

Study Results  
Port Access Route Study  
Approaches to Chesapeake Bay  
2002 - 2003

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## 1. **Background and Purpose**

### a. *History*

The approaches to the Chesapeake Bay, VA, were last studied in 1989, and the final results were published on April 28, 1994 (59 FR 21937). The study primarily examined the Southern Approach to Chesapeake Bay to accommodate vessels requiring a deep-water route. The study concluded that the Eastern Approach and Precautionary Area should remain unchanged, and it proposed the creation of the currently existing deep-water route of the Southern Approach. Since the 1989 study, the shoaling area bounding the northern edge of the Eastern Approach, Nautilus Shoal, has encroached the inbound traffic lane, limiting the use of this traffic lane to those vessels with drafts less than 27 feet, 8.2 meters. This slow, continuous southward movement of the Nautilus Shoal has spawned the need to evaluate the current location of the Eastern Approach and to determine a location that will better accommodate vessels that use this route to access Chesapeake Bay.

### b. *Statutory Requirements*

The 1978 amendment to the Ports and Waterways Safety Act (PWSA) 33 U.S.C. 1223(c), requires that a PARS be conducted prior to establishing or adjusting a traffic separation scheme (TSS). The Coast Guard initiated this PARS to determine if there is a need to adjust the TSS in the study area to make optimum use of the available depths of water.

A TSS is an internationally recognized measure that minimizes the risk of collision by separating vessels into opposing streams of traffic through establishment of traffic lanes. Vessel use of a TSS is voluntary; however, vessels operating in or near an International Maritime Organization (IMO) approved TSS are subject to Rule 10 of the International Regulations for the Prevention of Collisions at Sea, 1972 (72 COLREGS). The elements of a TSS may include a two-way route, a recommended track, an area to be avoided, an inshore traffic separation zone, a roundabout, a precautionary area, and/or a deep-water route.

A two-way route is a route within defined limits inside which two-way traffic is established, aimed at providing safe passage of ships through waters where navigation is difficult or dangerous.

A recommended track is a route which has been specifically examined to ensure so far as possible that it is free of dangers and along which ships are advised to navigate.

An area to be avoided is a routing measure comprising an area within defined limits in which either navigation is particularly hazardous or it is exceptionally important to avoid casualties and which all ships, or certain classes of ships should avoid.

An inshore traffic separation zone comprises a designated area between the landward boundary of a TSS and the adjacent coast and is used in accordance with Rule 10(d) of the 72 COLREGS.

A roundabout is a routing measure comprising a separation point or circular separation zone and a circular separation zone and a circular traffic lane within defined limits. Moving in a counterclockwise direction around the separation point or zone separates traffic within the roundabout.

A precautionary area is a defined area where ships must navigate with particular caution and within which the direction of traffic flow may be recommended.

A deep-water route is a route within defined limits, which has been accurately surveyed for clearance of sea bottom, and submerged obstacles as indicated on nautical charts.

The International Maritime Organization has many guidelines for establishing a TSS. Traffic lanes should be designed to make optimum use of available depths of water and the safe navigable areas, taking into account the maximum depth of water attainable along the length of the route. Where there is sufficient space, separation zones should be used in preference to separation lines to separate opposing streams of traffic. The minimum widths of the traffic lanes and of traffic separation zones should be related to the accuracy of the available position-fixing methods, and where space allows the use of traffic separation zones, the width of the zone should, if possible, be not less than three times the transverse component of the standard error (measured across the separation zone) of the most appropriate position-fixing methods.

The Notice of Study was published on July 26, 2002 (67 FR 48837). The purpose of conducting the study was to solicit comments and opinions from shipping and other maritime interests concerning the following:

1. Disestablish the Eastern Approach.
2. Establish one or more of the following vessel routing measures:
  - (a) Relocate the Eastern Approach to an area south of its current position that maximizes the deepest available, naturally occurring depths;or,

(b) Establish an area to be avoided in shallow areas where the risk of grounding is present.

3. Disestablish Chesapeake Light.
4. Replace Chesapeake Light with a lighted buoy.
5. Replace Chesapeake Light with a smaller structure.

c. *Study Area*

A line connecting the following geographic positions bounds the study area (All coordinates are NAD 1983):

Latitude	Longitude
37°00.0'N	075°56.0'W
37°00.0'N	075°40.0'W
36°45.00'N	075°40.0'W
36°45.0'N	075°56.0'W

The study area encompasses the Eastern Approach and Southern Approach to the Chesapeake Bay used by commercial and public vessels.

**2. Elements Considered**

*a. Vessel Traffic Density*

In September 2001, APM Terminals North America, Inc. (Maersk) purchased 570 acres of property located on the Elizabeth River south of Craney Island. This property is locally known as the Cox property and plans are being made for development of a major marine container handling facility. The first ship is due to moor at this new terminal in 2006. Once construction is complete on the new Maersk terminal, port capacity will increase by 75%. Projections for the Port of Hampton Roads alone forecast a 5% growth rate in container shipping for 2003 and an anticipated 33 passenger vessels carrying 47,000 people. Considering the growth in Hampton Roads and the potential growth in other ports accessed via the Chesapeake Bay, and increase in commercial vessel traffic is certain.

Not only do the ports accessed via the Entrance Channels anticipate growth, but the size of vessels calling on these ports will also grow. The “S” class container ships, currently in use by Maersk Sealand, may soon call on the Port of Virginia. These massive container vessels are 1,138 feet in length, 140 feet wide, draft almost 48 feet when fully loaded, and have a capacity for 7,100 TEU’s.

During the course of the Study, respondents recommended the Coast Guard also review the rules of the use for the Southern Approach to Chesapeake Bay. Based on that recommendation, the Coast Guard gathered additional information and data and has included its analysis in this Notice of Study Results.

*See Waterborne Commerce of the United States data.*

*b. Port Description*

*See port description sheets.*

*c. Port Improvements*

Since the last PARS was conducted for the entrance to Chesapeake Bay, many improvements have been made to the ports of Hampton Roads, Baltimore, and Richmond, directly affecting the amount of traffic and types of vessels serving these ports. Improvements to the ports served by the Chesapeake Bay entrance include: dredging and expansion of the Norfolk International Terminal, improvements to Portsmouth Marine Terminal, completion of the Baltimore Harbor Anchorages and Channels improvement project, deepening of portions of the James River, completion of the Port of Richmond wharf improvements, and completion of the 55' anchorage for Hampton Roads. Future port improvements include: building a new Virginia Port facility at Craney Island, improvements to the Pinners Point facility, reopening the Cove Point liquefied natural gas facility, deepening the inbound segment of Thimble Shoals Channel from 45 to 50 feet and deepening the outbound segment from 50 to 55 feet.

*d. Economic Impacts*

The Coast Guard does not anticipate any adverse economic impacts as a result of any changes made to this study area.

*e. Vessel Safety*

The safety and security of the United States is a top priority for the nation. As the awareness of threats to this country increases, the plans for preparedness for and prevention of emergency situations have evolved to address any threats against America's shorelines. Since every scenario cannot be perfectly planned for, it's important to provide flexibility for alternatives. As an example, if an inbound vessel is not granted permission to enter the Chesapeake Bay for any reason, it is important for the vessel to have a designated place to maintain station else the vessel may introduce an increased navigational threat to vessels conducting their normal business near the Approaches to

Chesapeake Bay. In a designated area, the position and status of a vessel may be monitored and easily accessed by security or inspection personnel.

Within the study area exists an area that could support anchoring any of the largest vessels that call upon the Port of Virginia or the Port of Baltimore. Designated as an anchorage area, this area could provide a temporary place for vessels to be directed while the appropriate authorities determine their situation under the authority of the Magnuson Act.

*f. Regulatory Action*

Since the start of this study, new regulations were made effective. On June 15, 2002, regulations for the Protection of Naval Vessels (67 FR 31958) became effective. On June 15, 2003, the Regulated Navigation Area in Hampton Roads, VA, was modified to encompass all water enclosed by the Virginia shore and the territorial sea between Maryland and North Carolina. (68 FR 35172). These regulations now apply to all vessels operating within the study area.

**3. Environmental Considerations**

The Coast Guard does not anticipate any adverse impacts on the environment as a result of any changes made to this study area. Any rulemaking that results from this study will meet all National Environmental Policy Act requirements. The results of this study identify methods of decreasing risk to the environment. Adjustments made to the geographic location of the TSS's Eastern Approach may negate a need to perform maintenance dredging in this area, reducing the potential for negative affects on the maritime environment.

**4. Public Comments**

*See enclosed public comments received.*

**5. Analysis of Study Area**

The Eastern Approach should be relocated or modified to avoid the encroaching Nautilus Shoal to the north. Shifting the Eastern Approach to the south will increase the available natural water depths from 32' MLLW to 35' MLLW.

Chesapeake Light should remain an active Aid to Navigation. The light has proved itself invaluable as a visual reference for inbound/outbound/maneuvering vessel traffic and as a platform for meteorological data gathering.

The International Maritime Organization (IMO) recommendations governing the use of the Southern Approach should be modified to accommodate vessels drafting 42' or more to alleviate the increased use of the inbound traffic lane.

A request was made to create a centerline buoyage system for the Southern Approach. This configuration was considered in the study, however the buoyage system for the Southern Approach should not be modified to a centerline configuration because a centerline configuration would significantly decrease the channel width of the deep-water route. Each buoy marking the centerline of the channel would have an approximate watch circle radius of 125ft. The total amount of loss use area of the channel would be approximately 250ft of the 1300ft federal navigation project, or 19% of the available deep-water channel. By utilizing the gated pair buoyage system currently in place, the entire width of the channel may be utilized. These findings are based on the assumption that all buoys are on station.

An anchorage area should be established that could be used to temporarily anchor ships unable or not approved to enter port. This anchorage should make the best use of naturally deep water so as to be suitable for deep draft vessels and where it will not interfere with vessel operations in the vicinity of Chesapeake Light.

## 6. Conclusions and Recommendations

The Notice of Proposed Rulemaking to modify the regulations for the Chesapeake Bay approach traffic separation scheme should be modified as follows:

The separation line for the Eastern Approach should be moved south to the following geographic positions:

<i>Latitude</i>	<i>Longitude</i>
36 56.40'N	075 54.95'W
36 56.40'N	075 52.40'W
36 57.50'N	075 48.21'W

The inbound traffic lane for the Eastern Approach should be established between the separation line and the following geographic positions:

<i>Latitude</i>	<i>Longitude</i>
36 56.90'N	075 55.14'W

36 56.90'N	075 52.40'W
36 57.94'N	075 48.41'W

The outbound traffic lane for the Eastern Approach should be established between the separation line and the following geographic positions:

<i>Latitude</i>	<i>Longitude</i>
36 55.88'N	075 54.95'W
36 55.88'N	075 52.40'W
36 57.04'N	075 48.01'W

The regulations for the Southern approach should be modified to state that deep draft vessels (drafts greater than 12.8 meters/42 feet in fresh water), should use the deep-water route.

An anchorage area should be established with the following geographic coordinates:

<i>Latitude</i>	<i>Longitude</i>
36 53.50'N	075 48.20'W
36 53.50'N	075 44.50'W
36 52.10'N	075 44.50'W
36 52.10'N	075 48.20'W

Use of the deep-water route by vessels drawing less than 42 feet should be allowed when, in the master's judgment, the effects of vessel characteristics, speed and prevailing environmental conditions cause a vessels' draft to exceed 42 feet.