but should be entered only with local knowledge. The best anchorage is in **Horseshoe Lead,** southwest of the entrance, where there are depths of 20 to 30 feet west of the middle ground. **Parramore Beach Coast Guard Station** is on the inner side of Parramore Island 0.5 mile south of the inlet. A radiobeacon is atop the lookout tower at the Coast Guard station.

(88) **Parramore Banks** extend about 8 miles offshore from Wachapreague Inlet. The area is lumpy and has numerous depths of 18 to 30 feet. A lighted gong buoy is east of the banks.

(89) Two fish havens are about 2.6 miles and 7.5 miles east-southeast, respectively, from Wachapreague Inlet. The fish haven nearer to shore is marked by buoys.

(90) **Wachapreague,** a town on the mainland about 4 miles west-northwest of Wachapreague Inlet, is an oystering and fishing center, and is a base for some pleasure boats during the summer. A depth of about 4 feet can be carried from Wachapreague Inlet through **Hummock Channel** and **Wachapreague Channel,** marked by lights, to the wharves and marinas at the town. Gasoline, diesel fuel, berths, and some marine supplies can be obtained. Hull and engine repairs can be made; largest marine railway, 50 feet.

(91) **Quinby Inlet,** the ocean entrance between Parramore Island and Hog Island, has a fan of breakers across the bar at the entrance. The buoys marking the inlet are frequently shifted and not charted. In 1982, a draft of 5 feet could be carried through the inlet. The inlet should not be used without local knowledge.

(92) **Quinby** is a village on the mainland about 6 miles north-northwest of Quinby Inlet. A channel to the village, marked by lights, follows **Sandy Island Channel** to **Upshur Bay,** thence through a slough in the mudflats to a dredged channel leading to a basin that has a public landing; gasoline, diesel fuel, berths, some marine supplies, and a pumpout station are available. In May 1988, the midchannel controlling depth was 5 feet in the dredged channel with 5 to 6½ feet in the basin. A no-wake **speed limit** is enforced.

(93) **Great Machipongo Inlet,** the ocean entrance between Hog Island and **Cobb Island,** has breakers that form on the shoals on either side of the entrance at all times, but on the bar only in heavy weather. The inlet is marked by buoys that are shifted in position with changing channel conditions. The controlling depth is about 12 feet over the bar.

(94) **Great Machipongo Channel** extends northwestward through Hog Island Bay from the inlet to the mainland where it continues as **Machipongo River. Willis Wharf,** on the west bank of **Parting Creek** 1 mile above the junction with Machipongo River, is a base for shellfish and fishing boats. Gasoline and diesel fuel are available. A marine railway here can handle craft up to 60 feet for do-it-yourself repairs. In January 1989, the dredged channel in Parting Creek had a midchannel controlling depth of 7 feet from the junction with Machipongo River to Willis Wharf.

(95) A state-owned boat harbor is just below Willis Wharf on the west side of Parting Creek between Daybeacons 17 and 18. An area with about 41 slips is available for commercial fishing boats. The harbor has electricity, water, and a launching ramp.

(96) **Chart 12224.**–**Sand Shoal Inlet,** the ocean entrance between Cobb Island and **Wreck Island,** may be entered through three channels. **Northeast Channel,** protected by extensive shoaling to northward and marked by buoys shifted in position with changing channel conditions, leads along the south end of Cobb Island; the controlling depth is about 10 feet over the bar. **Southeast Channel** is straight, but the bar breaks in heavy weather; the controlling depth is about 10 feet over the bar. **South Channel,** east of Wreck Island, has a controlling depth of about 8 feet. The latter two channels are not marked and should not be used by strangers.

(97) A good fair-weather anchorage is in the channel near the discontinued Coast Guard station east of **Little Cobb Island** for boats able to cross the entrance bar with 3 feet over it.

(98) **Sand Shoal Channel,** marked by lights and daybeacons, extends westward from Sand Shoal Inlet for 6 miles where it joins a marked dredged channel leading to the wharves and public bulkhead at **Oyster** on the mainland. In June 1984, the controlling depth was 6 feet in the dredged channel and in the basin at Oyster. Public piers and a launching ramp are on the northern side of the basin. Numerous wrecks are reported near these facilities; caution is advised.

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(99) Oyster is the shipping point for large amounts of clams and oysters. Gasoline, diesel fuel, and some marine supplies are available.

(100) **Ship Shoal Inlet,** the ocean entrance between Ship Shoal Island and **Myrtle Island,** is shallow and unmarked; it is used only by local oyster boats. There is deep water back of the inlet, but the channels to the inside passages are shallow and tortuous.

(101) The **danger zone** of a bombing and gunnery range is centered on Myrtle Island, 6 miles northeastward of Cape Charles Light. (See **334.330,** chapter 2, for limits and regulations.)

(102) **Little Inlet,** between Myrtle Island and Smith Island, is shallow and is little used. Small boats can connect with the inside passage at high water.

(103) **Cape Charles** and the islands on the north side of the entrance to Chesapeake Bay are described in chapter 9.

(104) **Smith Island Inlet,** between Smith Island and Fishermans Island, is fairly wide, but the narrow, changeable channel lies between sandbars and breakers. The inlet is used by many local boats with drafts of 3 to 4 feet, but it is unmarked and should not be used by strangers. The controlling depth over the bar is said to be 1½ feet.

(105) **Charts 12211, 12210, 12221.–Virginia Inside Passage** is between the barrier beach along the Atlantic Ocean on the east and the Virginia portion of the mainland peninsula on the west. The passage extends 74 miles from the south end of Chincoteague Bay through creeks, thorofares, marshy cuts, and bays to enter Chesapeake Bay at Cape Charles. The route is marked with lights and daybeacons which have daymarks with white reflector borders to distinguish them from aids to navigation marking other waterways. Buoys are temporarily established from time to time to mark destroyed aids or critical places.

(106) The Federal project depth is 6 feet for the waterway. Maintenance dredging is performed to provide a 6-foot controlling depth, but due to continuous shoaling 3 feet or less may be found in places, particularly inside the ocean inlets. The overhead clearance is limited only by the 40-foot fixed bridge across Cat Creek, 8 miles southward of Chincoteague, the 50-foot clearance of the power cable over Longboat Creek inshore from Metompkin Inlet, 22 miles southward of Chincoteague, and the 40-foot fixed bridge at Cape Charles.

(107) The mean range of tide varies from 2.5 to 4.5 feet in the inlets along the Virginia coast; greater fluctuations in the water level in the inside waters are caused by high winds and storms.

(108) Gasoline, diesel fuel, and some marine supplies are available at Wachapreague, 29 miles south of Chincoteague; at Quinby, 33 miles south of Chincoteague; at Willis Wharf, 37 miles south of Chincoteague; and at Oyster, 60 miles south of Chincoteague and 12 miles north of Cape Charles. Hull and engine repairs can be made at Wachapreague.

(109) From Chincoteague, the Virginia Inside Passage follows Chincoteague Channel across Chincoteague Inlet to **Walker Point,** thence through **Balfast Narrows, Island Hole Narrows,** the dredged cut in **Bogues Bay,** and **Cat Creek** to the sloughs marked by lights and daybeacons back of Assawoman Inlet, 10 miles southwestward of Chincoteague. The fixed highway bridge over Cat Creek has a clearance of 40 feet. The overhead power cable just north of the bridge has a clearance of 60 feet.

(110) From 1 mile back of Assawoman Inlet, the inside passage continues through **Northam Narrows,** thence through dredged cuts in **Kegotank Bay** and back of Gargathy Inlet to **Wire Passage,** 15 miles southwestward of Chincoteague.

(111) From Gargathy Inlet, the inside passage goes through Wire Passage into a dredged cut in **Metompkin Bay,** and enters Folly Creek westward of Metompkin Inlet. A dredged channel with a controlling depth of 5 feet in February 1991, extends about 0.8 mile up **Parker Creek** from Virginia Inside Passage Light 80. The channel is marked by daybeacons. **Folly Creek,** which leads westward from the south end of Metompkin Bay, has a depth of 1 foot to the landing at its head, 3 miles above the mouth. A launching ramp and a pier are on the south side of Folly Creek about 1 mile west of Light 87.

(112) The passage continues through a dredged cut from Folly Creek into **Longboat Creek,** which has a power cable over its northern part with a clearance of 50 feet, thence through cuts in **Cedar Island Bay, Teagles Ditch,** and **Burtons Bay** into Wachapreague Channel which leads to Wachapreague, 29 miles southward of Chincoteague. Supplies and repair facilities are available at Wachapreague. (Refer to previous description in this chapter.)

(113) From Wachapreague Channel, the passage continues through a cut in **Bradford Bay,** a part of **Millstone Creek,** a cut in **Swash Bay,** a part of **The Swash,** and **Little Sloop Channel** to Sandy Island Channel, 3 miles inside Quinby Inlet and 36 miles southward of Chincoteague.

(114) The passage southward of Quinby Inlet follows **Sloop Channel** and a dredged cut into **Cunjer Channel,** thence westward in **North Channel** at the north end of **Hog Island Bay** to Great Machipongo Channel, 43 miles southward of Chincoteague.

(115) After passing through Great Machipongo Channel to a point 2 miles inside Great Machipongo Inlet, the route goes westward through **Gull Marsh Channel,** thence southwestward through a natural channel and cut in **Outlet Bay** and **Spidercrab Bay** to **Eckichy Channel,** thence southeastward to Sand Shoal Channel, 1.5 miles inside Sand Shoal Inlet, 56 miles southward of Chincoteague.

(116) From inside of Sand Shoal Inlet, the passage continues westward through Sand Shoal Channel and southward through **Mockhorn Channel** to Magothy Bay.

(117) **Magothy Bay,** which extends southward from Mockhorn Channel to Smith Island Inlet, is shallow except in the well-marked inside passage which passes through the bay to Cape Charles. **Magotha** is a village on the west side of the bay 3.5 miles northwestward of Cape Charles Light.

(118) From the southern part of Magothy Bay, the passage continues southwestward through a dredged cut across Cape Charles into the deep water in Chesapeake Bay. The fixed highway bridge over the passage from Cape Charles to Fishermans Island has a clearance of 40 feet.

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9. CHESAPEAKE BAY ENTRANCE

(1) This chapter describes the deep-draft southerly entrance to Chesapeake Bay from the Atlantic Ocean; the waters of Lynnhaven Roads, Lynnhaven Inlet, Little Creek, Hampton Roads, Willoughby Bay, Lafayette River, and Elizabeth River, including Western, Eastern, and Southern Branches; and the ports of Hampton, Newport News, Norfolk, Berkley, Portsmouth, and Chesapeake.

(2) **COLREGS Demarcation Lines.**–The lines established for Chesapeake Bay are described in **80.510,** chapter 2.

(3) **Weather.**–This summary provides climatological information applicable to the entire Chesapeake Bay. From November through April Chesapeake Bay, particularly the southern portion, is rough sailing. Storms moving up the Atlantic coast generate winds out of the northeast quadrant ahead of their centers; speeds often reach 30 to 50 knots. Several days of strong and gusty northwest winds may follow. Strong cold fronts from the west can generate 25 to 45 knot gusts over open water. Waves associated with strong winds can be rough and bad chop develops when these winds oppose strong tidal currents. Northerlies of 25 knots or more, over a long fetch of the bay, can easily build 8 to 10 foot seas in the central portion and 5 to 7 foot seas in the south. Seas of 8 feet or more occur about 2 to 4 percent of the time from fall through early spring, in the bay. Gales can occur from September through March.

(4) Another problem during this period is poor visibilities. Fog forms most often when warm, moist air moves across the bay's cold waters from the southeast through south. Most of the 30 to 40 dense fog days each year develop from January through April. Dens fog is more common offshore and should be expected on unusually warm, humid winter and spring days. Fog over particularly cold waters with winds less than 10 knots may drop visibilities to near zero. Preciptiation, particularly snow, may also hamper visibilities.

(5) When temperatures drop below about 28°F and winds are blowing at 13 knots or more, there exists a potential for moderate superstructure icing. This potential exists in the bay from November through March; January and February are the worst months when the potential exists about 3 percent of the time.

(6) During March and April, cold fronts often trigger fast-moving narrow bands of thunderstorms. Preceding the cold front these bands move eastward at 10 to 30 knots generating lightning and gusty winds of gale force. Thunderstorms are also a bay-wide threat during spring and summer when they develop about 6 to 9 days each month. They may develop over land during the afternoon as warm, humid air is forced aloft by surface heating. The thunderstorm may precede a cold front. When a cold front passes during a period of maximum afternoon heating thunderstorms may be severe. In spring and early summer they usually develop to the west of the bay and move toward the northeast at speeds of 25 to 35 knots. Occasionally thunderstorms will approach from the northwest; these are often severe, tend to move very fast, and can pack winds reaching 70 to 90 knots. This type of storm struck Norfolk in June 1977 capsizing a charter fishing boat and tearing away the end of a fishing pier. Severe squall lines can also generate tornadoes which may move over the bay developing waterspouts; winds can exceed 200 knots in these systems. By midsummer, fronts become weaker and less frequent and thunderstorms are mainly the air mass type which move at 10 to 20 knots and usually do not organize into a squall line. Thunderstorms are likely to occur on 8 to 9 days in July compared to 6 to 7 days in August.

(7) Good weather in late summer and fall is compromised mainly by the threat of a tropical cyclone, particularly from mid-August through the first week in October. A hurricane affects the Chesapeake Bay about once every 10 years on the average. Thunderstorms occur on 1 to 3 days per month in September and October and are usually associated with increasingly frequent and rigorous cold fronts. Fog becomes more of a problem, particularly north of Annapolis. This is a morning fog that forms on 1 to 4 days per month during September and October over the upper reaches of the bay; it usually lifts by noon. In late summer and autumn waterspouts may be sighted. These are short-lived and less severe than those associated with thunderstorms; maximum winds climb to about 50 knots. They are caused by cooler air overriding a body of warm moist air in association with a cloud build up over the bay; they usually occur in fair weather.

(8) (See page T-11 for **Chesapeake Bay climatological table.**)

(9) **Charts 12221, 12220, 12260.–Chesapeake Bay,** the largest inland body of water along the Atlantic coast of the United States, is 168 miles long with a greatest width of 23 miles. The bay is the approach to Norfolk, Newport News, Baltimore, and many lesser ports. Deep-draft vessels use the Atlantic entrance, which is about 10 miles wide between Fishermans Island on the north and Cape Henry on the south. Medium-draft vessels can enter from Delaware Bay on the north via Chesapeake and Delaware Canal, and light-draft vessels can enter from Albemarle Sound on the south via the Intracoastal Waterway.

(10) The waters surrounding a vessel that is carrying liquefied petroleum gas are a **safety zone** while the vessel transits the Chesapeake Bay and Elizabeth River. (See **165.506,** chapter 2, for limits and regulations.)

(11) **Mileages.**–Many of the distances in this and later Chesapeake Bay chapters are given in nautical miles above the **Virginia Capes,** or "the **Capes,**" which is a short way of referring to a line from Cape Charles Light to Cape Henry Light.

(12) **Chesapeake Light** (36°54.3'N., 75°42.8'W.), 117 feet above the water, is shown from a blue tower on a white superstructure on four piles, 14 miles eastward of Cape Henry. The name CHESAPEAKE is displayed on all sides. A fog signal and radiobeacon are operated at the station. A racon is at the light. A fish haven, consisting of sunken fishing-boat hulls and marked by private unlighted buoys, is about 0.4 mile southwestward of the light.

(13) **Cape Charles,** on the north side of the entrance, is low and bare, but the land back of it is high and wooded. **Wise Point** is the most southerly mainland tip of the cape. Low **Fishermans Island,** a National Wildlife Refuge, is 1 mile south of Wise Point.

(14) The southwest end of **Smith Island** is 2.4 miles eastward of Wise Point; the island is 6 miles long, low and sparsely wooded, and awash at half tide midway along its length.

(15) **Cape Charles Light** (37°07.4'N., 75°54.4'W.), 180 feet above the water, is shown from an octagonal, pyramidal

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skeleton tower, upper part black and lower part white, on the southwestern part of Smith Island. The ruins of the old lighthouse are in shallow water 0.7 mile eastward of the light.

(16) **Smith Island Shoal,** which breaks in heavy weather, has depths of 21 feet 7.5 miles east-southeast of Cape Charles Light. Depths less than 40 feet extend another 5 miles northeastward. Outer limits of the shoal area are marked by a lighted buoy.

(17) **Nautilus Shoal,** which extends 4 miles southeastward from Fishermans Island, has patches with depths of 6 to 11 feet. The buoyed channel along the southwest side of Nautilus Shoal, thence northward between Fishermans Island and **Inner Middle Ground,** had a controlling depth of about 16 feet in 1977-1980. The channel is used by local vessels drawing up to 12 feet. This channel is not recommended for strangers because of shifting shoals.

(18) Breakers frequently occur along the axis of Inner Middle Ground, starting on the seaward side of the Chesapeake Bay Bridge-Tunnel and continuing the entire length of the shoal. This phenomenon appears to be associated with large swells rolling in from sea from the south-southeast to southeast.

(19) **Charts 12222, 12221, 12225.–Cape Henry,** on the south side of the entrance, has a range of sand hills about 80 feet high.

(20) **Cape Henry Light** (36°55.6′N., 76°00.4′W.), 164 feet above the water, is shown from an octagonal, pyramidal tower, upper and lower half of each face alternately black and white, on the beach near the turn of the cape. A radiobeacon is close NW of the light.

(21) The gray octagonal, pyramidal tower 110 yards southwest of Cape Henry Light is the abandoned 1791 lighthouse.

(22) **Local magnetic disturbance.**–Differences of as much as 6° from the normal variation have been observed 3 to 17 miles offshore from Cape Henry to Currituck Beach Light.

(23) A **naval restricted area** extends northward and eastward from Cape Henry. (See **334.320,** chapter 2, for limits and regulations.)

(24) The summer resort of **Virginia Beach** is about 5 miles southward of Cape Henry Light. Many high-rise buildings, two water tanks, and an aerobeacon 2.8 miles inland are prominent. A hotel cupola, 3.4 miles south of Cape Henry Light, is distinctive.

(25) The **Chesapeake Bay Bridge-Tunnel** extends from Cape Charles across the bay entrance to a point 6 miles westward of Cape Henry. The 15-mile crossing has vehicular tunnels under Chesapeake Channel and Thimble Shoal Channel with fixed bridges over Fishermans Inlet and secondary channels. In addition to the channel buoys and lights, daybeacons and fog signals mark the openings at Chesapeake and Thimble Shoal Channels. At night the floodlighted tunnel houses are more prominent than the privately maintained lights marking the channels.

(26) **Caution.**–The Chesapeake Bay Bridge-Tunnel complex has on several occasions suffered damage from vessels. In every case, adverse weather prevailed with accompanying strong winds from the northwest quadrant generally related to a frontal system. Weather deterioration in the lower bay is quite often sudden and violent and constitutes an extreme hazard to vessels operating or anchoring in this area. The proximity of the bridge-tunnel complex to main shipping channels and anchorages adds to the danger. Currents in excess of 3.0 knots can be expected in the area.

(27) Normal precautions dictated by prudent seamanship are expected of all vessels. Mariners transiting this area are, however, urged to be particularly alert in regards to the weather. To assist in this respect, the National Weather Service provides 24-hour weather broadcasting on 162.55 MHz. The local Marine Operator also transmits weather information at 0000, 0600, 1200, and 1800 local time on 2450 kHz and 2538 kHz. Information of a pending weather frontal passage should be met with advance preparations. Engines readied for short notice maneuvering and anchor details alerted are considered minimum prudent precautions. Maneuvering in close proximity of the bridge-tunnel complex is also discouraged.

(28) A **Regulated Navigation Area** has been established in the waters of the Atlantic Ocean and in Chesapeake Bay. (See **165.1 through 165.13, and 165.501,** chapter 2, for limits and regulations.)

(29) **Traffic Separation Schemes (Chesapeake Bay Entrance and Smith Point)** have been established for the control of maritime traffic at the entrance of Chesapeake Bay and off Smith Point Light (37°52.8′N., 76°11.0′W.). They have been designed to aid in the prevention of collisions, but are not intended in any way to supersede or alter the applicable Navigation Rules. (See Traffic Separation Schemes, chapter 1, for additional information.)

(30) **Traffic Separation Scheme (Chesapeake Bay Entrance).**–The scheme provides for inbound-outbound traffic lanes to enter or depart Chesapeake Bay from the northeastward and from the southeastward. (See chart 12221.)

(31) A precautionary area with a radius of 2 miles is centered on Chesapeake Bay Entrance Junction Lighted Gong Buoy CBJ (36°56.1′N., 75°57.5′W.).

(32) The northeasterly inbound-outbound traffic lanes are separated by a line of four fairway buoys on bearing 250°–070°. The outermost buoy in the line is 6.4 miles 313° from Chesapeake Light and the innermost buoy is 4.5 miles 074° from Cape Henry Light.

(33) The southeasterly approach is marked by Chesapeake Bay Southern Approach Lighted Whistle Buoy CB (36°49.0′N., 75°45.6′W.). A racon is on the buoy. The inbound/outbound traffic lanes are separated by a **Deep-Water Route** marked by lighted buoys on bearings 302°-122° and 317°-137°. The Deep-Water Route is intended for deep draft vessels and naval aircraft carriers entering or departing Chesapeake Bay. A vessel using the Deep-Water Route is advised to announce its intentions on VHF-FM channel 16 as it approaches Lighted Whistle Buoy CB on the south end, and Lighted Gong Buoy CBJ on the north end of the route. All other vessels approaching the Chesapeake Bay Traffic Separation Scheme should use the appropriate inbound/outbound lanes of the northeasterly or southeasterly approaches.

(34) The Coast Guard advises that upon entering the traffic lanes, all inbound vessels are encouraged to make a security broadcast on VHF-FM channel 13, announcing the vessel's name, location, and intentions.

(35) **Exercise extreme caution where the two routes converge off Cape Henry.** Mariners are also warned that vessels may be maneuvering in the pilotage area which extends into the western part of the precautionary area.

(36) **Traffic Separation Scheme (Smith Point).**–The turn in the main channel in Chesapeake Bay off Smith Point is marked by a fairway buoy 1.5 miles 090° from Smith Point Light. Northbound traffic will pass eastward of the buoy, and southbound traffic will pass westward of the buoy.

(37) **Channels.**–The deepest route to and from Chesapeake Bay is south of Chesapeake Light through the buoyed Deep-Water Route in the southeasterly approach. In September-October 1990, the controlling depth in the Deep-Water Route was 50 feet, except for a 47-foot spot in about

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36°51'47"N., 75°51'06"W. The southeasterly approach inbound traffic lane has a controlling depth of about 40 feet, and the outbound lane has a controlling depth of about 47 feet. The route north of Chesapeake Light through the buoyed northeasterly approach traffic lanes has a controlling depth of about 29 feet in the inbound lane and about 34 feet in the outbound lane. Federal project main channel depths are 50 feet from the Virginia Capes to Baltimore and 55 feet from the Capes to Hampton Roads. (See Notice to Mariners and latest editions of charts for controlling depths.)

(38) The well-marked channel to Baltimore is discussed further in chapters 11 to 15.

(39) **Tides.**–The mean range of tide is 2.8 feet at Cape Henry.

(40) **Currents.**–The current velocity is 1.0 knot on the flood and 1.5 knots on the ebb in Chesapeake Bay Entrance. (See the Tidal Current Tables for daily predictions.)

(41) **Pilotage** is compulsory for all foreign vessels and for U.S. vessels under register in the foreign trade. Pilotage is optional for U.S. vessels under enrollment in the coastwise trade if they have on board a pilot licensed by the Federal Government to operate in these waters.

(42) The Association of Maryland Pilots has an office in Baltimore (301–342–6013, 301–276–1337; cable address MARPILOT) and provides service to any port in Maryland. The Virginia Pilots Association has an office in Norfolk (804–496–0995; cable address VAPILOT) and provides service to any port in Virginia. Vessels bound for Washington, D.C. may take a pilot from either association.

(43) A pilot boat from the Association of Maryland Pilots is stationed in the pilot cruising area off Cape Henry. The pilot boat, a 180-foot converted tugboat, has a black hull, white superstructure, and a blue stack with the number "1" in the center. The pilot boat monitors VHF-FM channels 16, 11, and 13. The pilot boat displays the standard day and night signals. The pilots are carried to and from the ships in 35- and 47-foot-long launches with blue hulls, white houses, and the word "PILOT" across the wheelhouses. The pilots carry portable radiotelephones for bridge-to-bridge communications on channel 13. Vessels proceeding from the Virginia Capes to Washington, D.C. or the upper part of Chesapeake Bay and northward, when using Maryland pilots, sometimes transfer pilots at a designated transfer area off Piney Point on the Potomac River or in Chesapeake Bay off the entrance to Patuxent River, depending on the port of call.

(44) The Virginia Pilots Association maintains a pilot station at Cape Henry, just north of Cape Henry Light. The pilots monitor VHF-FM channels 11, 16, and 74. Other channels are used on request. Four pilot boats are stationed in Lynnhaven Inlet; two are in use at any given time. The pilot boats are 50 feet long with orange hulls and gray houses with the word "PILOT" on each side.

(45) The Chesapeake and Interstate Pilots Association offers pilot services to vessels engaged in the coastwise trade and public vessels between Cape Henry and any port or place on the Chesapeake Bay and its tributaries. Arrangements for pilots are made through ships' agents or the pilot office in Norfolk (telephone, 804-855-2733; cable, CINPILOT). Pilots meet vessels day or night aboard the pilot boat "CHESAPEAKE II" which is black with a white house and the word "PILOT" on the sides. At night, the standard pilot lights are displayed. A 12-hour estimated time of arrival (ETA) is requested with any change greater than 1 hour being advised to the pilots. The pilot boat "CHESAPEAKE II" monitors VHF-FM channels 16 and 13 about 1 hour and 30 minutes prior to the vessel's ETA or Departure and switches to VHF-FM channel 6 for working traffic. The pilot boat call sign is WTR 3711.

(46) Vessels are usually boarded at Chesapeake Bay Entrance Lighted Junction Buoy CBJ, but with prior arrangement and if scheduling permits, vessels can be boarded at other places in the lower Chesapeake Bay.

(47) The Interport Pilots Agency, Inc. offers pilotage to public and U.S. vessels in the coastwise trade transiting to Baltimore, the Chesapeake and Delaware Canal, Philadelphia, New York, Long Island Sound, Cape Cod Canal, and ports in the northeast. Arrangements for any of the above services are made in advance through ships' agents or with their office in Atlantic Highlands, N.J. (telephone 201-291-1310; cable, PORTPILOTS). An updated 12-hour estimated time of arrival (ETA) is requested.

(48) The pilot boat "CHESAPEAKE II" is also used by Interport Pilots Agency,

(49) It has been noted that sometimes considerable differences occur between a vessel's ETA and her actual arrival due to conditions encountered between Cape Hatteras and Cape Henry. Revisions to the ETA of 1 hour or greater should be passed to the pilots especially if the vessel's arrival will be sooner than previously advised.

(50) **Charts 12254, 12222, 12256.–Thimble Shoal Channel,** the improved approach to Hampton Roads, begins 2.3 miles northwest of Cape Henry Light and extends 9.5 miles west-northwestward; a Federal project provides for a 55-foot-deep channel with a 32-foot-deep auxiliary channel on each side of the main channel. (See Notice to Mariners and latest editions of the charts for controlling depths.)

(51) **Naval and general anchorages** are south of Thimble Shoal Channel. (See **110.1 and 110.168**, chapter 2, for limits and regulations.)

(52) Thimble Shoal Channel is a **Regulated Navigation Area** and draft limitations apply. A vessel drawing less than 25 feet may not enter the channel, unless the vessel is crossing the channel. (See **165.501**, chapter 2, for limits and regulations.)

(53) **Lynnhaven Roads,** an open bight westward of Cape Henry, is protected from southerly winds and is sometimes used as an anchorage. The former dumping-ground area in the western part of the bight has shoals and obstructions with depths as little as 11 feet; elsewhere, general depths are 20 to 28 feet Eastward of Lynnhaven Inlet, the 18-foot curve is no more than 0.3 mile from shore; westward of the inlet, the shoaling is gradual and depths of 18 feet can be found 0.8 mile from shore.

(54) There are two small-craft openings in the Chesapeake Bay Bridge-Tunnel south of Thimble Shoal Channel. Each fixed span has a clearance of 21 feet.

(55) **Lynnhaven Inlet,** 4 miles westward of Cape Henry Light, is subject to continual change. The inlet is marked by a lighted buoy, daybeacons, and lights. The twin fixed highway bridges over the inlet have a clearance of 35 feet. Overhead power cables close southward of the bridges have clearances of 68 feet. **Lynnhaven Bay,** south of the inlet, has depths of 1 to 10 feet.

(56) A dredged channel marked by a light and daybeacons leads eastward from the south end of the inlet to **Broad Bay.** In May-July 1988, the controlling depths were 5½ feet (8 feet in the midchannel) in the channel leading eastward from the south end of the inlet to Daybeacon 6, thence 7 feet to Light 14 at the west end of Broad Bay. Another dredged channel leads eastward from just south of the bridges around the north side of a small island and connects with the southerly channel southeast of the island near Daybeacon 6. In May-July 1988, the midchannel controlling

depth was 8½ feet in the northerly channel. The Great Neck Road fixed highway bridge over the channel 1.2 miles from the twin bridges over the inlet has a clearance of 35 feet; nearby overhead power and telephone cables have a clearance of 55 feet. In 1987, twin fixed highway bridges with a design clearance of 36 feet were under construction about 0.5 mile east of the Great Neck Road bridge.

(57) **Caution.**–It is reported that this channel has very heavy boat traffic and is especially congested on summer weekends.

(58) An alternate route to Broad Bay is through **Long Creek** which branches northeastward from the dredged channel in the vicinity of Daybeacon 11. In June 1988, the controlling depth was 8 feet in Long Creek. The 40-foot span of the Great Neck Road Bridge over Long Creek has a clearance of 20 feet. Nearby overhead cables have a clearance of 37 feet. In 1987, twin fixed highway bridges with a design clearance of 36 feet were under construction about 0.5 mile east of the Great Neck Road bridge.

(59) Depths are about 7 feet in Broad Bay. A marked channel with a midchannel controlling depth of 5 feet in June 1987, leads southeastward through **The Narrows** to the southern end of **Linkhorn Bay** near Virginia Beach.

(60) Small-craft facilities are inside Lynnhaven Inlet and in both forks of Linkhorn Bay.

(61) **Little Creek** is entered between jetties 8 miles westward of Cape Henry Light. Most of the creek comprises the **U. S. Naval Amphibious Base,** but the Virginia and Maryland Railroad operates car floats from the south end terminal to the town of Cape Charles on the Delmarva Peninsula; small craft use the west arm.

(62) A dredged channel in Little Creek leads to a basin off the railroad terminal, 1.2 miles south of the jetties. In June 1987, the reported controlling depth was 20 feet in the channel and in the basin. The channel is marked by a **177°30'** lighted entrance range and by lights. **Little Creek Coast Guard Station** is eastward of the railroad terminal.

(63) **Fishermans Cove,** on the west side of Little Creek, has fuel and berthing facilities for small craft. A **speed limit** of 5 knots is prescribed for Fishermans Cove. (See **33 CFR 165.509(d)(9),** chapter 2.)

(64) Naval **danger zones and restricted areas** extend northward from the vicinity of Little Creek to the edge of Thimble Shoal Channel. (See **334.310** and **334.370,** chapter 2, for limits and regulations.)

(65) **Chart 12245.–Hampton Roads,** at the southwest corner of Chesapeake Bay, is entered 16 miles westward of the Virginia Capes. It includes the Port of Norfolk, encompassing the cities of Norfolk, Portsmouth, and Chesapeake, and the Port of Newport News, which takes in the cities of Newport News and Hampton.

(66) Hampton Roads is the world's foremost bulk cargo harbor. Coal, petroleum products, grain, sand and gravel, tobacco, and fertilizer constitute more than 90 percent of the heavy traffic movement by water, although an increasing amount of general cargo is handled by the Hampton Roads ports.

(67) **Channels.**–The approach to Hampton Roads is through the 55-foot Thimble Shoal Channel. There are natural depths of 80 to 20 feet in the main part of Hampton Roads, but the harbor shoals to less than 10 feet toward the shores. Dredged channels lead to the principal ports.

(68) Two main Federal project channels, marked by buoys, lead through Hampton Roads. One channel leads southward along the waterfronts of Norfolk, Portsmouth, and Chesapeake to the first bridge across the Southern Branch of Elizabeth River; project depths are 50 feet through Entrance Reach; thence 55 feet through Craney Island Reach at Lamberts Point; thence 40 feet to the bridge. The other channel with a 55-foot project depth leads westward to the waterfront at Newport News at the entrance to James River. (See Notice to Mariners and latest editions of the charts for controlling depths.)

(69) **Anchorages.**–Numerous general, explosives, naval, and small-craft anchorages are in Hampton Roads and Elizabeth River. (See **110.1 and 110.168,** chapter 2, for limits and regulations.) The areas are shown on charts 12245 and 12253.

(70) **Tides.**–The mean range of tide is 2.5 feet in Hampton Roads. (See Tide Tables for daily predictions of tides at Sewells Point.)

(71) **Currents.**–Information for several places in Hampton Roads and Elizabeth River is given in the Tidal Current Tables. The currents are influenced considerably by the winds and at times attain velocities in excess of the tabulated values. The current velocity is about 1.0 knot in Hampton Roads and about 0.6 knot in Elizabeth River.

(72) **Ice.**–Hampton Roads is free of ice. In severe winters the upper part of Southern Branch, Elizabeth River, is sometimes closed for short periods.

(73) **Weather.**–The National Weather Service maintains an office at Norfolk International Airport; **barometers** in the Hampton Roads area can be compared there or checked by telephone.

(74) **Pilotage** for Hampton Roads ports. (See Pilotage at the beginning of this chapter and chapter 3.)

(75) **Towage.**–Vessels usually proceed from Cape Henry to points in the Hampton Roads port area under their own power and without assistance. A large fleet of tugs is available at Norfolk and Newport News to assist in docking or undocking and in shifting within the harbor.

(76) **Quarantine, customs, immigration, and agricultural quarantine.**–(See chapter 3, Vessel Arrival Inspections, and appendix for addresses.)

(77) **Quarantine** is enforced in accordance with regulations of the U.S. Public Health Service. (See Public Health Service, chapter 1.) The **quarantine anchorage** is southwestward of Old Point Comfort. The U.S. Naval Hospital is in Portsmouth.

(78) Hampton Roads is a **customs port of entry.**

(79) **Coast Guard.**–A **Marine Safety Office** is in Norfolk. (See appendix for address.)

(80) **Harbor regulations.**–Port regulations are principally concerned with grain, coal handling, port charges, and pilotage and stevedoring rates. Copies of these regulations may be obtained from the Hampton Roads Maritime Association, 236 East Plume Street, P.O. Box 3528, Norfolk, Va. 23514.

(81) **Anchorage regulations** are given in **110.1 and 110.168,** chapter 2.

(82) **Wharves.**–The Hampton Roads area has more than 200 piers and wharves along more than 30 miles of improved waterfront; only the major deepwater facilities are described. Included are coal piers; containerized-cargo berths; oil storage and bunkering facilities; general-cargo, grain, and ore piers; and marine railways and drydocks. Available depths are 22 to 42 feet at the general-cargo, ore, and grain piers; 36 to 45 feet at the coal piers; and 20 to 42 feet. at the oil-storage and bunkering facilities. A 350-ton floating crane is available.

(83) **Supplies.**–The principal coal-handling and bunkering piers are those of the Norfolk and Western Railway at Lamberts Point, Norfolk, and of the Chesapeake and Ohio Railway at Newport News. Bunker oil is available at Sewells

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Point, in Southern Branch of Elizabeth River, and at Newport News, or it can be delivered from barges in the stream. Freshwater is available on the principal piers and can be supplied from barges. The area also has numerous ship chandlers and marine suppliers.

(84) **Repairs.**–Hampton Roads has extensive facilities for drydocking and making major repairs to large deep-draft vessels. The largest floating drydock at Norfolk has a capacity of 54,000 tons, and the largest marine railway can handle 6,000 tons. The shipyard at Newport News is one of the largest and best equipped in the United States; the principal graving dock has a length of 1,600 feet on the keel blocks. There are many other yards that are especially equipped to handle medium-sized and small vessels. More details on these repair facilities are given with the discussion of the waterway or port in which they are located.

(85) **Small-craft facilities.**–Complete services and repairs are available at Hampton Roads ports. There are marine railways up to 11 tons and mobile hoists up to 60 tons for repairs. (See small-craft facilities tabulations on charts 12205 and 12206 for services and supplies available.)

(86) **Communications.**–Hampton Roads ports are served by a terminal beltline, several large railroads, and by more than 50 motor carriers. In addition, over 90 steamship lines connect Hampton Roads with the principal U.S. and foreign ports; most of the lines have regular sailings, and others maintain frequent but irregular service. Three airlines offer prompt airfreight, express, and passenger service from Norfolk and Newport News to major U.S. cities with connecting service overseas.

(87) **Thimble Shoal Light** (37°00.9′N., 76°14.4′W.), 55 feet above the water, is shown from a red conical tower on a brown cylindrical pier on the eastern edge of the shoal; a fog signal is sounded from the station. The light is 12.3 miles from the Virginia Capes. Thimble Shoal is the southern edge of **Horseshoe,** described in chapter 11.

(88) The entrance to Hampton Roads is between Willoughby Spit and Old Point Comfort, 2 miles to the northward.

(89) A **bridge-tunnel complex** crosses Chesapeake Bay from Willoughby Spit to Hampton.

(90) **Old Point Comfort** is the site of historic **Fort Monroe.** The Chamberlin Hotel is an excellent landmark. **Old Point Comfort Light** (37°00.1′N., 76°18.4′W.), 54 feet above the water, is shown from a white tower. Only Government craft can tie up at the wharf on the south waterfront of Old Point Comfort.

(91) A naval **restricted area** extends eastward and southward of Old Point Comfort, and a **danger zone** of an army firing range extends to seaward from a point 1.5 miles northward of the point. (See **334.350,** and **334.360,** chapter 2, respectively, for limits and regulations.)

(92) **Hampton Bar** begins about 200 yards southwestward of Old Point Comfort and extends 2 miles southwestward; depths on the bar are 1 to 5 feet. The bar is marked by two lights and by buoys along its southern edge. These lights, together with one on Hampton Flats, aid vessels in mooring in the naval and other anchorages northward of the main channel.

(93) A dredged channel, marked by a light and daybeacons, leads along the west side of Old Point Comfort to the fish wharves at **Phoebus.** In September 1980, the channel had a controlling depth of 11 feet. The wharves have depths of 8 to 12 feet at their outer ends, but are in poor condition. Small craft can anchor in depths of 8 to 20 feet along the sides of the channel. The Fort Monroe yacht piers are on the east side of the channel 0.4 mile above Old Point Comfort.

(94) **Hampton River,** 1.5 miles westward of Old Point Comfort, is entered by a marked channel through Hampton Bar and Flats to a point just below the highway bridge at Hampton. Federal project depths are 12 feet. (See Notice to Mariners and latest editions of the charts for controlling depths.) Some small craft also enter west of Hampton Bar. **Hampton,** on the west side of the river 2 miles above the channel entrance, is an important seafood center. Traffic on the river consists of seafood and petroleum products, sand and gravel, and building materials. The residential and commercial areas of Hampton are on the west side of Hampton River; **Hampton Institute** and a Veterans Hospital are on the east side.

(95) **Sunset Creek,** on the west side just above the Hampton River mouth, is entered by a marked dredged channel leading westward from the channel in the river. In December 1980, the controlling depth was 12 feet to the head of the creek.

(96) The principal commercial wharves at Hampton, just below the bridge, have depths of 7 to 12 feet at their faces. The public landing 500 yards below the bridge has depths of 8 feet at the face; small boats anchor between the public landing and the bridge. The wharves along Sunset Creek have depths of 4 to 9 feet at their outer ends.

(97) Supplies and fuel are available at Hampton. A yacht club and several marinas here have berthing space. Repairs can be made; largest marine railway, 120 feet; lift, 35 tons.

(98) **Jones Creek,** on the east side of Hampton River 300 yards above the mouth, has depths of 8 to 11 feet. The bulkheads have depths of 3 to 10 feet alongside and are controlled by the Veterans Hospital on the south and Hampton Institute on the north.

(99) **Salters Creek,** 4 miles west-southwestward of Old Point Comfort, has a narrow unmarked approach channel with depths of 2 feet. The fixed highway bridge over the entrance has a channel width of 24 feet and a clearance of 9 feet. Numerous small craft moor above the bridge in a basin that has depths of about 5 feet.

(100) The 55-foot project channel to Newport News was discussed earlier. Depths along the edges of the dredged section are 19 to 25 feet. The currents do not always set fair with the channel, especially with strong winds, and deep-draft vessels sometimes find it difficult to stay in the channel.

(101) **Newport News Middle Ground Light** (36°56.7′N., 76°23.5′W.), 52 feet above the water, is shown from a red conical tower on a red cylindrical pier in 15 feet of water near the western end of the shoal; a seasonal fog signal is at the light.

(102) **Newport News Point** (36°57.8′N., 76°24.7′W.) on the north side of the entrance to James River, is 21.5 miles from the Virginia Capes. The city of **Newport News** extends several miles along the northeast bank of James River.

(103) **Newport News Creek,** just west of Newport News Point is a city-owned small-boat harbor used by fishing boats, pleasure craft, and petroleum barges. In January 1985, the controlling depth was 12 feet in the dredged channel for about 0.6 mile above the mouth. Fuel, supplies, and slips are available, and repairs can be made. A 75-ton marine railway and a 40-ton mobile hoist are available.

(104) Newport News Shipbuilding and Drydock Company is just below the James River Bridge on the east side of the river. A security zone is along the waterfront of the company property. (See **165.30, 165.33 and 165.504,** chapter 2, for limits and regulations.)

(105) **Wharves.**–The deepwater piers and wharves at Newport News extend from Newport News Point for 2.5 miles up James River. Only the major facilities are described. All

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have access to highways and railroads, freshwater connections, and electric shore-power connections. Unless otherwise indicated, these facilities are owned by the Virginia Ports Authority. The alongside depths given for each facility described are reported depths. (For information on the latest depths, contact the operator.) For a complete description of the port facilities at Newport News, refer to Port Series No. 11, published and sold by the U.S. Army Corps of Engineers. (See appendix for address.)

(106) **Chart 12245:**

(107) **Newport News Marine Terminal Pier 2** (36°58′24″N., 76°26′00″W.): north and south sides 606 feet long; 32 feet along north side, 35 feet along south side; deck height, 8 feet; receipt and shipment of bulk cargo; operated by Virginia International Terminals.

(108) **Newport News Marine Terminal Pier B:** about 200 yards southeastward of Newport News Marine Terminal Pier 2; 543-foot face, north and south sides 620 feet long; 35 feet along north side, 40 feet along south side and face; deck height, 15 feet; 268,000 square feet covered storage; 8 acres of open storage; receipt and shipment of general and roll-on/roll-off cargo; operated by Virginia International Terminals.

(109) **Newport News Marine Terminal Pier C:** about 150 yards southeastward of Newport News Marine Terminal Pier B; 552-foot face, 35 feet alongside; north side, 755 feet long; 35 feet alongside; south side, 935 feet long; 40 feet alongside; 410,000 square feet covered storage; 200-ton-capacity container crane, 50-ton gantry crane; use of equipment from Pier B; receipt and shipment of general, containerized and roll-on/roll-off cargo; operated by Virginia International Terminals.

(110) **Pier 8 Terminal:** about 700 yards southeastward of Newport News Marine Terminal Pier 2; 213-foot face; north and south sides 818 feet long; 32 feet alongside; deck height, 15 feet; 138,000 square feet covered storage; 20-ton crane available, forklift trucks; receipt of general cargo; operated by Tidewater Stevedoring Corp.

(111) **Massey Coal Terminal Pier 9** (36°58′05″N., 76°25′44″W.): east and west sides 1,200 feet long; 46 feet alongside; deck height, 11½ feet; tandem in-line rotary car dumper with unloading rate of 5,000 tons per hour; traveling shiploader with loading rate of 8,000 tons per hour; receipt and shipment of coal; owned and operated by Massey Coal Terminal Corp.

(112) **C. & O. Pier 14:** about 0.75 mile southeastward of Pier 8 Terminal; east and west sides 1,090 feet long; 45 feet alongside; deck height, 11½ feet; two traveling coal-loading towers, 4,500-ton-per-hour capacity each; shipment of coal; owned and operated by the Chessie System.

(113) **C. & O. Pier 15:** eastward of C. & O. Pier 14: west side 1,000 feet long; 38 feet alongside; deck height, 9½ feet; one fixed coal-loading tower on each side of the pier, ship-positioning winches; shipment of coal; owned and operated by the Chessie System. East side is not used.

(114) **Koch Fuels, Inc. Tanker Dock:** about 200 yards eastward of C. & O. Pier 15; offshore wharf, 203 feet with platform; 35 feet alongside; deck height, 13 feet; storage tanks, 520,000-barrel capacity; receipt and shipment of petroleum products, bunkering vessels; operated by Koch Fuels, Inc.

(115) The facilities of the Newport News Shipbuilding and Drydock Co. begin 1.7 miles northwest of Newport News Point and extend 2 miles upriver. The company operates five outfitting piers; four drydocks, the largest being 862 feet long, 118 feet wide, and a depth of 31 feet over the sill; and three graving docks used for ship construction and repair, the largest being 1,600 feet long and 250 feet wide with a depth over the sill of 33 feet. Gantry cranes of 900 and 310 tons serve the graving docks. The shipyard also has two inclining shipways with lengths to 650 feet. The largest shaft produced by the shipyard is 76 feet by 60 inches. Most of the outfitting piers are equipped with cranes; largest has a capacity of 50 tons. Floating derricks up to 67-ton capacity are available at the yard.

(116) **Willoughby Spit,** on the south side of the entrance to Hampton Roads, is a narrow barrier beach 1.3 miles long in an east-west direction. About midway between the spit and Old Point Comfort, on the opposite side of the entrance, is **Fort Wool,** which is on the south edge of the main ship channel; a light is shown from a small gray house on the north side of the island.

(117) The 45-foot-wide small-boat openings in the south approach bridge to Hampton Roads Tunnel have clearances of 10 feet.

(118) **Willoughby Bank,** with depths of 3 to 7 feet, extends east-northeastward along the edge of the main channel for about 2.5 miles from Fort Wool.

(119) **Willoughby Bay,** on the inner side of Willoughby Spit, has general depths of 7 to 12 feet. On the south side of the bay are the prominent buildings of the Norfolk Naval Base and the Naval Air Station. A marked channel, 0.4 mile westward of Fort Wool, leads to a small-boat harbor behind the hook of Willoughby Spit. In September 1987, the controlling depth was 5½ feet. Some supplies, fuel, and berthing are available. Repairs can be made; largest marine railway, 40 feet.

(120) The western and southern part of Willoughby Bay is a **restricted area.** (See **334.300,** chapter 2, for limits and regulations.) The northern part of the bay is a **small-craft anchorage.** (See **110.1 and 110.168 (f) and (h)),** chapter 2, for limits and regulations.)

(121) A fixed highway bridge with a clearance of 25 feet crosses the yacht anchorage in the northern part of Willoughby Bay.

(122) **Charts 12245, 12253.–Norfolk Harbor** comprises a portion of the southern and eastern shores of Hampton Roads and both shores of **Elizabeth River** and its Eastern, Southern, and Western Branches, on which the cities of Norfolk, Portsmouth, and Chesapeake are located.

(123) The harbor extends from off Sewells Point south in Elizabeth River to the seventh bridge over Southern Branch, a distance of 15 miles; it extends 1.5 miles up Western Branch to a point 0.5 mile above the West Norfolk highway bridge, and up Eastern Branch for 2.5 miles to the Norfolk and Western Railway Bridge.

(124) The main part of Norfolk is on the east side of Elizabeth River north of Eastern Branch, with Berkley, a subdivision, to the southward between Eastern and Southern Branches. South of Berkley is the city of Chesapeake. Portsmouth is opposite Norfolk, and its waterfront extends along the west shore of Southern Branch and the south shore of Western Branch. These cities form practically a single community, united by the same commercial interests and served by the same ship channel.

(125) A **safety zone** is in effect in the Elizabeth River when a naval aircraft carrier transits the river to or from the Norfolk Naval Shipyard. (See **165.505,** chapter 2, for limits and regulations.)

(126) **Weather.**–Norfolk, with an average elevation of 13 feet above sea level and almost surrounded by water, has a modified marine climate. The city's geographic position with respect to the principal storm tracks is especially favorable, being south of the average path of storms originating in the higher latitudes and north of the usual

track of hurricanes and other tropical storms. These features combine to place Norfolk in one of the favored climatic regions of the world. The winters are mild, while autumn and spring seasons usually are delightful. Summers, though warm and long, frequently are tempered by cool periods, often associated with northeasterly winds off the Atlantic. Temperatures of 100° or higher are very infrequent. Cold waves seldom penetrate to this area. Occasional winters pass without a measurable amount of snowfall. Most of Norfolk's snow generally occurs in light falls, which usually melt and disappear within 24 hours. The average date of the last freezing temperature in the spring is March 23, while the average date of the first in autumn is November 18. The average annual amount of rainfall is about 45 inches, and considerably more than one-half of it falls in well-distributed amounts during April to October, inclusive. (See page T–4 **Norfolk climatological table.**)

(127) **Chart 12245.–Sewells Point** (36°57.8′N., 76°19.6′W.), on the east side of the entrance to Elizabeth River, is 18 miles from the Virginia Capes. A breakwater, marked by a light on its outer end, extends about 0.3 mile westward from the point. The piers of the **Norfolk Naval Base** and its annex extend southward from the breakwater along the east bank of the river. Depths at the naval piers are 33 to 45 feet. A jettied basin at the naval base, 0.6 mile south of Sewells Point, affords protection for navy service craft in depths of 21 to 29 feet.

(128) **Sewells Point Spit,** covered 3 to 6 feet, extends north-northeastward from the point for 1.4 miles to the outer end of Willoughby Channel.

(129) A channel, marked by lights and daybeacons, extends eastward and southward through Sewells Point Spit for about 1.2 miles to an enclosed boat basin used by small navy boats. In May 1974, the channel had a controlling depth of 10 feet; depths of 7 to 10 feet were available in the basin.

(130) The approach to the naval piers is a **restricted area.** (See **334.300(b)(1),** chapter 2, for limits and regulations.)

(131) **Wharves.–**Norfolk Harbor has numerous wharves and piers of all types, the majority of which are privately owned and operated; only the major deepwater facilities are described. These facilities are southward of Sewells Point, between the Norfolk Naval Base and Tanner Point; on Lamberts Point; on Pinner Point; and on Eastern Branch and Southern Branch of Elizabeth River. All have freshwater connections and access to highways and railroads, and most have electrical shore-power connections. Cargo is generally handled by ship's tackle; special cargo-handling equipment, if available, is mentioned in the description of the particular facility. The alongside depths given for each facility described are reported depths. (For information on the latest depths, contact the operator.) For a complete description of the wharves and piers in Norfolk Harbor refer to Port Series No. 11, published and sold by the U.S. Army Corps of Engineers. (See appendix for address.)

(132) **Facilities southward of Sewells Point, between Norfolk Naval Base and Tanner Point (chart 12245):**

(133) **Continental Grain Co. Wharf** (36°55′57″N., 76°19′41″W.): face 1,035 feet; 40 feet alongside; deck height 9 feet; face of wharf in line and contiguous with Virginia Ports Authority Pier B to the westward; 3¼-million-bushel grain elevator; railroad car and truck dumpers; loading tower, marine leg, and conveyor system, combined loading rate 80,000 bushels per hour; receipt and shipment of grains; owned by Virginia Port Authority and operated by Continental Grain Co.

(134) **Sewells Point Division, Piers A and B:** immediately westward of Continental Grain Co. Wharf; 498-foot face, 32 feet alongside; Pier B (north side) 1,211 feet long, 32 feet alongside; Pier A (south side) 1,193 feet long, 32 feet alongside; deck height, 9½ feet; 230,000 square feet covered storage; cranes up to 15-ton capacity; receipt and shipment of general cargo and shipment of scrap metal; owned by Virginia Ports Authority and operated by Lamberts Point Docks, Inc. A buoy marks a shoal just northward of Pier B.

(135) **Lehigh Portland Cement Pier:** 150 yards southward of Virginia Ports Authority Piers; 40-foot face, 205 feet with dolphins; 33 feet alongside; deck height, 11½ feet; 33,000-ton storage capacity; unloading rate 600 tons per hour; receipt of bulk cement; owned and operated by Lehigh Portland Cement Co.

(136) **Exxon Co., U.S.A. Pier** (36°55′39″N., 76°20′00″W.): about 0.2 mile southward of Sewells Point Division Piers; north and south sides 1,300 feet; north side, 40 feet alongside; south side, 20 to 30 feet alongside; deck height, 9 feet; storage tanks, 2½-million-barrel capacity; receipt and shipment of petroleum products, bunkering vessels; owned and operated by Exxon Co., U.S.A.

(137) **Norfolk International Terminals:** 900,000 square feet covered storage; 300,000 cubic feet cold storage; 55 acres open storage; deck heights, 9½ feet; receipt and shipment of general and containerized cargo; receipt of logs; passengers; owned by Virginia Ports Authority and operated by Virginia International Terminals.

(138) Pier 2 (36°55′02″N., 76°19′56″W.): 334-foot face, north and south sides 1,328 feet long; 35 feet along north side, 42 feet along south side.

(139) North Berth: immediately northward of Pier 2; 950-foot marginal wharf; 32 feet alongside; roll-on/roll-off berth.

(140) Pier 1: about 200 yards southward of Pier 2; 308-foot face, north and south sides 1,320 feet long; 42 feet along north side, 35 feet along south side; fumigation chambers.

(141) Container Berths 1, 2, 3, and 4: immediately southward of Pier 1; 2,688-foot marginal wharf; 35 to 41 feet alongside; one 30-ton and three 40-ton dual hoist cranes, three 40-ton traveling container carriers.

(142) **Facilities at Lamberts Point (chart 12253):**

(143) **Norfolk and Western Railway Co. Piers:** owned and operated by Norfolk and Western Railway Co.; shipment of coal.

(144) Pier 6 (36°52′45″N., 76°19′54″W.): 88-foot face; 45 feet alongside; north and south sides 1,600 feet, 1,850 feet with dolphins, 50 feet alongside; deck height, 11 feet; two electric shiploaders, loading rate 5,000 tons per hour each.

(145) Pier 5: about 200 yards southward of Pier 6; 74-foot face; north and south sides 1850 feet; 36 feet alongside; deck height, 11 feet; one electric dumper with a loading capacity of 1,000 tons per hour; ship-positioning winches on south side.

(146) **Virginia Ports Authority Terminal, Piers N, L, and P:** 1.5 million square feet covered storage; 100,000 cubic feet cold storage space; fumigation chambers; storage tanks, 10,000-ton capacity; forklift trucks and other portable mechanized cargo-handling equipment; cranes up to 25-ton capacity; receipt and shipment of general and containerized cargo; receipt of castor oil and shipment of soybean, palm and coconut oils; owned by Virginia Ports Authority and operated by Lamberts Point Docks, Inc.

(147) Pier N (36°52′00″N., 76°19′06″W.): 390-foot face, 24 feet alongside; north and south sides 1,100 feet long, 32 feet alongside; deck height, 11½ feet.

(148) Pier L: about 200 yards southeastward of Pier N; 243-foot face; north side 1,180 feet, south side 1,200 feet long; 32 feet alongside; deck height, 9 feet.

(149) Pier P: about 600 yards southeastward of Pier N; 396-foot face; north and south sides 1,196 feet long; 32 feet alongside; deck height, 11 feet.

(150) **Facilities at Port Norfolk (chart 12253):**

(151) **Portsmouth Marine Terminal** (36°51′27″N., 76°19′27″W.): 2,536-foot face; 60-foot roll-on/roll-off ramp; 36 feet alongside except 31 feet near the west end; deck height, 12 feet; 200,000 square feet covered storage, 215 acres open storage; cranes to 110 tons, container cranes to 30 tons; fumigation chambers; receipt and shipment of general, containerized and roll-on/roll-off cargo; receipt of automobiles; shipment of tobacco; owned by Virginia Ports Authority and operated by Virginia International Terminals.

(152) **Sea-Land Service Terminal** (36°51′28″N., 76°19′04″W.): 600-foot face, 1,000 feet with dolphins; 38 feet alongside; deck height, 12 feet; 30,000 square feet covered storage, open storage for 650 containers; two 30-ton container cranes; receipt and shipment of general and containerized cargo; owned and operated by Sea-Land Service, Inc.

(153) **Facilities in Eastern Branch of Elizabeth River (chart 12253):**

(154) **Norfolk, Baltimore, and Carolina Line Terminal:** 33,000 square feet covered storage area; receipt and shipment of containerized general cargo in the intracoastal trade; owned and operated by the Norfolk, Baltimore, and Carolina Line, Inc.

(155) Pier No. 2 (36°50′33″N., 76°17′07″W.): 68-foot face; 20 feet alongside; deck height, 8 feet.

(156) Pier No. 1: about 50 yards eastward of Pier 2; 46-foot face, 20 feet alongside; deck height, 8 feet.

(157) **Chemphalt Wharf** (36°50′19″N., 76°16′19″W.): 50-foot offshore wharf with 300 feet of berthing space with dolphins; 35 feet alongside; deck height, 9 feet; storage tanks, 300,000-barrel capacity; receipt of asphalt, liquid fertilizer, and styrene monomer; owned and operated by Chemphalt of Carolina Corp.

(158) **Facilities in Southern Branch of Elizabeth River, Berkley, Chesapeake, and Portsmouth (chart 12253):**

(159) **U.S. Gypsum Co. Wharf** (36°49′18″N., 76°17′23″W.): 40-foot offshore wharf, 370 feet with dolphins; 27 feet alongside; deck height, 10 feet; storage shed, 47,000-ton capacity; open storage for 100,000 tons; receipt of gypsum rock; owned and operated by U. S. Gypsum Co.

(160) **Crown Central Petroleum Corp. Wharf** (36°49′14″N., 76°17′24″W.): 40-foot T-head pier, 145 feet with dolphins; 30 feet alongside; deck height, 6 feet; 214,000-barrel storage capacity; receipt and shipment of petroleum products; operated by Crown Central Petroleum Corp.

(161) **Mobil Oil Corp. Tanker Wharf** (36°49′11″N., 76°17′23″W.): 75-foot T-head wharf, 750 feet with dolphins; 36 feet alongside; deck height, 10 feet; receipt and shipment of petroleum products, bunkering vessels; 683,000-barrel storage facility; owned by Mobil Oil Corp., operated by Mobil Oil Corp., and Union Oil Co. of California.

(162) **Gulf Oil Co. Wharf:** 200 yards south of Mobil Oil Wharf; 1,020-foot face, 30 to 32 feet alongside; deck height, 12 feet; receipt and shipment of petroleum products, bunkering vessels; 800,000-barrel storage facility; owned and operated by Gulf Oil Refining and Marketing Co.

(163) **Lone Star Industries, Cement Wharf:** 100 yards south of Gulf Oil Co. Wharf; 27-foot platforms with 267 feet of berthing space; 35 feet alongside; deck height, 10 feet; silos, 37,000-ton capacity; receipt of cement clinker; owned and operated by Lone Star Industries, Inc.

(164) **Royster Co. Wharf** (36°48′46″N., 76°17′24″W.): marginal type wharf, 450 feet with dolphins; 25 feet alongside; deck height, 9 feet; shipment of fertilizer products; owned and operated by Royster Co.

(165) **Amoco Oil Co. Wharf** (36°48′21″N., 76°17′22″W.): 60-foot T-head pier, 235 feet with dolphins; 27 to 29 feet alongside; deck height, 11 feet; 655,000-barrel storage facility; receipt and shipment of petroleum products; receipt of asphalt; shipment of soybean oil; bunkering vessels; owned and operated by Amoco Oil Co.

(166) **Cargill Grain South Elevator Dock** (36°48′06″N., 76°17′20″W.): 500-foot face 39 feet alongside; deck height, 10 feet; 6¾-million-bushel elevator; elevator loading rate 60,000 bushels per hour; shipment of grain and soybean meal; owned and operated by Cargill Inc.

(167) **Texaco Oil Co. Wharf** (36°47′51″N., 76°17′29″W.): marginal wharf, 565 feet with dolphins; 32 feet alongside; deck height, 12 feet; 1½-million-barrel storage capacity; receipt and shipment of petroleum products; receipt of asphalt; bunkering vessels; owned and operated by Texaco Inc.

(168) **Conoco Wharf** (36°47′44″N., 76°17′32″W.): 145-foot T-head wharf, 650 feet with dolphins; 31 feet alongside; deck height, 10 feet; receipt and shipment of petroleum products; 700,000-barrel storage facility; owned and operated by Conoco.

(169) **Lone Star Industries Ulexite Plant Pier** (36°47′27″N., 76°17′50″W.): north side, 447 feet long; 36 feet alongside; deck height, 12 feet; open storage for 27,000 tons; receipt and shipment of pumice and ulexite, shipment of fertilizer; owned and operated by Lone Star Industries, Inc.

(170) **Tenneco-Cities Service Pier** (36°47′22″N., 76°18′07″W.): 55-foot face, 208 feet with dolphins; 27 feet alongside; deck height, 8 feet; storage tanks, 350,000-barrel capacity; receipt and shipment of petroleum products; receipt of creosote and coal tar; owned and operated by Tenneco-Cities Service.

(171) **Amerada Hess Corp. Tanker Dock** (36°47′06″N., 76°18′10″W.): 68-foot offshore wharf with berthing space for vessels to 700 feet; 35 feet alongside; deck height, 13½ feet; tanks, 500,000-barrel storage capacity; receipt and shipment of petroleum products; owned and operated by Amerada Hess Corp.

(172) **Atlantic Cement Co. Wharf** (36°46′42″N., 76°18′22″W.): 465 feet long with dolphins; 30 to 31 feet alongside; deck height, 10½ feet; 31,000-ton capacity storage silos; receipt of bulk cement; owned and operated by Atlantic Cement Co.

(173) **Elizabeth River Terminals, Piers 1 and 2** (36°46′40″N., 76°18′05″W.): Pier 1, 1200 feet long with dolphins; 35 feet alongside; deck height, 8½ feet; Pier 2, 750 feet long with dolphins; 14 feet alongside; deck height, 11 feet; 225,000 square feet covered storage; 350,000 square feet of open storage; 36,000 tons of tank storage; cranes to 50 tons; receipt and shipment of liquid sulfur; receipt of chemicals, scrap metals, and bulk materials; shipment of fertilizer and animal feed; owned and operated by Elizabeth River Terminals, Inc.

(174) **Chilean Nitrate Wharf** (36°46.6′N., 76°17.7′W.): 350-foot offshore wharf, 395 feet with dolphins; 32 feet alongside; deck height, 11 feet; covered storage for 28,000 tons of fertilizer; receipt of bulk fertilizers; owned and operated by the Chilean Nitrate Sales Corp.

(175) **Smith-Douglass Wharf** (36°46′25″N., 76°17′40″W.): 365-foot face, 500 feet long with dolphins; 30 feet alongside; deck height, 12 feet; covered storage for 65,000 tons of fertilizer; receipt of spent sulphuric acid; owned and operated by Smith-Douglass Division of Borden Chemical Co.

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(176) **Hitch Terminal Tanker Wharf** (36°46′21″N., 76°17′51″W.): 30-foot offshore wharf, 200 feet long with dolphins; 30 feet alongside; deck height, 8 feet; tank storage for nitrogen, capacity 146,000 barrels, petroleum tank storage, capacity 323,000 barrels; receipt of liquid nitrogen; owned by Arthur Hitch, Jr.; operated by Hitch Terminal Corp. and Swift Nitrogen Terminal.

(177) **American Hoechst Corp. Wharf** (36°45′28″N., 76°17′37″W.): offshore wharf, 190 feet long with dolphins; 22 feet alongside; deck height, 10 feet; storage tanks for 120,000 barrels; receipt of styrene monomer; owned and operated by American Hoechst Corp.

(178) **Portsmouth Power Station Wharf** (36°46′11″N., 76°17′55″W.): 75-foot face, berthing space for vessels to 800 feet; 36 feet alongside; deck height, 10 feet; storage tanks for 475,000 barrels; receipt of fuel oils for plant consumption; owned and operated by Virginia Electric and Power Co.

(179) **Swann Oil Co. Wharf** (36°46′36″N., 76°18′25″W.): 50-foot T-head pier, 280 feet with dolphins; 35 feet alongside; deck height, 12 feet; 850,000-barrel storage facility; receipt of petroleum products; owned and operated by Swann Oil Co.

(180) **Atlantic Energy, Inc. Wharf** (36°46′43″N., 76°18′41″W.): 30-foot offshore wharf, 700 feet of berthing with dolphins; 32 feet alongside; storage tanks, 480,000-barrel capacity; receipt of liquified petroleum gases; owned and operated by Atlantic Energy, Inc.

(181) **Alcoa Transfer Station Pier** (39°47′54″N., 76°17′42″W.): 750 feet long; 42 feet alongside; deck height, 15 feet; 55,000-ton storage tank; unloading tower with unloading rate of 1,100 tons per hour; and conveyor system to storage tank; receipt of alumina; owned and operated by Aluminum Co. of America.

(182) **BP Oil Co. Wharf** (36°47′57″N., 76°17′45″W.): 317-foot offshore wharf, 360 feet of berthing with dolphins; 30 feet alongside; deck height, 12 feet; storage tanks, 410,000-barrel capacity; shipment of petroleum products; owned and operated by the BP Oil Co., Inc.

(183) **Allied Mills Wharf** (36°48′00″N., 76°17′45″W.): 81-foot face, 275 feet of berthing with dolphins; 25 feet alongside; deck height, 12 feet; receipt of bulk molasses; 2-million-gallon molasses storage tank; grain elevator, 375,000-bushel capacity; owned by Allied Mills Inc.; operated by Southgate Molasses Co. Inc.

(184) A disposal area, enclosed by levees, is in Hampton Roads on the north side of Craney Island. A smaller levee extends eastward from the lower east side of the disposal area to a dolphin 0.2 mile west of the ship channel; the section of the levee east of about 36°54.0′N., 76°20.8′W. covers at high water.

(185) **Lafayette River** empties into the east side of Elizabeth River 4 miles south of Sewells Point and 22 miles from the Virginia Capes. The river, used exclusively by pleasure and recreational craft, is entered by a marked dredged channel between **Tanner Point** and Lamberts Point, 1.5 miles to the southward. A light, 0.6 mile south of Tanner Point, marks the channel entrance. The dredged channel leads for 1.1 miles to a point about 0.3 mile westward of the Hampton Boulevard Bridge. From this point, a marked natural channel leads for about 2.4 miles to where the river divides into two forks. In August 1984, the controlling depth was 8 feet in the dredged section; thence depths of about 6 feet to the forks, and 2 to 4 feet up each fork; the chart is the best guide. The dredged channel turns sharply at the light off **Lawless Point,** a mile above the entrance, and vessels must be on the alert to avoid grounding. **General and small-craft anchorages** extend up Lafayette River to the first bridge. (See **110.168 (c) and (h),** chapter 2, for limits and regulations.)

(186) **Hampton Boulevard Bridge,** 1.5 miles above the entrance to Lafayette River, has a fixed channel span with a clearance of 26 feet. A yacht club is just below the north end of the bridge.

(187) **Knitting Mill Creek,** is on the south side of Lafayette River about 3 miles above the mouth. In May 1985, the creek had a midchannel controlling depth of 4 feet to the head. Some supplies, gasoline, and berths are available within the creek. Repairs can be made; largest marine railway, 40 feet; lift, 10 tons.

(188) **East Haven,** on the south side of Lafayette River about 3.5 miles above the mouth, has a dredged channel that leads to a settling basin and boat ramp at the head. In January 1981, a controlling depth of 6 feet was in the channel and 8 feet in the basin.

(189) **Granby Street Bridge,** 3.5 miles above the entrance to Lafayette River, has a 40-foot fixed span with a clearance of 22 feet.

(190) Just above Granby Street Bridge (chart 12253), Lafayette River divides into two forks, both unmarked. A fixed highway bridge over the mouth of the north fork has a channel width of 30 feet and a clearance of 10 feet. In 1986, a replacement fixed bridge with a design clearance of 18 feet was under construction adjacent to the existing bridge. A fixed highway bridge over the south fork, a mile from Granby Street Bridge, has a channel width of 27 feet and a clearance of 9 feet; another fixed highway bridge 0.3 mile farther up the south fork has a channel width of 23 feet and a clearance of 4 feet.

(191) **Chart 12253.–Craney Island,** now a part of the mainland, is on the west side of Elizabeth River 4.5 miles south of Sewells Point. The low and thinly wooded area is the site of a navy fuel depot, and the offshore wharf and piers, all on the eastern side, are used only by Government vessels. Two daybeacons close off the northeast end of Craney Island mark submerged rocks. The offshore wharf and piers have depths of 22 to 47 feet alongside. A submerged water main crosses from Craney Island to the north side of Lamberts Point; vessels are cautioned not to anchor in the vicinity of the lighted range that marks the crossing. **Portsmouth Coast Guard Station** is on the west side of the entrance to Craney Island Creek.

(192) **Lamberts Point,** on the east side of Elizabeth River 5.3 miles south of Sewells Point, is the site of several deepwater piers. These facilities were described earlier in this chapter under Wharves, Norfolk Harbor.

(193) **Western Branch** (36°52.0′N., 76°19.7′W.) empties into the southwest side of Elizabeth River 5.8 miles south of Sewells Point and 23.8 miles from the capes. A marked channel leads from the main channel in Elizabeth River for 4.5 miles upstream. In June-July 1987, the midchannel controlling depth was 18 feet in the dredged channel to about 0.25 mile above the first bridge; then in 1980, about 7 feet could be carried to **Drum Point,** 0.5 mile above the third bridge.

(194) A 540-foot lighted pier about 1 mile above the entrance to Western Branch extends to the northern edge of the marked channel; mariners are advised to use caution in the area. A fixed highway bridge, about 1.2 miles above the entrance, has a clearance of 45 feet.

(195) **West Norfolk,** northward of the fixed bridge, has a shipyard and small-craft facilities. Supplies, fuel, and slips are available. Repairs can be made; largest marine railway, 220 feet.

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(196) **Churchland** twin fixed highway bridges, 2.3 miles above the entrance to Western Branch, have clearances of 38 feet. The overhead power cable on the upper side of the bridge has a clearance of 45 feet; the transmission towers are marked by lights.

(197) A 280-foot fishing pier extends from the southeast shore about 1.4 miles above the Churchland bridges. An overhead power cable close upstream of the pier has a clearance of 47 feet. **Hodges Ferry** fixed highway bridge, 4.7 miles above the entrance, has a clearance of 18 feet. The overhead power cable on the upstream side of the Hodges Ferry bridge has a clearance of 37 feet.

(198) **Pinner Point** (36°51.3'N., 76°19.1'W.) is on the southwest side of Elizabeth River, 6.8 miles from Sewells Point. Most of the piers at the point have been destroyed by fire or are in poor condition; they are being razed or renovated. The Portsmouth Marine Terminals, Inc. operates the facilities at the Portsmouth Marine Terminal about 0.3 mile northwestward of Pinner Point. A marked dredged channel leads from Elizabeth River to a docking area at the terminal. In July 1979, the controlling depth to and in the docking area was 35 feet. The facilities of the Portsmouth Marine Terminal and those at Pinner Point were described earlier in this chapter under Wharves, Norfolk Harbor.

(199) **Scott Creek** (36°51.1'N., 76°18.5'W.), on the southwest side of Elizabeth River 7.3 miles from Sewells Point, is entered through a channel, marked by daybeacons, which had a controlling depth of 4½ feet in March 1971. The channel leads to old fishing wharves now used by pleasure craft. A marina with a 60-ton lift is on the S side of the creek about 0.4 mile above channel entrance. A marina is on the point on the south side of the creek, about 0.9 mile above the channel entrance. Berths, water, a 60-foot marine railway, and a 3½-ton fixed lift are available; hull repairs can be made.

(200) **Hospital Point,** on the southwest side of Elizabeth River 7.5 miles from Sewells Point, is the site of a U.S. Naval Hospital. The main hospital building, the largest structure along the southwest side of Elizabeth River, is visible for many miles. The hospital landing has depths of about 18 feet at the face.

(201) **Norfolk,** or parts of it, has been described at some length in the preceding text. The midpoint of the downtown section can be taken as the **City Wharf** (36°50.9'N., 76°17.8'W.) at the foot of West Main Street, which is on the northwest side of Elizabeth River 7.7 miles from Sewells Point and 25.7 miles from the Virginia Capes. City Wharf has depths of 15 feet at the face, but is in poor condition. The wharves northwest and southwest of West Main Street have depths of 14 to 20 feet alongside.

(202) (See page T–7 for **Norfolk climatological table.**) A **weather** summary for Norfolk is given in the preceding text under Norfolk Harbor.

(203) **Smith Creek,** opposite Hospital Point 7.5 miles from Sewells Point, has entrance depths of about 3 feet with deeper water inside, but the entrance is restricted by a 48-foot-wide fixed highway bridge with a clearance of 13 feet. **Small-craft anchorages** are in Smith Creek. (See **110.1 and 110.168 (d)(4) and (h),** chapter 2, for limits and regulations.)

(204) The **Atlantic Marine Center,** the Atlantic shipbase of the National Ocean Service, is on the east side of the entrance to Smith Creek. There are 243-, 251-, and 312-foot berths along the bulkhead wharf, which has depths of 20 feet alongside.

(205) **Waterside** is in the downtown area of **Town Point,** on Norfolk, the north side of the intersection between Elizabeth River and Eastern Branch. A municipal marina at this popular tourist stop has reported depths of about 16 feet at the entrance, inside the marina, and alongside the berths. Transient berths are available year-round. A sewage pump-out station is at the marina. Electricity is at the berths; ice and provisions are available nearby. The marina staff monitors VHF-FM channels 16 and 68.

(206) **Eastern Branch** (36°50.5'N., 76°17.6'W.) empties into the east side of Elizabeth River 8 miles from Sewells Point and 26 miles from the Virginia Capes.

(207) A Federal project provides for a channel 25 feet deep to the Norfolk and Western Railway Bridge, 2.5 miles above the entrance. (See Notice to Mariners and latest edition of the charts for controlling depths.)

(208) Above the Norfolk and Western Railway Bridge, the natural channel has depths of 10 to 18 feet to the forks 3.3 miles from the entrance, and usually is marked by bush stakes.

(209) **General anchorages** are in Eastern Branch. (See **110.168 (e) and (h),** chapter 2, for limits and regulations.)

(210) Downtown Norfolk is on the north side of Eastern Branch, and **Berkley,** a subdivision, is on the south side. Traffic is fairly heavy as far as Campostella Bridge. Depths at most of the piers on both sides of the branch range from 14 to 25 feet.

(211) The highway bridge, 0.4 mile above the entrance to Eastern Branch, has a bascule span with a clearance of 48 feet. The Norfolk and Western Railway Bridge, 1 mile above the entrance, has a bascule span with a clearance of 4 feet. (See **117.1 through 117.49,** chapter 2, for drawbridge regulations.) An overhead power cable 200 yards east of this bridge has a clearance of 150 feet.

(212) **Campostella Bridge,** 1.4 miles above the entrance to Eastern Branch, has a fixed span with a clearance of 65 feet. The Norfolk and Western Railway Bridge, 2.5 miles above the entrance, has a swing span with a clearance of 6 feet. (See **117.1 through 117.59 and 117.1007(a),** chapter 2, for drawbridge regulations.)

(213) There are several shipyards along Eastern Branch: the largest floating drydock has a 3,200-ton capacity and handles vessels up to 316 feet; the largest marine railway has a 5,500-ton capacity and can handle vessels to 380 feet.

(214) **Southern Branch,** the continuation of Elizabeth River south of the junction with Eastern Branch, is a part of the **Intracoastal Waterway** route southward to Albemarle Sound. The waterway is described at length in **United States Coast Pilot 4, Atlantic Coast, Cape Henry to Key West.**

(215) The Federal project for Southern Branch provides for a channel 40 feet deep to the third bridge, thence 35 feet deep to the seventh bridge. The channel is maintained at or near project dimensions, and is well marked. (See Notice to Mariners and latest edition of the charts for controlling depths.)

(216) A **speed limit** of 6 knots is prescribed by **162.55,** chapter 2, for that part of Southern Branch between Eastern Branch and the first bridge.

(217) The Norfolk and Portsmouth Belt Line Railroad Bridge, 1.9 miles south of the junction with Eastern Branch and 9.9 miles from Sewells Point, has a vertical-lift span with a clearance of 6 feet down and 142 feet up. (See **117.1 through 117.49,** chapter 2, for drawbridge regulations.) State Route 337 highway bridge, 0.2 mile southward of the Norfolk and Portsmouth Belt Line Railroad Bridge, has a vertical lift span with a clearance of 15 feet down and 145 feet up. The Norfolk and Western Railway Bridge, 10.9 miles from Sewells Point, has a vertical lift span with a clearance of 10 feet down and 135 feet up. (See **117.1 through 117.59 and 117.997,** chapter 2, for drawbridge regulations.)

(218) U.S. Routes 13 and 460 highway bridge and the Norfolk and Western Railway Bridge, immediately to the southward, 13.1 miles from Sewells Point, have bascule spans with a least clearance of 7 feet. (See **117.1 through 117.49,** chapter 2, for drawbridge regulations.) Large vessels must exercise caution when making the turns to these bridges because of the current.

(219) The facilities on the east side of Southern Branch are mostly shipyards, oil terminals, and bulk-cargo piers, while Government installations front most of the west side.

(220) The port facilities on the Berkley side of Southern Branch were described earlier in this chapter under Wharves, Norfolk Harbor.

(221) The shipyard at Berkley has six piers that can accommodate vessels up to 1,200 feet. The largest floating drydock at the yard is 850 feet long over the keel blocks, 192 feet wide, 36 feet deep over the keel blocks, and has a lifting capacity of 54,250 tons. A marine railway with a capacity of 1,000 tons is available at the shipyard; cranes up to 67 tons are also available. The largest shaft the shipyard is able to produce is 100 feet by 30 inches.

(222) The **Norfolk Naval Shipyard** is on the **Portsmouth** side of Southern Branch, 3.5 miles from Lamberts Point, and occupies about 2 miles of waterfront. There are naval **restricted** areas along this reach. (See **334.290,** chapter 2, for limits and regulations.)

(223) Most of the oil terminals are at **Chesapeake,** on the east side of Southern Branch, 10 miles from Sewells Point and 28 miles from the Capes. These facilities, as well as the deep-draft bulk cargo, grain, chemical, and fertilizer piers and wharves, were described earlier in this chapter under Wharves, Norfolk Harbor.

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11. CHESAPEAKE BAY, YORK AND RAPPAHANNOCK RIVERS

(1) This chapter describes the western shore of Chesapeake Bay from Old Point Comfort to the Potomac River including its principal tributaries Back, Poquoson, York, Piankatank, Rappahannock, and Great Wicomico Rivers, and Mobjack Bay. Also discussed are the ports of Yorktown, Fredericksburg, West Point, Tappahannock, Kilmarnock, and Reedville, as well as several of the smaller ports and landings on these waterways.

(2) **COLREGS Demarcation Lines.**–The lines established for Chesapeake Bay are described in **80.510,** chapter 2.

(3) **Charts 12221, 12225.**–The western shore of Chesapeake Bay from Old Point Comfort to the Potomac River is mostly low. York and Rappahannock Rivers are broad and deep at their entrances and are navigable for long distances.

(4) **Fishtraps** are thicker in this area than in any other part of the bay. **Ice** is seldom encountered this far south in the bay, but may be found in the upper parts of some of the tributaries.

(5) **Channels.**–The Federal project for Chesapeake Bay provides for depths of 50 feet in the main channel between the Virginia Capes and Fort McHenry, Baltimore. There are three dredged sections in the lower Chesapeake Bay: the first off Cape Henry, just above the Virginia Capes; the second off York Spit, 11 to 22 miles above the Capes; and the third off Rappahannock Spit, 40 to 46 miles above the Capes; they are well marked. (See Notice to Mariners and latest editions of the charts for controlling depths.)

(6) **York Spit Channel** begins 11 miles above the Capes and extends northward another 11 miles. The current velocity is about 1.0 knot in the channel.

(7) **Chart 12222.–Horseshoe** is a shoal that extends several miles out from the shore between Old Point Comfort and Back River, 6.5 miles to the northward. The southern edge of the shoal lies along the north side of the main channel into Hampton Roads; the eastern half has depths of 13 to 18 feet, and the western half, 6 to 11 feet. Local vessels drawing 7 feet or less use the lanes through the fishtraps on the Horseshoe when navigating between Hampton Roads and York River or Mobjack Bay. The tidal current velocity is 0.5 knot over the Horseshoe and is rotary, turning clockwise.

(8) A naval **restricted area** extends eastward and southward of Old Point Comfort, and a **danger zone** of the **Fort Monroe** firing range extends to seaward from a point 1.5 miles northward of the point. (See **334.350 and 334.360,** chapter 2, for limits and regulations, respectively.)

(9) **Salt Ponds** is entered through a privately dredged inlet on the west side of Chesapeake Bay about 4 miles north of Old Point Comfort. The entrance is marked by private aids. In 1980, the controlling depth just inside the inlet was 6½ feet. Sand dunes protect Salt Ponds from the open waters of the bay. A marina is on the east and west sides of Salt Ponds.

(10) **Back River** empties into the west side of Chesapeake Bay 7 miles northward of Old Point Comfort between **Northend Point** and **Plumtree Island,** 1 mile to the northward. A firing and bombing **danger zone** is north of the entrance to Back River. (See **334.340,** chapter 2, for limits and regulations.) The approach to Back River, from southeastward through a lane in the fishtraps, is well marked. The mean range of tide is 2.3 feet at the entrance.

(11) About 2 miles above the mouth, Back River divides into **Northwest Branch** and **Southwest Branch,** which have general depths of 2 to 5 feet. The **Langley Field** hangars, water tanks, and wind tunnel back of Willoughby Point, between the branches, can be seen for many miles. In 1979, the marked channel that extends 3 miles from the mouth of the river to the Langley Field fuel pier on the west side of Southwest Branch had a controlling depth of about 12 feet. In August 1982, shoaling to 3 feet was reported on the south side of the channel about 150 yards east-northeastward of Light 9. In December 1985, a bare shoal was reported to extend about 60 feet north of Light 9. The Langley Yacht Club, just south of the fuel pier, has gasoline and supplies; the depth in the basin is about 4 feet. A marked side channel to the Langley Field boathouse, on the south side of Northwest Branch 3 miles above the river mouth, has a controlling depth of about 7 feet.

(12) A marina on the south side of Back River, just east of **Windmill Point** 1 mile above the mouth, has gasoline, diesel fuel, and supplies; marine railways can handle boats up to 40 feet. The reported depth to the marina is about 6½ feet.

(13) **Harris River,** on the south side of Back River west of **Windmill Point,** has depths of 6 feet in a marked channel that leads to a marina inside **Stony Point.** Some supplies, gasoline, diesel fuel, and berths are available. Repairs can be made; mobile lift, 20 tons.

(14) **Messick Point** is on the north side of Back River, 1.5 miles above the mouth.

(15) The side-by-side highway and rail bridges over Southwest Branch, 1.5 miles above Willoughby Point, have fixed spans with a minimum width of 18 feet and a clearance of 6 feet.

(16) Between Back River and Poquoson River are shoals that extend 1 to 3 miles from shore; on the shoals are scattered oyster rocks that bare, or nearly bare, at low water. Strangers should stay outside the 6-foot curve. A buoyed lane, about 0.6 mile outside the 6-foot curve, extends northwestward through a fishtrap area from about 2.4 miles east-southeast of Northend Point to about 1.6 miles west-southwest of York Spit Light. In September 1980, poles were reported in the lane in about 37°09′54″N., 76°16′21″W., 37°10′45″N., 76°16′42″W., and 37°10′51″N., 76°16′48″W.

(17) **Chart 12238.–Poquoson River,** which empties into Chesapeake Bay 5 miles northwest of Back River, has depths of 7 feet to the village of **Yorkville,** on the west side 2.5 miles above the mouth. The marked approach to the river is from northeastward and is clear of fishtraps for a width of 400 yards. There is a light on either side of the entrance. The mean range of tide is 2.4 feet.

(18) **Bennett Creek,** on the southeast side of the Poquoson River mouth, has depths of 6 feet or more for 1.3 miles to **Easton Cove,** which makes off to the eastward. The channel is marked as far as White House Cove, on the west side of Bennett Creek 0.8 mile above the mouth; the channel in White House Cove is marked by daybeacons and has depths of 8 to 2 feet for 0.7 mile above the mouth. A 50-ton mobile hoist at the basin on the north side of the cove entrance can handle boats for hull repairs. Gasoline and diesel fuel are

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available at a marina near the south end of the cove. A "no wake" **speed limit** is in effect in White House Cove.

(19) **Chisman Creek,** on the north side of the Poquoson River mouth, has depths of 9 feet or more in a narrow channel for 1.3 miles above its entrance. There are boatyards on the south side, 1 mile above the entrance; gasoline is available; the largest marine railway can handle boats up to 100 feet for hull repairs. The creek is marked by daybeacons and a light.

(20) **Back Creek,** 1.5 miles south of York River, has depths of 7 feet for 2 miles. The entrance is marked by lights and daybeacons. The creek is used by oystering and fishing boats. A State-owned wharf on the south side, 1.4 miles above the mouth, has a depth of about 9 feet at the face. Gasoline, diesel fuel, limited berthing, and some supplies are available at a marina on the south side, 1.8 miles above the mouth; repairs can be made.

(21) Passage northward from Back Creek to York River can be made through the **Thorofare,** about 0.8 mile from the mouth of Back Creek. In January-February 1980, the dredged channel, marked by lights and daybeacons, had a midchannel controlling depth of 3½ feet.

(22) **Charts 12238, 12241, 12243.–York River** formed by the junction of Mattaponi and Pamunkey Rivers 29 miles about the mouth, is 15 miles northward of Old Point Comfort and 26 miles by the main channel from Cape Henry. Traffic on York River consists chiefly of pulpwood, petroleum products, military supplies, and shellfish. Drafts of vessels using the river are mostly 18 feet or less, but deep-draft vessels navigate the lower reaches.

(23) York River has a broad and fairly straight channel, is well marked and easily followed. Depths are as much as 80 feet off Yorktown. In 1982, the controlling depth in the dredged sections of the river was 18 feet to West Point. Vessels can anchor in the wider parts of York River channel aside from the naval areas described later.

(24) The mean range of tide is 2.2 feet at the entrance to York River, 2.4 feet at Yorktown, and 2.8 feet at West Point. The currents in York River follow the general direction of the channel except in the narrowest parts where there is a tendency to set a vessel onto the shoals. The velocity varies throughout the river; the times of slack water and strengths of current become later going up the river. The normal conditions are subject to change by winds and freshets.

(25) **Ice** sometimes interferes with navigation of York River for short periods during severe winters, but in ordinary winters there is no interruption below West Point.

(26) **Caution.**–Ships and craft underway in York River are to proceed at reduced speed and exercise extreme caution in order to reduce generated water motion and to prevent damage to the Virginia Fisheries Laboratory equipment and facilities located downstream from the Coleman Memorial Bridge, in the vicinity of Gloucester Point, ships and craft loading volatile fuels at the American Oil Co. refinery pier, and other craft and property close to the shores of the river. In no instance should the **speed** of ships underway upriver from the Tue Marshes Light exceed 12 knots.

(27) **Pilotage** on the York River is compulsory for all foreign vessels and for U.S. vessels under register in the foreign trade. Pilotage is optional for U.S. vessels in the coastwise trade which have on board a pilot licensed by the Federal Government to operate in these waters.

(28) The Chesapeake and Interstate Pilots Association offers pilot services to U.S. vessels, engaged in the coastwise trade, and public vessels to any port or place on the York River. Arrangements for pilots may be made through ships' agents or the pilot office in Norfolk (telephone, 804-855-2733; cable, CINPILOT). Pilots will meet vessels entering from sea at Cape Henry (discussed in chapter 9), and will meet a vessel at its port if it is on the Chesapeake Bay and its tributaries or Delaware Bay and River and provide pilot services directly to the York River. The Virginia Pilots Association offers pilotage to all vessels. Pilot service above Cheatham Annex is available only during daylight. (See Pilotage, chapters 3 and 9.)

(29) **Supplies** are available at Yorktown, West Point, and at other places described in this chapter. **Repairs** can be made to small vessels in Perrin River, Sarah Creek, and at other places.

(30) **Chart 12238.–York Spit** extends outward along the northeast side of the York River approach channel for 7 miles from Guinea Marshes; the inner half of the spit has depths of 1 to 6 feet, and the outer half 10 to 20 feet.

(31) **York Spit Light** (37°12.6'N., 76°15.3' W.), 30 feet above the water, is shown from a pile with a red and white diamond-shaped daymark, in depths of 12 feet near the outer end of the spit. The light is 19.8 miles above Cape Charles.

(32) The York River approach channel, extending from about 7 miles southeast of York Spit Light to about 3 miles northwest of the light, has a controlling depth of about 37 feet and is well marked. There are natural depths in excess of 37 feet from the north end of the dredged section to the naval installation 5 miles above Yorktown bridge.

(33) About 1.5 miles northwest of York Spit Light, a buoyed lane extends northeastward through the fishtraps. The lane has depths of 15 feet or more and can be used by medium-draft vessels approaching York River from northward.

(34) The swash channel through York Spit about 5 miles northwest of York Spit Light has a controlling depth of about 7 feet; it is marked by a light and daybeacons. The channel shows up well on a bright day.

(35) **Chart 12241.**–The entrance to York River is between **Tue Point** and **Guinea Marshes,** 25.9 miles above the Virginia Capes.

(36) **Tue Marshes Light** (37°14.1'N., 76°23.2'W.), 41 feet above the water, is shown from a pile with a green and white diamond-shaped daymark, in depths of 4 feet 0.3 mile north of Tue Point.

(37) **Perrin River,** on the north side of York River 2 miles above the mouth, has depths of 6 feet or more in the approach and through a narrow marked channel to the wharf at **Perrin,** on the north side 0.3 mile above the entrance. A marina on the east side has gasoline, diesel fuel, some supplies, and a 20-ton mobile hoist; hull and engine repairs can be made. Gasoline and diesel fuel can be obtained at several of the oysterhouse wharves, on the east side of the river entrance; depths of 4 to 7 feet are alongside the wharves.

(38) The Amoco offshore pier, on the south side of York River 3.3 miles above the mouth, has reported depths of 40 feet along the 1,240-foot outer face. The pier, connected to shore by a 0.5 mile long catwalk, is marked at its easterly end by a private light.

(39) The intake for an electric powerplant, on the south side of the river 4.2 miles above the mouth, is marked by two lights.

(40) **Wormley Creek** and **West Branch** have a common entrance on the south side of York River, 4.5 miles above the mouth; a light marks the entrance. A privately dredged channel leads through the entrance to the Coast Guard Reserve Training Center basin and pier on the north side of

West Branch 0.8 mile above the entrance light. In October 1984, the channel, marked by a light, buoys, and daybeacons, had a centerline controlling depth of 5 feet to the Coast Guard basin. Local knowledge is advised. Gasoline diesel fuel, berths, water, electricity, a 37-ton mobile lift, and marine supplies can be obtained at a marina on the east side of Wormley Creek just above the entrance; hull and engine repairs can be made.

(41) The Coast Guard T-pier (37°13.6′N., 76°28.7′W.), on the south side of York River 5 miles above the mouth, has depths of 30 feet reported at the outer end.

(42) A **naval explosives handling berth** is northward of the Coast Guard pier. (See **334.260,** chapter 2, for limits and regulations.)

(43) **Sarah Creek,** on the north side of York River 6 miles above the mouth, has depths of 7 feet through the marked entrance channel and for about 0.8 mile up both its branches. A large yacht haven, on the west side 0.3 mile above the entrance, has supplies, gasoline, diesel fuel, a 35-ton lift, a pumpout station and numerous berths. Repairs can be made at a boatyard 0.3 mile up Northwest Branch; marine railway, 76 feet; largest lift, 60 tons.

(44) A fixed highway bridge with a clearance of 6 feet and channel width of 47 feet crosses Northwest Branch about 0.8 mile above its mouth.

(45) **Yorktown,** the historic Revolutionary War town, is on the southwest side of York River 6.7 miles above the mouth. High on the bluff in the southerly part is the **Yorktown Monument,** and a group of buildings is prominent on the shore back of the wharves. The main part of the town is not visible from the river. **George P. Coleman Memorial Bridge,** from Yorktown to Gloucester Point, has twin spans with clearance of 60 feet; the two spans open clockwise simultaneously. The bridgetender monitors VHF-FM channel 13; call sign KQ-7166. (See **117.1 through 117.49,** chapter 2, for drawbridge regulations.)

(46) The public wharf at the Yorktown end of the bridge has depths of 6 feet at its face, but depths of 20 feet or more are only 5 feet off of it. The post office is at the wharf. Supplies are available nearby.

(47) Permission to use the wharf facilities may be obtained from the Board of Trustees, P.O. Box 512, Yorktown, Va. 23690.

(48) **Gloucester Point** is a village at the northeast end of Coleman Bridge. There are several piers and buildings on the low point, and the red brick building of the Virginia Institute of Marine Science is about 500 yards northeastward. The long T-head pier (37°14′46″N., 76°30′02″W.), owned by the Institute, has reported depths of 8 feet at the face. A shorter pier of the Institute is about 150 yards to the northward; depths of 6 feet are reported at the face.

(49) The **Yorktown Naval Weapons Station** piers on the southwest side of York River, 8 miles above the mouth, have depths of about 39 feet at their outer ends. A **prohibited area** and a **restricted area** for mine service testing are off the piers. (See **334.260,** chapter 2, for limits and regulations.) A **naval anchorage** begins off the Naval Weapons Station piers and extends upriver about 4 miles. (See **110.166,** chapter 2, for limits and regulations.)

(50) The **Naval Supply Center** piers at **Cheatham Annex Depot,** on the southwest side of York River 11.5 miles above the mouth, have reported depths of 22 feet at the southeasterly T-pier and 14 feet at the northwesterly L-pier; greater depths were reported close off the pier faces. The piers are within a **naval restricted area.** (See **334.270,** chapter 2, for limits and regulations.)

(51) **Chart 12243.–Queen Creek** (37°18.1′N., 76°36.9′W.), on the southwest side of York River 13 miles above the mouth, has depths of about 5 feet with local knowledge through a marked channel across the flats at the entrance and deeper water through a narrow channel inside for 2.7 miles to **Hawtree Landing.** The channel inside is marked by daybeacons to a point about 0.6 mile below Hawtree Landing. Stakes on either side of the entrance mark the limits of the State's experimental oyster beds.

(52) **Aberdeen Creek,** on the northeast side of York River 14 miles above the mouth, has a marked dredged channel leading to a turning basin and public landing 0.4 mile above the entrance. In 1982-March 1983, the controlling depth was 2 feet at midchannel to the basin, thence 3 feet in the basin. Gasoline and diesel fuel are available at a seafood company wharf just north of the public landing.

(53) The ruins of a long T-head pier are at **Clay Bank,** on the northeast side of York River 15 miles above the mouth.

(54) **Poropotank Bay,** on the northeast side of York River 22 miles above the mouth, has depths of 5 feet at the entrance; the best water favors the eastern side which is marked by bush stakes. From the entrance, depths of about 5 feet can be carried 4 miles through **Morris Bay** and **Poropotank River** to **Miller Landing.** There are several other landings along the river. The channel is usually marked by bush stakes, but is crooked and narrow in places and difficult to navigate without local knowledge.

(55) **West Point,** at the junction of Mattaponi and Pamunkey Rivers 29 miles above the mouth of York River, has waterborne commerce in pulpwood, paper products, and petroleum. The town is the terminus of a Southern Railway branch line. The pulp, paper, and paperboard wharves just above the Eltham Bridge have reported depths of 16 feet alongside.

(56) At West Point, the maximum current velocity is 0.8 knots on the flood in Mattaponi River, and 0.9 knots on the ebb in Pamunkey River. Broken-off piling extends off the south side of West Point.

(57) A public pier is at the southeast end of West Point, at the mouth of Mattaponi River. Gasoline is available at an oil wharf with depths of 5 to 15 feet alongside 0.4 mile south of the Lord Delaware Bridge; diesel fuel can be delivered by truck. An oil pier 0.2 mile above the bridge has depths of 18 feet alongside. Supplies can be obtained in town.

(58) **Chart 12243.–Mattaponi River,** which empties into York River eastward of West Point (37°31.7′N., 76°47.7′W.), is one of two tributaries that combine to form York River. Traffic on Mattaponi River consists chiefly of pulpwood. Drafts of vessels using the river above West Point usually do not exceed 10 feet.

(59) Controlling depths in Mattaponi River are as follows: 12 feet to **Courthouse Landing,** 13 miles above the mouth; thence 9 feet for 10 miles to **Locust Grove;** and thence 2 feet to **Aylett,** 32 miles above the mouth.

(60) The channel in Mattaponi River is unmarked and is difficult to navigate without local knowledge. The mean range of tide is 2.8 feet at West Point and 3.9 feet at Walkerton. Freshets occur at irregular intervals, being more severe in March and April, and have reached a height of 17 feet above low water at Aylett, though this is exceptional; the freshet rise is negligible at and below West Point.

(61) The Lord Delaware Bridge over Mattaponi River at West Point has a swing span with a clearance of 12 feet; the eastern opening is used as there are no fenders on the western opening. (See **117.1 through 117.59 and 117.1015,** chapter 2, for drawbridge regulations.) Overhead power cables

about 1.8 and 13 miles above the mouth have clearances of 62 feet and 90 feet, respectively.

(62) The **Walkerton** highway bridge, 24.5 miles above the mouth of Mattaponi River, has a swing span with a clearance of 6 feet through the southerly opening which has fenders. (See **117.1 through 117.59 and 117.1015,** chapter 2, for drawbridge regulations.) Two fixed bridges cross the river at Aylett, 32 miles above the mouth; minimum clearance is 20 feet. The minimum clearance of the overhead power cables between the bridges at Walkerton and Aylett is 42 feet.

(63) **Pamunkey River,** the westerly of the two tributaries that form York River, has many landings along its banks. Traffic on the river consists chiefly of pulpwood; there is a grain elevator platform at **Port Richmond,** 2 miles above the mouth. Vessels with drafts up to 12 feet navigate the river to Port Richmond.

(64) Controlling depths in Pamunkey River are about 12 feet from the mouth to **Cumberland Landing,** 20 miles above the mouth, thence 8 feet to **White House,** 28 miles above the mouth, and 4 feet to the Newcastle Bridges 46 miles above the mouth. The mean range of tide is 2.7 feet at **Sweet Hall Landing,** 15 miles above the mouth, and 3.3 feet at **Northbury,** 35 miles above the mouth. Freshets occur at irregular intervals, being more severe in March and April.

(65) Pamunkey River is easy to navigate as far as **Brickhouse Landing,** 16 miles above the mouth; farther up, navigation is difficult without local knowledge. Freshwater is available at some of the landings, and the river water is fresh above Cumberland Landing. Several narrow cutoffs have depths enough for small boats, but their use requires local knowledge. Above **Retreat,** 36 miles above the mouth, the river is covered with floating debris and snags.

(66) The Eltham Bridge over Pamunkey River at West Point has a swing span with a clearance of 10 feet; the southwest opening is preferred, as there are no fenders along the northeast opening. The bridgetender monitors VHF-FM channel 13; call sign KQ-7168. Power cables crossing the river about 2 and 14.6 miles above the mouth have clearances of 60 and 90 feet, respectively. The railroad bridge at White House has a swing span with a clearance of 4 feet; the easterly opening is used. (See **117.1 through 117.49,** chapter 2, for drawbridge regulations.)

(67) **Chart 12238.–Mobjack Bay,** which is entered between Guinea Marshes at the shore end of York Spit, and New Point Comfort, 4 miles east-northeastward, includes several tributaries, the most important being East, North, Ware, and Severn Rivers. The bay is obstructed by extensive shoals, but has depths of 22 feet in the entrance and 15 feet for considerable distances into the tributaries. Many of the shoals are marked by lights and buoys.

(68) The only prominent marks in the approach to Mobjack Bay are York Spit Light on the south and the white tower of the abandoned lighthouse on New Point Comfort on the north. The approach channel extends between fishtrap buoys; numerous crab pots exist shoreward of these buoys. Good anchorage, sheltered from all but southerly and southeasterly winds, can be found in the bay. Small craft find safe anchorage in the bight westward of New Point Comfort and in the rivers and creeks. The mean range of tide is 2.3 feet at the entrance.

(69) **New Point Comfort** is the south end of a low, partly wooded island which is separated from the mainland by **Deep Creek,** a crooked and unmarked natural channel. The pile remains of **Bayside Wharf,** visible at high water 1.5 miles northwest of New Point Comfort, extend about 0.4 mile channelward.

(70) **Davis Creek,** 1.6 miles northwest of New Point Comfort, has a marked dredged channel leading to a public landing in the western arm about 0.8 mile above the entrance. In October 1986, the controlling depth was 7 feet in the east half of the channel from Light 1 to Light 8, thence 9 feet to the turning basin with 10 feet in the basin. Depths of 8½ to 10 feet are alongside the face of the public landing. Several wharves are on the shore in the upper part of the creek; gasoline and diesel fuel are available.

(71) **Pepper Creek,** 3 miles northwest of New Point Comfort, has depths of 4 feet for about 0.7 mile above the entrance. The approach is marked by daybeacons.

(72) **East River,** 5 miles northwest of New Point Comfort, has a marked narrow channel with depths of 10 feet for 3.5 miles above the entrance, and thence 4 feet for another 2 miles to the head. Shoals, sometimes marked by bush stakes, extend for some distance off many of the points above the entrance, but the midchannel is clear.

(73) **Diggs Wharf,** on the east side of East River just inside the entrance, is in ruins. There are no commercial facilities at **Mobjack** opposite Diggs Wharf.

(74) **Williams Wharf,** on the northeast side of East River about 2.5 miles above the entrance, has reported depths of 6 to 8 feet alongside the abandoned oysterhouse bulkhead. A boatyard on the western shore opposite Williams Wharf has a 50-foot marine railway; repairs can be made.

(75) **North River,** which empties into the head of Mobjack Bay from northward, is wide, but has long shoals making off from many of the points. The channel has depths of 12 feet for 4 miles and is well marked; depths of 7 feet can be carried 2 miles farther. **Blackwater Creek** empties into North River 3 miles above the mouth. The entrance is marked by a light and depths of 7 feet can be carried for 0.5 mile to a boatyard and a marina just inside the entrance of **Greenmansion Cove;** gasoline, diesel fuel, and some supplies are available. The depth at the face of the dock is 5 feet. Hull and engine repairs can be made; marine railway, 50 feet; mobile hoist, 6 tons.

(76) **Ware River,** which flows into the head of Mobjack Bay from northwestward, has depths of 15 feet to the mouth of **Wilson Creek,** on the west side 3 miles above the entrance, and 7 feet for another 2 miles. Long shoals, some of which are marked by lights and daybeacons, extend off many of the points. The only commercial landing on Ware River is the J. C. Brown Co. wharf, on the east side about 4 miles above the entrance, which has a depth of about 5 feet off the end; gasoline is available. **Schley,** 0.5 mile inland from the wharf, has a store.

(77) **Severn River,** on the west side of Mobjack Bay, has depths of 18 feet to the junction with **Northwest Branch** and **Southwest Branch,** 8 feet for 1.3 miles in Southwest Branch, and 8 feet for 1.8 miles in Northwest Branch. The most prominent shoals are marked by lights or daybeacons.

(78) A wharf at **Glass,** on the north side of Southwest Branch 1.1 miles above the fork, has depths of about 7 feet to the outer end. Mariners are advised to stay within the marked channel to avoid the 1-foot shoal extending from the point 0.4 mile eastward of the wharf. Gasoline, diesel fuel, and marine supplies are available. Hull and engine repairs can be made; marine railway, 60 feet. A marina on the west side of **Rowes Creek,** 0.5 mile southeast of the Glass Wharf, has gasoline, diesel fuel, marine supplies, and a 10-ton mobile hoist.

(79) **Browns Bay,** 1 mile south of Severn River, is marked by lights at the entrance and by bush stakes inside. Gasoline and diesel fuel are available at a wharf, with a depth of 4 feet at the end, at the head of the bay. A store is at **Severn,** about 1 mile westward of the wharf.

(80) **Dyer Creek,** which empties into Chesapeake Bay 2 miles north of New Point Comfort, has depths of 3 feet in the entrance and 4 to 5 feet inside. The creek is bush-staked, but local knowledge is essential. Overhead power cables across the creek have a least clearance of 17 feet.

(81) **Horn Harbor** is entered through a dredged channel marked by lights 2.4 miles northward of New Point Comfort; lights and daybeacons mark the channel in the upper part of the harbor. In January-February 1990, the controlling depth was 7 feet in the dredged channel, thence in 1977, about 5 feet to a point 3.5 miles above the entrance. In April 1982, a 3-foot shoal was reported on the northeast edge of the channel at the bend opposite Horn Harbor Light 3. A cluster of submerged piling of a former fishhouse is on the east side of the channel about 1 mile above the entrance. Traffic consists chiefly of fish, shellfish, and pleasure craft.

(82) The ruins of a fish wharf are at **New Point,** 0.7 mile above the Horn Harbor entrance. A marina, 3.5 miles above the entrance, has gasoline, diesel fuel, and some supplies. An 80-foot marine railway can haul out boats for repairs.

(83) **Winter Harbor** is entered through a dredged channel marked by lights and daybeacons 4.3 miles north-northeast of New Point Comfort. The channel leads to a turning basin and public landing 1.5 miles above the entrance. In December 1990-January 1991, the controlling depth was less than 1 foot to the turning basin with 1 to 3 feet available in the basin, except for shoaling to bare along the north edge. Commerce in the harbor consists chiefly of fish and shellfish.

(84) **Wolf Trap,** the area of broken ground 6 miles northward of New Point Comfort, has numerous shoal spots 5 to 10 feet deep which extend as much as 3 miles from the western shore of Chesapeake Bay. All the shoal area lies in the fishtrap limits. **Wolf Trap Light** (37°23.4′N., 76°11.4′ W.), 52 feet above the water, is shown from an octagonal red-brick dwelling with a square tower on a brown cylinder, in depths of 16 feet near the outer end of the shoal area. The light is 5 miles due west of a point in the main channel 28.8 miles above the Capes.

(85) **Chart 12225.–The danger zone** of a naval firing range begins about 4 miles north-northeastward of Wolf Trap Light and extends northward to Tangier Sound Light, just south of **Tangier Island.** (See **334.220,** chapter 2, for limits and regulations.) The danger zone also contains a designated hurricane anchorage for shallow and deep-draft naval vessels. During hurricane warnings, naval ships may be anchored in the fairway; caution is advised.

(86) The ruins of a former degaussing range control tower, 6.2 miles eastward of Wolf Trap Light, are covered 3½ feet. A lighted bell buoy, 150 yards to westward, marks the obstruction.

(87) **Chart 12235.–Piankatank River** is 11 miles northward of Wolf Trap Light. The entrance is between **Cherry Point** (37°31.0′N., 76°17.8′W.), at the north end of **Gwynn Island,** and **Stingray Point,** 2.5 miles to the northward. The entrance point is 45.3 miles above the Virginia Capes. **Stingray Point Light** (37°33.7′N., 76°16.2′W.), 34 feet above the water, is shown from a pile with a green and white diamond-shaped daymark on piles in depths of 6 feet 1.3 miles east of the point.

(88) Traffic on Piankatank River consists of fish, shellfish, and shells. Drafts of vessels using the river are mostly 6 feet, but drafts up to 11 feet are on record. The river has depths of about 18 feet in the approach from northeastward through a buoyed lane in the fishtraps, 16 feet or more to the fixed bridge 9 miles above the mouth, and 7 feet to Freeport, 13.5 miles above the mouth. Lights and buoys mark the lower 6 miles of the river channel.

(89) The mean range of tide is 1.2 feet in the lower part of Piankatank River. During severe winters, the river is sometimes closed by ice for short periods. Hull repairs can be made to medium-size vessels in Fishing Bay; gasoline and diesel fuel are available.

(90) **Jackson Creek,** on the north side of Piankatank River 1 mile above the mouth, has a dredged entrance channel marked by a light and daybeacons. The controlling depth in August 1987 was 8 feet in the entrance, with natural depths of 8 to 10 feet inside. In August 1987, a shoal spot less than 1 foot was reported to be in the channel about 20 yards downstream from Daybeacon 5. Stakes usually define the channel edges. **Deltaville** is at the head of the north arm.

(91) There is a marina along Jackson Creek where fuel, supplies, and berths can be obtained. The largest lift can handle boats to 35 tons feet for hull and engine repairs.

(92) **Hills Bay,** on the south side of Piankatank River 2 miles above the mouth, has general depths of 14 to 20 feet, and is the approach to Queens Creek and Milford Haven.

(93) **Queens Creek,** at the head of Hills Bay, is entered by a dredged channel that leads across the bar at the entrance and thence to a turning basin about 0.6 mile above the entrance. In February-March 1989, the controlling depth was 1 foot in the entrance channel to Light 5, thence 3½ feet at midchannel to the turning basin, and 5½ feet in the basin. The channel across the bar and to the turning basin is marked by lights and daybeacons. A few broken piles that remain of the wooden jetty on the north side of the entrance are marked at the outer end by a daybeacon.

(94) **Milford Haven,** the strait between Gwynn Island and the mainland to the southwestward, is entered from the head of Hills Bay. Traffic on the waterway consists chiefly of fish and shellfish carried in vessels drawing up to 7 feet. A marked channel with a controlling depth of 7½ feet (9½ feet at midchannel) in August 1987 leads from Hills Bay to natural depths of 15 to 8 feet in Milford Haven.

(95) The jetty on **Narrows Point,** at the north side of the Hills Bay entrance to Milford Haven, is marked by a light. The highway bridge from the mainland to Gwynn Island has a swing span with a clearance of 12 feet in the north opening. (See **117.1 through 117.49,** chapter 2, for drawbridge regulations.)

(96) A marina on Gwynn Island just west of the bridge has gasoline, diesel fuel, supplies, and berths; Hull and Engine repairs can be made; lift, 40 tons, railway, 60-foot long. A public landing pier is on Gwynn Island just east of the bridge. **Milford Haven Coast Guard Station** is 0.2 mile east of the south end of the bridge.

(97) **Callis Wharf** at **Grimstead,** on the Gwynn Island side of Milford Haven 0.7 mile from the jetty, has depths of 9 feet at the face. Gasoline, diesel fuel, and some other supplies are available. A marine railway on the southeast side of the entrance to **Edwards Creek,** 0.5 mile eastward of Callis Wharf, can handle boats up to 35 feet for hull repairs.

(98) A wharf at **Cricket Hill,** on the west side of **Lanes Creek,** opposite Edwards Creek, has gasoline, diesel fuel, and ice; depths of 8 feet are reported at the face.

(99) Milford Haven can also be entered from Chesapeake Bay at the south end of Gwynn Island. This passage, known as **The Hole in the Wall** has a reported controlling depth of about 4 feet and is used by small local boats, but is exposed to heavy seas. The passage is marked by lights, daybeacons, and a buoy. Local knowledge is recommended when transiting the passage.

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14. CHESAPEAKE BAY, EASTERN SHORE

(1) This chapter describes the Eastern Shore of Chesapeake Bay from Cape Charles to Swan Point, about 6 miles northward of the entrance to Chester River, and several bodies of water and their tributaries that empty into this part of the bay. Included are Pocomoke Sound, Pocomoke River, Tangier Sound, Wicomico River, Nanticoke River, Little Choptank River, Choptank River, Eastern Bay, and Chester River, and the off-lying islands of Tangier, Smith, Hooper, and Tilghman.

(2) Also described are the ports of Cape Charles, Pocomoke City, Tangier, Crisfield, Salisbury, Easton, Cambridge, St. Michaels, and several smaller ports and landings.

(3) **COLREGS Demarcation Lines.**–The lines established for Chesapeake Bay are described in **80.510,** chapter 2.

(4) During the ice navigation season, the Maryland waters of Chesapeake Bay described in this chapter are a **regulated navigation area.** (See **165.503,** chapter 2, for limits and regulations.)

(5) **Charts 12221, 12225, 12230, 12263, 12273.**– The Eastern Shore of Chesapeake Bay, from Cape Charles to Chester River, is mostly low and has few prominent natural features. The mainland and the islands are subject to erosion, and many of the islands and points have completely washed away. **Fishtrap** limits are shown on the charts and usually are marked by black and white horizontal-banded buoys. In the tributaries of Pocomoke Sound, **ice** sufficient to interfere with the navigation of small vessels may be encountered at any time from January through March. The ice from Pocomoke Sound does not interfere with the larger vessels in the bay, but the smaller oyster and fishing boats frequently are held up and sometimes require assistance, especially in Kedges and Hooper Straits.

(6) **Charts 12224.–Wise Point** (37°07.0′N., 75°58.3′W.), the mainland tip of Cape Charles, is included in chapter 9, which also describes Fishermans Island, Cape Charles Light on Smith Island, and the Atlantic entrance to Chesapeake Bay.

(7) **Kiptopeke Beach,** 3.2 miles northward of Wise Point, is the site of a former ferry terminal. The offshore breakwaters are obsolete ships filled with sand and sunk end-to-end. Just northward of the abandoned terminal is **Butlers Bluff,** which has steep bare faces conspicuous from the bay.

(8) **Old Plantation Creek,** 7 miles northward of Wise Point, has depths of about a foot. Many of the bars and middle grounds are marked by discolored water, and the channel usually is marked by bush stakes, but it is narrow and difficult to navigate without local knowledge. The opening in the thick woods at the mouth is visible from outside. No supplies are available along the creek.

(9) **Old Plantation Flats Light** (37°13.7′N., 76°02.8′W.), 39 feet above the water, is shown from a pile with a black and white diamond-shaped daymark in 11 feet on the north end of the flats about 1.5 miles from shore. The current velocity is about 1.3 knots 0.5 mile west of the light.

(10) **Cape Charles Harbor,** 9 miles northward of Wise Point, is a dredged basin on the south side of the town of **Cape Charles.** A well-marked dredged channel just north of Old Plantation Flats Light leads to the harbor between sand flats on the south and a stone jetty on the north. Two small dredged basins are eastward of the main harbor basin. The northerly basin is known as the Harbor of Refuge, and the southerly basin as Mud Creek Basin. In December 1987-February 1988, the dredged channel to Cape Charles Harbor had a controlling depth of 17 feet at midchannel with 18 feet available in the harbor basin; thence in December 1988, depths of 4 to 6½ feet were available in the Harbor of Refuge Basin. In May 1987-January 1988, depths of 6½ to 10 feet were available in Mud Creek Basin except for shoaling to bare at the NE corner.

(11) **Cape Charles Coast Guard Station** is on the spit between Mud Creek and the Harbor of Refuge.

(12) The mean range of tide is 2.4 feet at Cape Charles. The tidal currents set across the entrance to and across the southwest section of the dredged channel, but farther north they follow the general direction of the axis. The channel is exposed to westerly winds, but is partially protected by the flats to the westward, and seldom is too rough for motorboats. However, during severe W weather heavy surges may occur in the harbor. Ice may hinder navigation in the harbor during severe winters. Because of the limited space in the channel and harbor, the larger vessels and tows occasionally are somewhat of a hazard to small boats.

(13) Cape Charles is a **customs port of entry.**

(14) Cape Charles Harbor is a terminus of the Eastern Shore Railroad. The railroad operates floats to Little Creek. Floats are usually brought into the harbor in the late afternoon, although there are also occasional early morning arrivals. Due to the limited maneuvering room in the channel and the harbor, larger vessels and tows are sometimes a hazard to small craft. The tugs that handle the floats monitor VHF-FM channels 13 and 16.

(15) There is public access to the bulkheads and slips at the eastern end of the harbor. Anchoring is forbidden in any part of the harbor or the basins. A "no-wake" **speed limit** is enforced. A **harbormaster** enforces harbor regulations, and a **dockmaster** supervises docking at the municipal facilities. Gasoline, diesel fuel, and water are available. Some marine supplies may be obtained in town.

(16) **Cherrystone Channel** is a passage inside Old Plantation Flats that leads from deep water 2 miles south-southeastward of Old Plantation Flats Light northward to Kings Creek and Cherrystone Inlet. The route follows part of the dredged channel to Cape Charles Harbor for about 1 mile. That part of Cherrystone Channel southward of the dredged channel to Cape Charles Harbor is unmarked and little used. Cherrystone Channel above Cape Charles Harbor is marked by lights and daybeacons to the vicinity of **Sandy Island.** This part of the channel has depths of about 10 feet, but is narrow in places, and local knowledge is required to carry the best water. The recommended southerly approach to Kings Creek and Cherrystone Inlet is via the marked dredged channel to Cape Charles Harbor, which was discussed earlier in this chapter.

(17) **Kings Creek,** about 1 mile northward of Cape Charles Harbor and eastward of Sandy Island, has depths of 3½ feet for 1 mile upstream. The shoal that extends out from the north side of the entrance bares at low water; lights and daybeacons mark the entrance. The creek is used extensively by fishermen and pleasure craft. Gasoline, berths, and some marine supplies are available at a marina just inside the entrance; a marine railway can haul out boats up to 60 feet for minor repairs.

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ATLANTIC OCEAN DISTANCES
MONTREAL, CANADA, TO PANAMA CANAL ZONE
(Nautical Miles)

Figure at intersection of columns opposite ports in question is the nautical mileage between the two. Example: New York, N. Y., is 1399 nautical miles from San Juan, P. R.

MONTREAL, CANADA* (St. Lambert Lock)	Cabot Strait 47°07.0'N., 60°17.0'W	Gulf of Canso (Lock) 45°39.0'N., 61°25.0'W	Portland, Maine 43°39.4'N., 70°14.7'W	Boston, Mass 42°22.0'N., 71°03.0'W	NANTUCKET SHOALS 40°30.0'N., 69°25.0'W	NEW YORK, N. Y 40°42.0'N., 74°01.0'W	Philadelphia, Pa. 39°56.6'N., 75°08.3'W	Baltimore, Md 39°16.0'N., 76°34.5'W	CHESAPEAKE BAY ENT 36°56.3'N., 75°58.6'W	Norfolk, Va 36°50.9'N., 76°17.9'W	DIAMOND SHOALS 35°08.0'N., 75°15.0'W	Wilmington, N. C 34°14.0'N., 77°57.0'W	Charleston, S. C 32°47.2'N., 79°55.2'W	Savannah, Ga 32°05.0'N., 81°05.7'W	Jacksonville, Fla 30°19.2'N., 81°39.0'W	Key West, Fla 24°33.7'N., 81°48.5'W	STRAITS OF FLORIDA 24°25.0'N., 83°00.0'W	Tampa, Fla. 27°56.5'N., 82°26.7'W	Pensacola, Fla 30°24.0'N., 87°13.0'W	Mobile, Ala. 30°42.5'N., 88°02.5'W	NEW ORLEANS, La (via SW Pass) 29°57.0'N., 90°03.7'W	Port Arthur, Tex 29°49.5'N., 93°57.6'W	Galveston, Tex. 29°19.0'N., 94°47.0'W	Corpus Christi, Tex 27°48.8'N., 97°24.0'W	San Juan, P. R. 18°27.6'N., 66°06.7'W	YUCATAN CHANNEL 21°50.0'N., 85°03.0'W	Panama Canal (Atlantic Ent.) 9°23.5'N., 79°55.3'W	PANAMA CANAL (Pacific Ent.) 8°53.0'N., 79°31.0'W
681																													
717	120																												
1276	595	484																											
1318	637	526	100																										
1311	630	519	203	163																									
1534	853	742	426	386	223																								
1682	1001	890	575	535	372	240																							
1838	1157	1046	734	694	531	417	392																						
1889	1008	896	584	544	381	267	242	150																					
1716	1035	923	811	571	408	294	269	173	27																				
1729	1048	936	628	588	425	345	322	267	117	144																			
1948	1267	1155	847	807	644	564	541	486	336	363	219																		
2014	1333	1221	913	873	710	630	607	552	402	429	285	151																	
2088	1407	1295	987	947	784	704	681	626	476	503	359	227	102																
2172	1491	1379	1071	1031	868	788	765	710	560	587	443	315	197	145															
2479	1798	1690	1387	1347	1184	1109	1086	1031	881	908	764	667	572	543	462														
2540	1859	1751	1448	1408	1245	1170	1147	1092	942	969	825	728	633	604	523	73													
2772	2091	1983	1680	1640	1477	1402	1379	1324	1174	1201	1057	960	865	836	755	305	232												
2977	2296	2188	1885	1845	1682	1607	1584	1529	1379	1406	1262	1165	1070	1041	960	510	437	347											
3011	2330	2222	1919	1879	1716	1641	1618	1563	1413	1440	1296	1199	1104	1075	994	544	471	389	89										
3080	2399	2291	1988	1948	1785	1710	1687	1632	1482	1509	1365	1268	1173	1144	1063	613	540	502	288	269									
3240	2559	2451	2148	2108	1945	1870	1847	1792	1642	1669	1525	1428	1333	1304	1223	773	700	697	504	491	441								
3242	2561	2453	2150	2110	1947	1872	1849	1794	1644	1671	1527	1430	1335	1306	1225	775	702	703	509	496	446	89							
3347	2666	2558	2255	2215	2052	1977	1954	1899	1749	1776	1632	1535	1440	1411	1330	880	807	810	618	605	555	249	207						
2445	1764	1669	1531	1486	1334	1399	1395	1375	1225	1252	1114	1153	1138	1156	1121	966	1017	1249	1448	1448	1557	1717	1719	1824					
2730	2049	1937	1629	1589	1426	1346	1323	1268	1118	1145	1001	904	809	780	699	251	192	404	533	562	587	691	696	769	1111				
3203	2522	2419	2189	2149	1986	1972	1955	1904	1754	1781	1637	1609	1563	1564	1513	1060	1001	1213	1342	1371	1396	1487	1493	1549	990	809			
3249	2568	2465	2235	2195	2032	2018	2001	1950	1800	1827	1683	1655	1609	1610	1559	1106	1047	1259	1388	1417	1442	1533	1539	1595	1036	855	46		

*Quebec, Canada - SUBTRACT 139 miles

All tabular distances are by outside routes which can be used by the deepest-draft vessel that the listed ports can accommodate. Lighter-draft vessels can save considerable mileage by transiting Canso Lock (Canada), the Cape Cod Canal (Massachusetts), and the Chesapeake and Delaware Canal (Delaware-Maryland); see the detailed tables. Gulf of Mexico distances are through the Shipping Safety Fairways.

COASTWISE DISTANCES
NEW YORK, N.Y., TO CHESAPEAKE BAY ENTRANCE, VA.
(Nautical Miles)

Figure at intersection of columns opposite ports in question is the nautical mileage between the two. Example: New York, N. Y., is 240 nautical miles from Philadephia, Pa.

	NANTUCKET SHOALS 40°30.0'N., 69°25.0'W	MONTAUK POINT, N.Y. 41°01.7'N., 71°47.3'W	NEW YORK, N.Y. 40°42.0'N., 74°01.0'W	Manasquan Inlet, N.J. 40°06.1'N., 74°01.9'W	Barnegat Inlet, N.J. 39°46.0'N., 74°06.3'W	Atlantic City, N.J. 39°22.6'N., 74°24.9'W	Cape May Harbor, N.J. 38°57.1'N., 74°52.6'W	DELAWARE BAY ENTRANCE 38°50.5'N., 75°03.3'W	Harbor of Refuge, Del. 38°49.0'N., 75°05.2'W	CHES. & DEL. CANAL E. ENT. 39°33.8'N., 75°32.8'W	Wilmington, Del. 39°43.2'N., 75°31.5'W	Marcus Hook, Pa. 39°48.2'N., 75°25.2'W	Chester, Pa. 39°50.0'N., 75°22.0'W	Philadelphia, Pa. 39°56.8'N., 75°08.3'W	U.S. Steel Basin, Pa. 40°08.2'N., 74°45.3'W	Trenton, N.J. 40°11.4'N., 74°45.4'W	Indian River Inlet, Del. 38°36.5'N., 75°03.6'W	Ocean City, Md. 38°19.6'N., 75°05.6'W	Chincoteague, Va. 37°56.1'N., 75°22.8'W	CHESAPEAKE BAY ENT. 36°56.3'N., 75°58.6'W
113																				
223	122																			
212	117	40																		
221	131	63	22																	
242	159	94	52	32																
271	192	128	85	65	37															
285	212	153	97	78	49	16														
285	212	153	98	79	50	17	2													
336	263	204	148	129	100	67	51	52												
347	274	215	159	140	111	78	62	63	11											
353	280	221	165	146	117	84	68	69	17	8										
356	283	224	169	150	121	88	72	73	21	11	3									
372	299	240	184	165	136	103	87	88	36	26	18	15								
395	322	263	207	188	159	126	110	111	59	49	41	38	23							
400	327	268	212	193	164	131	115	116	64	54	46	43	28	5						
285	209	145	105	86	57	24	15	14	66	77	83	86	101	124	129					
295	227	161	121	101	73	40	32	31	83	95	101	104	119	142	147	20				
328	262	201	161	141	113	80	72	71	123	134	140	144	159	182	187	60	41			
381	322	267	219	199	171	141	155	155	206	218	224	227	242	265	270	118	100	69		

Ambrose Light (40°27.6'N., 73°49.9'W.) to New York, 20.7 miles.
Five Fathom Bank Lighted Horn Buoy F(LNB) (38°47.3'N., 74°34.6'W.) to Philadelphia, 111 miles.
Delaware Lighted Horn Buoy D (38°27.3'N., 74°41.8'W.) to Philadelphia, 116 miles.
Chesapeake Light (36°54.3'N., 75°42.8'W.) to Norfolk, 42 miles; Baltimore, 165 miles.

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DISTANCES BY INTRACOASTAL WATERWAY
MANASQUAN INLET, N.J., TO CAPE MAY CANAL, N.J.
(Nautical Miles)

Figure at intersection of columns opposite ports in question is the nautical mileage between the two. Example: Atlantic City N.J., is 13 nautical miles from Ocean City, N.J.

NEW YORK, N.Y. (The Battery)* 40°42. 0'N., 74°01. 0'W.	Shark River Inlet* 40°11. 2'N., 74°00. 5'W.	Manasquan Inlet* 40°06. 1'N., 74°01. 9'W.	Bay Head 40°03. 8'N., 74°03. 1'W.	Mantoloking 40°02. 2'N., 74°03. 4'W.	Toms River (town) 39°56. 9'N., 74°11. 8'W.	Seaside Park 39°55. 3'N., 74°05. 0'W.	Forked River (town) 39°50. 1'N., 74°11. 7'W.	Barnegat Inlet 39°46. 0'N., 74°06. 3'W.	Beach Haven 39°34. 0'N., 74°14. 8'W.	Atlantic City 39°22. 6'N., 74°24. 9'W.	Mays Landing 39°26. 9'N., 74°43. 4'W.	Ocean City 39°17. 3'N., 74°34. 4'W.	Sea Isle City 39°09. 4'N., 74°42. 0'W.	Avalon 39°06. 6'N., 74°44. 0'W.	Stone Harbor 39°03. 4'N., 74°46. 0'W.	Wildwood 39°00. 5'N., 74°49. 8'W.	Cape May Harbor 38°57. 1'N., 74°52. 6'W.	Cape May Canal W. Ent. 38°58. 0'N., 74°58. 0'W.	CHES. & DEL. CANAL E. ENT. 39°33. 8'N., 75°32. 8'W.
34																			
40	6																		
44	9	4																	
46	11	6	2																
58	23	18	14	12															
54	20	14	10	9	7														
63	29	23	19	17	15	10													
66	32	26	22	20	18	13	8												
79	45	39	35	33	31	26	21	20											
97	62	57	53	51	49	44	39	38	18										
124	90	84	80	79	77	71	66	65	45	30									
108	74*	68	64	63	60	55	50	49	29	13	18								
119	85	79	76	74	72	66	61	60	40	25	29	11							
123	89	83	79	77	75	70	65	64	44	28	33	15	4						
128	94	88	85	83	81	75	70	69	49	34	38	20	9	5					
133	99	93	89	88	86	80	75	74	54	39	43	25	14	10	5				
138	103	98	94	92	90	85	80	79	59	43	47	30	18	15	9	5			
142	108	102	98	96	94	89	84	83	63	47	52	34	23	19	14	9	4		
190	156	150	146	144	142	137	132	131	111	95	100	82	71	67	62	57	52	48	

* Outside distances between New York and Manesquan Inlet.

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DISTANCES ON DELAWARE BAY AND RIVER
(Nautical Miles)

Figure at intersection of columns opposite ports in question is the nautical mileage between the two. Example: Salem, N.J., is 41 nautical miles from Philadelphia, Pa.

DELAWARE BAY ENT. 38°50. 5'N., 75°03. 3'W.	Roosevelt Inlet, Del. 38°47. 7'N., 75°09. 4'W.	Cape May Canal W. Ent., N.J. 38°58. 0'N., 74°58. 0'W.	St. Jones River Mouth, Del 39°04. 0'N., 75°22. 5'W.	Maurtetown, N.J. 39°17. 1'N., 74°58. 5'W.	Bridgeton, N.J. 39°25. 5'N., 75°14. 2'W.	Smyrna River Mouth, Del. 39°22. 2'N., 75°30. 2'W.	Salem, N.J. 39°34. 6'N., 75°28. 7'W.	CHES. & DEL. CANAL E. ENT. 39°33. 8'N., 75°32. 6'W.	New Castle, Del 39°39. 4'N., 75°33. 6'W.	Wilmington, Del 39°43. 2'N., 75°31. 5'W	Marcus Hook, Pa. 39°48. 2'N., 75°25. 2'W.	Bridgeport, N.J 39°48. 0'N., 75°21. 3'W	Chester, Pa. 39°50. 0'N 75°22. 0'W.	Schuylkill River Mouth, Pa. 39°52. 8'N., 75°11. 9'W	Philadelphia, Pa 39°56. 8'N., 75°08. 3'W	Burlington, N.J. 40°04. 9'N., 74°51. 8'W	U.S. Steel Basin, Pa. 40°08. 2'N., 74°45. 3'W	Bordentown, N.J. 40°09. 1'N., 74°43. 0'W.	Trenton, N.J. 40°11. 4'N., 74°45. 4'W.
6																			
9	14																		
20	20	21																	
33	37	26	30																
51	52	47	35	51															
39	40	36	21	39	25														
54	55	51	36	54	39	16													
51	52	48	34	51	36	13	5												
58	59	55	40	58	43	20	12	7											
62	63	59	45	62	47	24	16	11	5										
68	69	65	51	68	53	30	22	17	12	8									
72	73	69	55	72	57	34	26	21	15	11	4								
72	73	69	55	72	57	34	26	21	15	11	3	6							
80	81	77	63	80	65	42	34	29	23	19	12	14	9						
87	88	84	69	87	72	49	41	36	30	26	18	22	15	7					
103	104	100	85	103	88	65	57	52	46	42	34	37	31	23	16				
110	111	107	92	110	95	72	64	59	53	49	41	44	38	29	23	7			
112	113	109	94	112	97	74	66	61	55	51	43	46	40	31	25	9	2		
115	116	112	97	115	100	77	69	64	58	54	46	49	43	34	28	12	5	4	

CHESAPEAKE BAY DISTANCES
(Nautical Miles)

Figure at intersection of columns opposite ports in question is the nautical mileage between the two. Example: Washington, D.C., is 155 nautical miles from Annapolis, Md.

	CHES. & DEL. CANAL E. ENT. 39°33. 8'N., 75°32. 6'W.	Chesapeake City, Md. 39°31. 8'N., 75°48. 9'W	Havre de Grace, Md. 39°32. 7'N., 76°05. 0'W	Baltimore, Md 39°16. 0'N., 76°34. 5'W	Chestertown, Md. 39°12. 4'N., 76°03. 8'W	Annapolis, Md 38°59. 0'N., 76°28. 6'W	St. Michaels, Md 38°47. 2'N., 76°13. 2'W	Cambridge, Md 38°34. 4'N., 76°04. 3'W	Solomons, Md 38°19. 2'N., 76°27. 4'W	Salisbury, Md 38°21. 9'N., 75°36. 3'W	Potomac River Mouth 37°57. 7'N., 76°16. 7'W	Washington, DC 38°52. 4'N., 77°01. 1'W	Crisfield, Md 37°58. 6'N., 75°51. 9'W	Fredericksburg, Va 38°17. 8'N., 77°27. 2'W	Cape Charles, Va 37°15. 9'N., 76°01. 4'W	Yorktown, Va 37°14. 4'N., 76°30. 5'W	West Point, Va 37°31. 6'N., 76°48. 1'W	Newport News, Va 36°58. 0'N., 76°26. 0'W	Suffolk, Va 36°44. 3'N., 76°35. 0'W	Hopewell, Va 37°19. 0'N., 77°16. 4'W	Petersburg, Va 37°14. 1'N., 77°24. 0'W	Richmond, Va 37°31. 4'N., 77°25. 2'W	Norfolk, Va 36°50. 9'N., 76°17. 9'W	CHESAPEAKE BAY ENT 36°56. 3'N., 75°58. 6'W
13																								
33	20																							
62	49	41																						
78	65	61	45																					
65	52	45	28	40																				
83	70	62	45	59	25																			
98	85	78	60	72	39	36																		
103	90	84	66	78	45	48	39																	
143	130	124	107	119	86	89	81	51																
122	109	101	84	96	64	65	58	27	49															
213	200	192	175	187	155	156	149	118	141	96														
134	121	115	98	110	77	80	72	42	43	27	121													
243	230	224	206	219	186	190	182	150	165	125	221	129												
169	156	149	132	146	112	116	107	76	87	50	146	51	122											
192	179	163	155	156	130	126	117	87	100	68	164	64	132	28										
214	201	185	174	178	152	149	140	109	122	90	186	86	154	50	22									
207	194	172	170	167	136	138	129	97	110	86	182	74	143	29	55	63								
209	196	190	172	185	152	156	147	115	128	89	185	92	161	48	55	78	21							
265	252	230	228	225	194	196	187	155	168	144	240	132	201	88	114	122	58	79						
259	246	240	222	235	204	206	197	165	178	137	233	142	211	97	101	123	68	89	10					
284	271	249	247	244	213	215	206	174	187	163	259	151	220	106	132	140	77	98	19	28				
209	196	175	173	170	140	141	132	100	113	89	185	77	146	32	58	66	12	29	70	80	90			
187	174	166	150	162	129	132	123	92	103	67	163	67	136	21	34	56	24	42	82	92	101	27		

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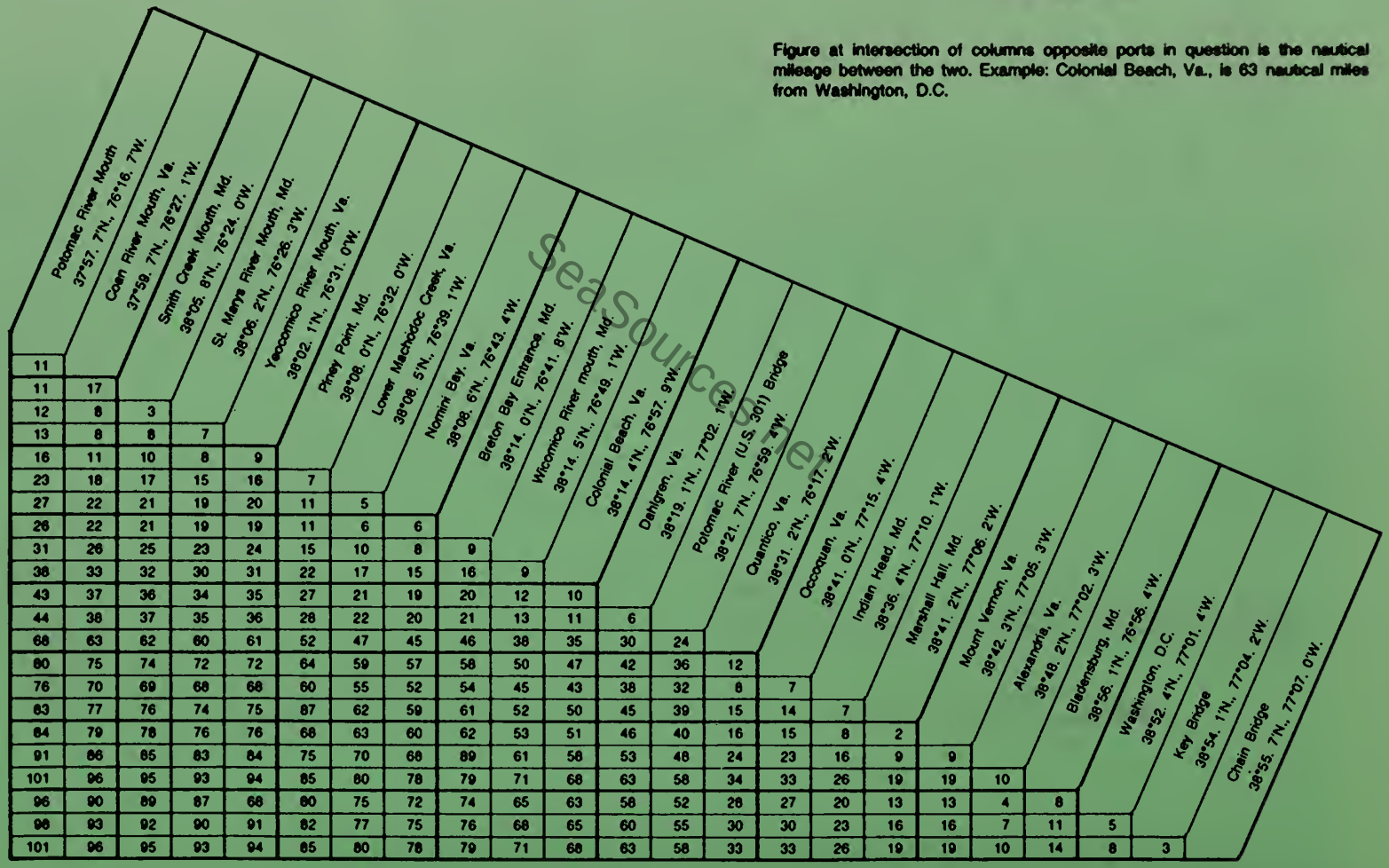
DISTANCES ON POTOMAC RIVER
(Nautical Miles)

Figure at intersection of columns opposite ports in question is the nautical mileage between the two. Example: Colonial Beach, Va., is 63 nautical miles from Washington, D.C.



Potomac River Mouth 37°57. 7'N., 76°16. 7'W.	Coan River Mouth, Va. 37°58. 7'N., 76°27. 1'W.	Smith Creek Mouth, Md. 38°05. 8'N., 76°24. 0'W.	St. Marys River Mouth, Md. 38°06. 2'N., 76°26. 3'W.	Yeocomico River Mouth, Va. 38°02. 1'N., 76°31. 0'W.	Piney Point, Md. 38°08. 0'N., 76°32. 0'W.	Lower Machodoc Creek, Va. 38°08. 5'N., 76°39. 1'W.	Nomini Bay, Va. 38°08. 6'N., 76°43. 4'W.	Breton Bay Entrance, Md. 38°14. 0'N., 76°41. 8'W.	Wicomico River mouth, Md. 38°14. 5'N., 76°49. 1'W.	Colonial Beach, Va. 38°14. 4'N., 76°57. 9'W.	Dahlgren, Va. 38°19. 1'N., 77°02. 1'W.	Potomac River (U.S. 301) Bridge 38°21. 7'N., 76°59. 4'W.	Quantico, Va. 38°31. 2'N., 77°17. 2'W.	Occoquan, Va. 38°41. 0'N., 77°15. 4'W.	Indian Head, Md. 38°36. 4'N., 77°10. 1'W.	Marshall Hall, Md. 38°41. 2'N., 77°06. 2'W.	Mount Vernon, Va. 38°42. 3'N., 77°05. 3'W.	Alexandria, Va. 38°48. 2'N., 77°02. 3'W.	Bladensburg, Md. 38°56. 1'N., 76°56. 4'W.	Washington, D.C. 38°52. 4'N., 77°01. 4'W.	Key Bridge 38°54. 1'N., 77°04. 2'W.	Chain Bridge 38°55. 7'N., 77°07. 0'W.
11																						
11	17																					
12	8	3																				
13	8	8	7																			
16	11	10	8	9																		
23	18	17	15	16	7																	
27	22	21	19	20	11	5																
26	22	21	19	19	11	6	6															
31	26	25	23	24	15	10	8	9														
38	33	32	30	31	22	17	15	16	9													
43	37	36	34	35	27	21	19	20	12	10												
44	38	37	35	36	28	22	20	21	13	11	6											
68	63	62	60	61	52	47	45	46	38	35	30	24										
60	75	74	72	72	64	59	57	58	50	47	42	36	12									
76	70	69	68	68	60	55	52	54	45	43	38	32	8	7								
83	77	76	74	75	67	62	59	61	52	50	45	39	15	14	7							
84	79	78	76	76	68	63	60	62	53	51	46	40	16	15	8	2						
91	86	85	83	84	75	70	68	69	61	58	53	48	24	23	16	9	9					
101	96	95	93	94	85	80	78	79	71	68	63	58	34	33	26	19	19	10				
96	90	89	87	88	80	75	72	74	65	63	58	52	28	27	20	13	13	4	8			
98	93	92	90	91	82	77	75	76	68	65	60	55	30	30	23	16	16	7	11	5		
101	96	95	93	94	85	80	78	79	71	68	63	58	33	33	26	19	19	10	14	8	3	

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The numbers of the largest scale charts on which the names appear follow the indexed items. Some geographic names are indexed more than once when more than one place has the same geographic name. Charts published by the Defense Mapping Agency Hydrographic/Topographic Service are indicated by an asterisk.

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