

Study Results  
Port Access Route Study  
Approaches to Cape Fear River and  
Beaufort Inlet, NC  
2001 - 2003

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## 1. Background and Purpose

### a. History

The approaches to the Cape Fear River and Beaufort Inlet, NC, were last studied in 1981, and the final results were published in the Federal Register on July 22, 1982 (47 FR 31766). The study primarily examined the offshore approaches to the Cape Fear River and Beaufort Inlet and concluded that "...there is no need to impose new ship routing measures such as TSSs (Traffic Separation Schemes) or shipping fairways where fixed structures would be prohibited, in any" area off the North Carolina Coast. Since the 1981 study, vessel size, traffic density, and cargo handling techniques have changed. Additionally, major channel depth, width and alignment changes in the Cape Fear River and Approaches are nearly complete. The changes include deepening the Federal Navigation Project to allow PANAMAX class vessels to transit to and from Wilmington, NC, and deepening Beaufort Inlet and the approaches to Morehead City to a depth of 47 feet.

### b. Statutory Requirements

The 1978 amendment to the Ports and Waterways Safety Act (PWSA) 33 U.S.C. 1223(c) requires that a Port Access Route Study (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 establish one or more TSSs 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 the 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 January 18, 2002 (67 FR 2616). A second Notice of Study was published on April 16, 2002 (67 FR 18527) to allow more time for public comment . The purpose of conducting the study was to solicit comments and opinions from shipping and other maritime interests concerning the following:

1. Maintaining the current vessel routing measures;
2. Establishing a TSS in the Approaches to the Cape Fear River;
3. Establishing a TSS in the Approaches to Beaufort Inlet;
4. Establishing a TSS off North Carolina encompassing the routes typically used by merchant and naval vessels transiting the study area;
5. Establishing a Precautionary Area(s) near either or both Approaches;
6. Establishing an Inshore Traffic Zone(s) near either or both Approaches;
7. Establishing an Area to be Avoided (ATBA) in shallow areas where the risk of grounding is present;
8. Creating Anchorage Grounds(s); and/or Anchorage Areas; and
9. Establishing a Regulated Navigation Area (RNA) with specific vessel operating requirements to ensure safe navigation near shallow water.

c. *Study Area*

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

| <i>Latitude</i> | <i>Longitude</i> |
|-----------------|------------------|
| 34° 40.0'N      | 077° 00.0'W      |
| 34° 40.0'N      | 076° 15.0'W      |
| 34° 10.0'N      | 076° 15.0'W      |
| 33° 15.0'N      | 077° 30.0'W      |
| 33° 00.0'N      | 078° 20.0'W      |
| 33° 50.0'N      | 078° 20.0'W      |
| 34° 40.0'N      | 077° 00.0'W      |

The study area encompasses the Approaches to the Cape Fear River and Beaufort Inlet, as well as the area offshore of North Carolina used by commercial and public vessels transiting to and from these ports.

**2. Elements Considered**

- a. *Vessel Traffic Density*

Morehead City is a major port for phosphate products and wood chip shipments, and can accommodate containers using large cranes in tandem operation. Expansion of port facilities to property on Radio Island is being planned.

Morehead City continues to be a major out-load port for U. S. Marine forces being deployed from Camp Lejeune, NC, via amphibious ships of the U. S. Navy.

Wilmington has been an important port since the earliest days of the republic. The port has recently acquired five container cranes to facilitate container traffic. The port tranships wood products, bulk, and break-bulk commodities. The U. S. Army's Military Ocean Terminal Sunny Point continues to be a major user of the Cape Fear River and a major contributor to the economy of Wilmington, NC. With the completion of the Cape Fear River Deepening Project in the fall of 2003, the port will be ready to handle the planned larger ships of the future.

Top trading partners for the ports of Morehead City and Wilmington are China, Japan, Korea, Hong Kong, India, Venezuela, Canada, the United Kingdom, Italy, northern Europe and Scandinavia. Primary exports include forest products, food, phosphate and general merchandise. Top imports include animal feeds, metal products, chemicals, rubber, furniture and general merchandise. For more information, see the Army Corps of Engineers Web Site, Waterborne Commerce of the United States-Publications, at [www.iwr.usace.army.mil/ndc/publications.htm](http://www.iwr.usace.army.mil/ndc/publications.htm).

*b. Port Description*

For more information, see [www.ncports.com](http://www.ncports.com).

*c. Port Improvements*

Since the 1981 PARS was conducted for the North Carolina coast, the North Carolina State Ports Authority has initiated a capital improvement program to reinvest in its ports. The entire 37 miles of the Cape Fear River Channel has been deepened to 42 feet with portions of the channel to be widened for a passing lane in 2005. The approaches over Bald Head Shoals have been realigned to take advantage of the original riverbed with depths of 44 feet. The new alignment at the approaches was opened to marine traffic in December 2003. In addition to the Army Corps of Engineers' newly deepened channel, the U. S. Coast Guard has made Aids to Navigation improvements to 8 ranges, and is planning to improve an additional 13 ranges to enhance the safety of marine navigation on the river. The Army Corps of Engineers' expects the deepening project to produce estimated annual

benefits of \$34 million per year compared to the estimated annual cost of \$26 million. Additionally, the North Carolina State Ports Authority (NCSPA) estimates the deepened channel will allow container ships to carry up to an additional \$12 million of cargo to and from the port. NCSPA is expecting shipping companies not now calling at Wilmington to consider making Wilmington a regular call due to the deepened channel.

The Port of Wilmington opened a new facility to handle the export and import of grain and other bulk commodities in May 2003. The Port of Wilmington reports having four container cranes with capacity up to 50 long-tons, four gantry cranes with capacity up to 225 tons, one 140 ton mobile crane, 59 lift trucks with 3,000 to 52,000 pound capacities, nine top-lift container handlers and two 30-ton mobile cranes.

The Port of Morehead City has recently been receiving cargoes of domestic scrap metals via ocean barges or vessels for transshipment via river barge to mills via the Intracoastal Waterway and is planning improvements to the Radio Island property. The Port of Morehead City claims one 40 long-ton container crane, two 115-ton capacity gantry cranes, and 36 lift trucks with 4,000 to 70,000 pound capacities. Both ports have truck and rail connections.

Overall, NCSPA estimates port operations provide over 80,000 jobs and nearly \$300 million in tax revenues statewide.

*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 our nation. As the awareness of threats to this country increases, the plans for preparedness and prevention of emergency situations have evolved to address threats against America's shorelines. Since every scenario cannot be perfectly planned for, it is important to provide flexibility for alternatives. As an example, if an inbound vessel is denied permission to enter the Cape Fear River or Beaufort Inlet, it is important for that vessel to have a designated place to anchor or maintain station so as not to introduce an increased navigational threat to other vessels transiting the approaches. 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, there exist grounds that could support anchoring any of the largest vessels that call upon the Port of Wilmington now or in the future. No designated anchorages exist off Beaufort Inlet that can be used by both naval and commercial vessels. An existing anchorage ground adjacent to the Cape Fear River became obsolete since available water depths are less than the drafts of current and expected larger ships of the future. A designated anchorage area off the Cape Fear River approaches should be established for munitions ships to await favorable conditions to berth at MOTSU, or to provide a temporary place for other vessels to be directed while the appropriate authorities determine their situation under the authority of the Magnuson Act. Designating an anchorage area off Beaufort Inlet provides a temporary place for vessels carrying munitions or other hazardous cargoes 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) were implemented. On July 5, 2002 the Environmental Protection Agency designated a new Ocean Dredged Material Disposal Site (67 FR 44771) in the Atlantic Ocean offshore of Wilmington, NC. These regulations now affect all vessels operating within the study area.

The U.S. Congress passed the Maritime Transportation Security Act (MTSA) of 2002 on November 14, 2002. The MTSA seeks to enhance maritime security in a manner that maximizes benefits while minimizing costs. A temporary interim rule was published on July 1, 2003 (68 FR 39240), with a final rule published on October 22, 2003 (68 FR 60448). The final rule became effective November 21, 2003.

### **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.

### **4. Public Comments**

Comments were received from the Maritime Administration (MARAD) stating, "It is apparent that some changes are required in the current traffic management and routing system, based on the Army Corps of Engineers study showing a 140 percent rise in vessel traffic in the study area coupled with an increased average size of seagoing cargo vessels."

MARAD recommended the establishment of a TSS from the Cape Fear River sea buoy to a point in the vicinity of Frying Pan Shoals Light; the establishment of additional aids to navigation to better assist the mariner approaching or departing the Cape Fear River sea buoy; the establishment of specific anchorage areas for vessels carrying hazardous cargo; the establishment of a TSS from Cape Lookout to Frying Pan Shoals Light; the establishment of an INSHORE TRAFFIC SEPARATION ZONE for smaller vessels; the establishment of a boarding area away from transit routes to allow inspections to be completed before committing to a river passage; and, the establish of routes for deep draft vessels transiting the area. The study concurs with MARAD's recommendation for establishment of a TSS approaching the Cape Fear River and specific anchorage areas for vessels carrying hazardous cargo. The remaining recommendations are not concurred with at this time because the amount of traffic does not support their establishment.

## **5. Analysis of Study Area-Recommendations**

A TSS should be established south of Cape Fear to insure safety of vessels approaching and departing the Cape Fear River and Approaches. A TSS is intended to keep all deep draft traffic clear of the newly designated Ocean Dredged Material Disposal Site.

There is no need at this time for a TSS for Beaufort Inlet and Approaches.

Anchorage areas should be established to temporarily anchor munitions ships and other hazardous cargo ships unable or not approved to enter the Ports of Wilmington or Morehead City. These anchorages should make the best use of naturally deep water so as to be suitable for deep draft vessels, provide a wide safety margin should a catastrophic event occur, and not interfere with other vessel operations in the vicinities of Cape Fear and Beaufort Inlet.

## **6. Conclusions and Recommendations**

A Notice of Proposed Rulemaking to establish a TSS and the necessary regulations for the Cape Fear River Approaches traffic separation scheme should be developed as follows:

A Pilot Transfer Area and Precautionary Area for the Cape Fear River should be established as follows:

A line beginning at 33° 46' 16.852"N, 078° 03' 01.701"W then proceeding approximately 2 miles northwesterly to 33° 48' 09.9"N, 078° 03' 49.20"W, then

continuing in an arc with an approximate 2 mile radius around 33° 46' 16.852"N, 078° 03' 01.701"W to 33° 44' 16.79"N, 078° 03' 00.82"W, then to 33° 45' 59.74N, 078° 02' 30.0"W, then return to the starting point at 33° 46' 16.852"N, 078° 03' 01.701"W.

A separation zone for the Cape Fear Approach should be established by a line connecting the following geographical positions:

| <i>Latitude</i> | <i>Longitude</i> |
|-----------------|------------------|
| 33° 44.70'N     | 078° 04.90'W     |
| 33° 32.75'N     | 078° 09.66'W     |
| 33° 34.50'N     | 078° 14.70'W     |
| 33° 44.98'N     | 078° 05.10'W     |

An inbound traffic lane for North bound traffic should be established between the separation zone and a line connecting the following geographic positions:

| <i>Latitude</i> | <i>Longitude</i> |
|-----------------|------------------|
| 33° 32.75'N     | 078° 05.99'W     |
| 33° 44.22'N     | 078° 03.80'W     |

An outbound traffic lane for South bound traffic should be established between the separation zone and a line connecting the following geographic positions:

| <i>Latitude</i> | <i>Longitude</i> |
|-----------------|------------------|
| 33° 36.22'N     | 078° 17.30'W     |
| 33° 45.88'N     | 078° 05.60'W     |

An anchorage area should be established near the approaches of the Cape Fear River with the following geographic coordinates:

| <i>Latitude</i> | <i>Longitude</i> |
|-----------------|------------------|
| 33° 46.00'N     | 078° 10.00'W     |
| 33° 46.00'N     | 078° 15.00'W     |
| 33° 48.00'N     | 078° 10.00'W     |

|             |              |
|-------------|--------------|
| 33° 48 00'N | 078° 15.00'W |
|-------------|--------------|

An anchorage area should be established near the approaches of Beaufort Inlet with the following geographic coordinates:

| <i>Latitude</i> | <i>Longitude</i> |
|-----------------|------------------|
| 34° 35.00'N     | 076° 37.00'W     |
| 34° 36.00'N     | 076° 37.00'W     |
| 34° 35.00'N     | 076° 40.00'W     |
| 34° 36 00'N     | 076° 40.00'W     |