

Appendix VII

Identification of Alongshore Towing Vessel and Major Deep Draft Routes

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A. Purpose –

To identify traditional routes used for towing vessel operations along the Atlantic Coast and identify appropriately sized navigation safety corridors necessary for future safe navigation. Where conflicts exist with Wind Energy Areas (WEAs) or lease areas, alternate routes will be considered.

B. Background –

Through the Atlantic Coast Port Access Route Study (ACPARS), the ACPARS Workgroup (WG) has gathered data and information regarding traditional uses of the offshore waters along the Atlantic Coast. The WG has also used Automatic Identification System (AIS) data to display historic vessel routes. These routes have been analyzed in conjunction with proposed WEAs to assess conflicts. The WG found that significant conflict existed between towing vessels and identified WEAs. A review of public comments for each of the WEAs indicated that the conflicts had been identified from the beginning of the process. Initial displays of AIS data were plots of all vessel types and the relatively lower number of towing vessels were overshadowed by the significantly higher numbers of deep draft vessels. As AIS data was further divided into categories of vessel types, the resultant maps more clearly identified the historic routes of towing vessels and also clearly identified the conflicts with WEAs.

C. Discussion –

The WG developed draft Planning Guidelines, attached as enclosure (2), that were applied to towing operations along the Atlantic Coast by a Quality Action Team (QAT) sponsored by the Coast Guard and American Waterways Operators (AWO) Atlantic Region Quality Steering Committee (ARQSC). The report produced by the QAT is contained in enclosure (3).

The report identified navigation route boundaries which include the necessary sea space for towing operations to transit alongshore. In addition, navigation safety corridors were identified that included the necessary sea space between the navigation route and fixed structures to maneuver safely under emergency situations.

The result was an identification of a navigation route width of 5NM and a navigation safety corridor width of 9NM.

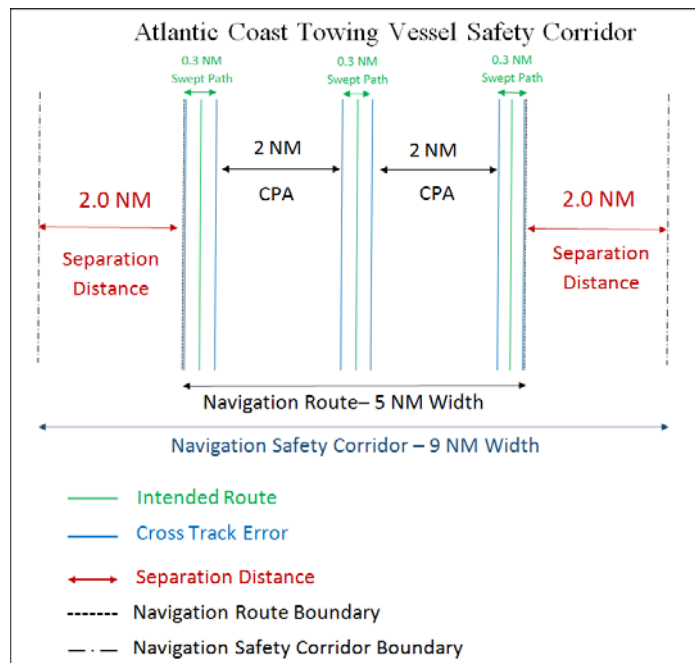
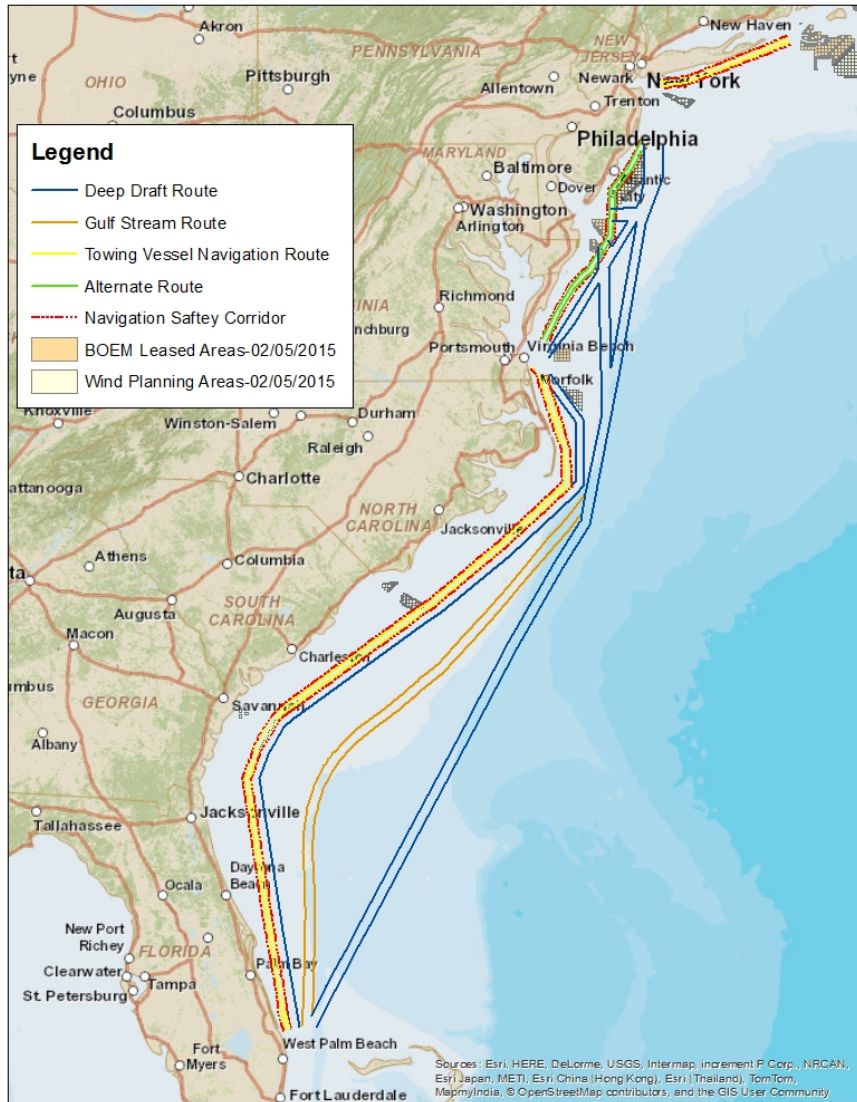


Figure 1- Atlantic Coast Towing Vessel Safety Corridor

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Using AIS to identify historic routes of towing vessel operations along the Atlantic Coast, the appropriate route and safety corridor widths were then applied.



Major deep draft routes were also identified using AIS, but a comparable effort to determine the appropriate width of corridors has not been undertaken. A safety corridor width of 10NM has been used which would equate to route size of 6NM with an additional separation of 2NM on either side.

Figure 2- Towing Vessel and Deep Draft Corridors

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D. Towing Vessel Route in the Mid-Atlantic from New York/New Jersey to Chesapeake Bay –

Towing Vessel Density in the Mid-Atlantic is displayed in Figure 3. An examination of the routes indicated that the primary alongshore route followed the coastal buoy line

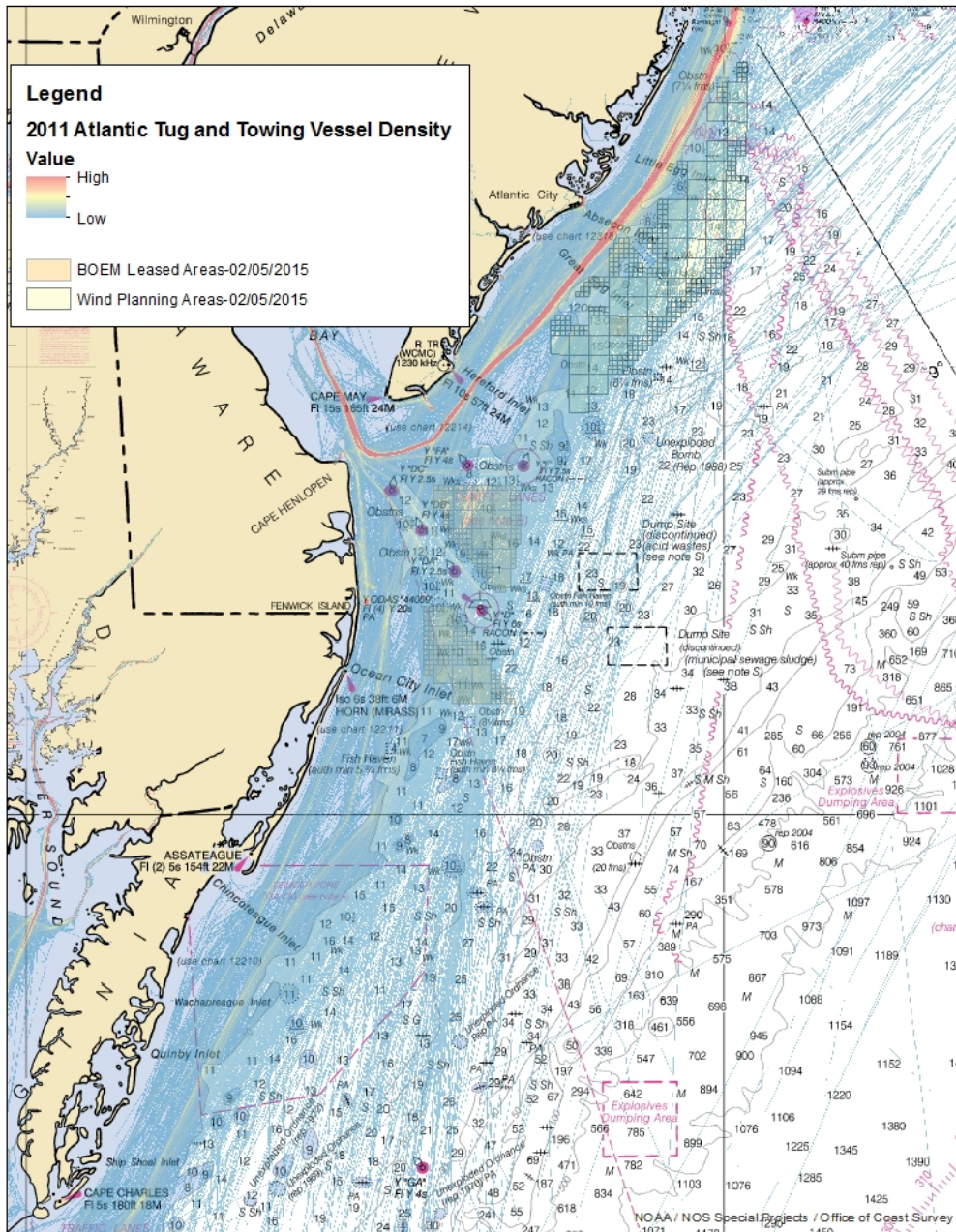


Figure 3- 2011 Towing Vessel Density in the Mid-Atlantic

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. The line of coastal buoys was used as the inner boundary of the navigation route. A parallel boundary 5NM seaward of the buoy line formed the outer boundary of the towing vessel navigation route. Figure 4 below depicts the historic towing navigation route with a display of the 2011 towing vessel density.

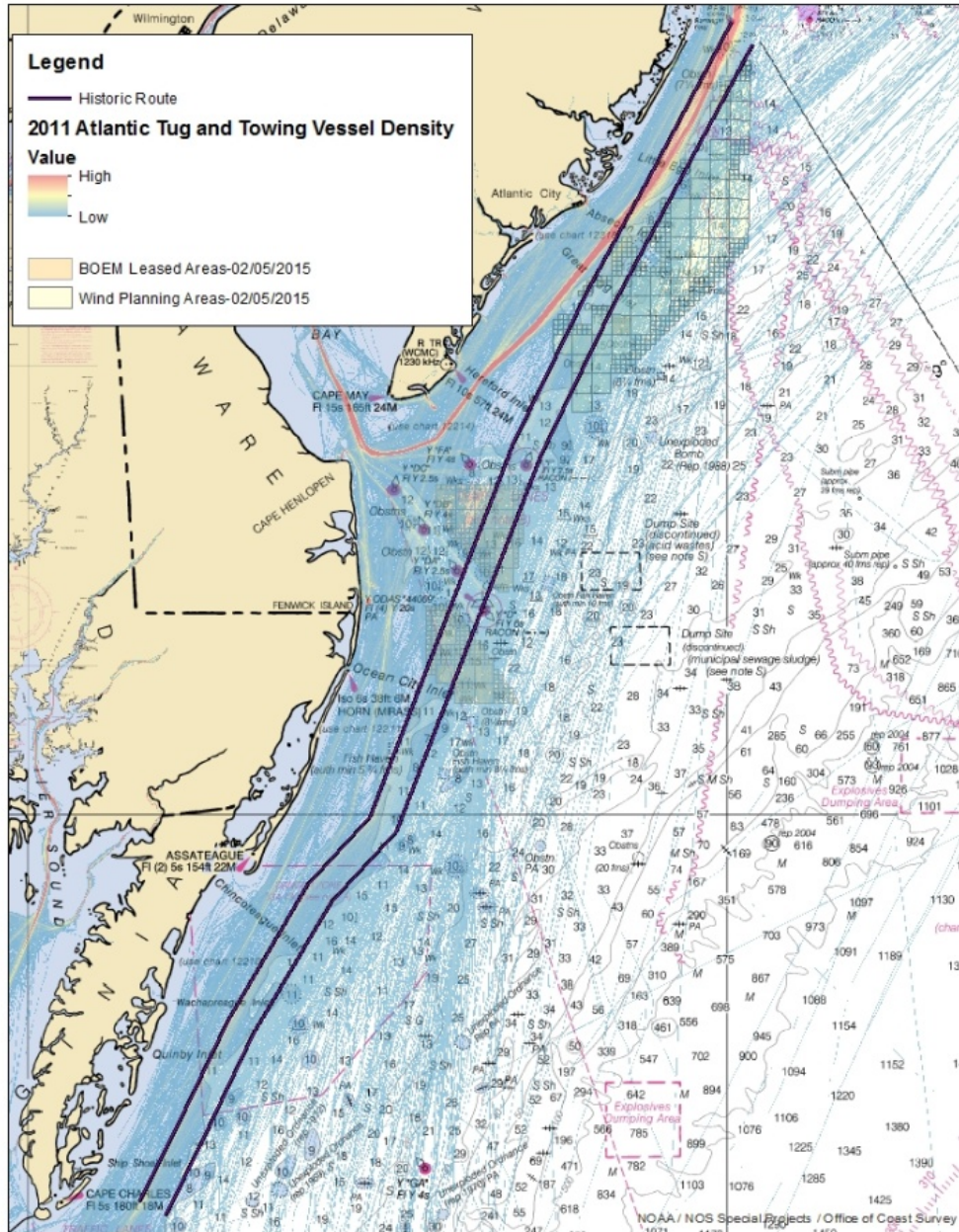


Figure 4 - Historic Towing Vessel Navigation Route with 2011 Tugs and Towing Vessel Density

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The towing vessel navigation safety corridor extends 2NM to either side of the navigation route as depicted in Figure 5 below along with the existing Wind Energy Areas and lease areas. As previously documented, existing towing vessel routes have significant conflicts with areas proposed for wind energy development. Previous recommendations to avoid impacting the areas resulted in displacing vessel routes approximately 35 NM from the coastline. Feedback from the towing industry indicated that distance offshore would not be suitable for many towing operations to operate safely.

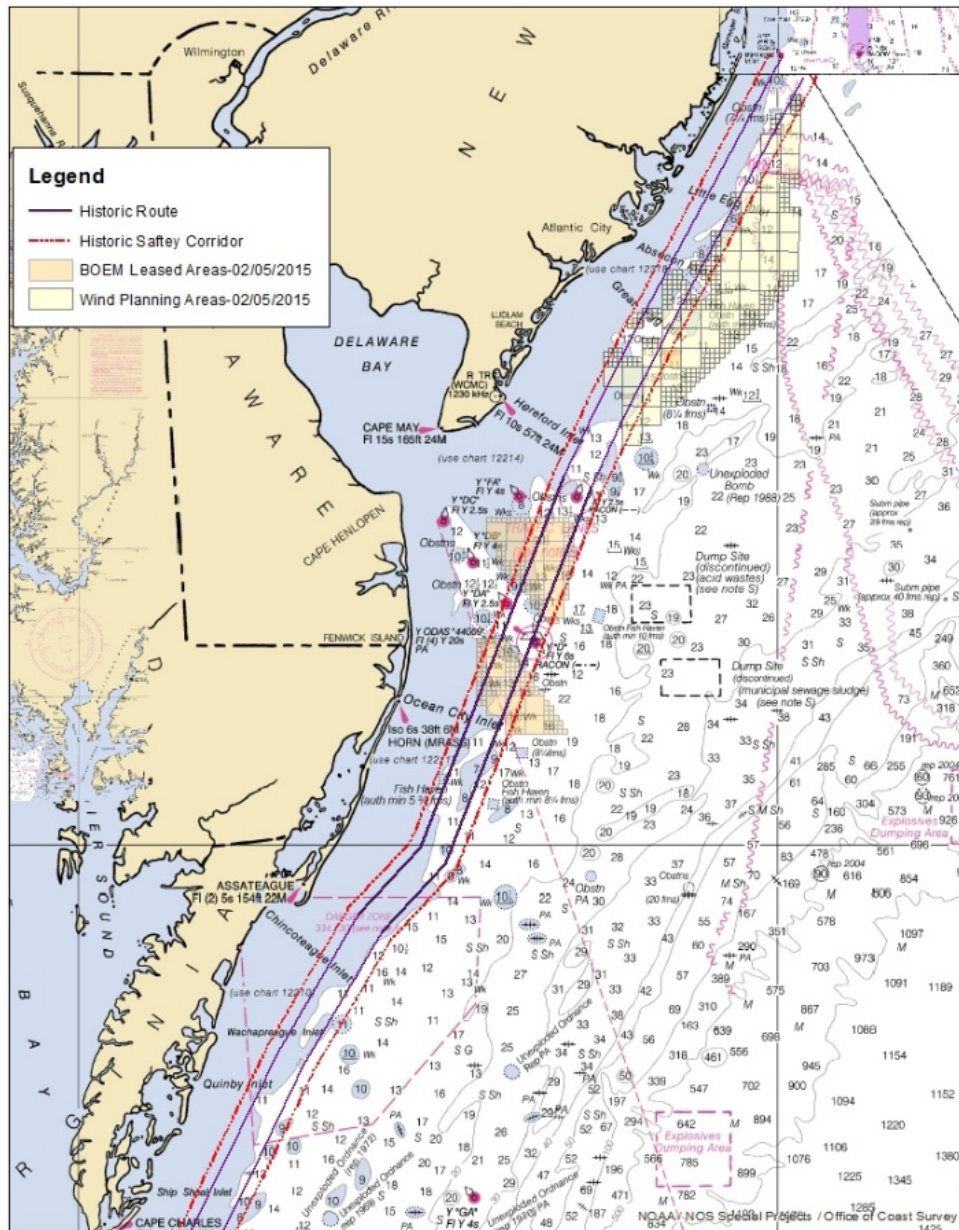


Figure 5- Towing Vessel Navigation Route and Navigation Safety Corridor

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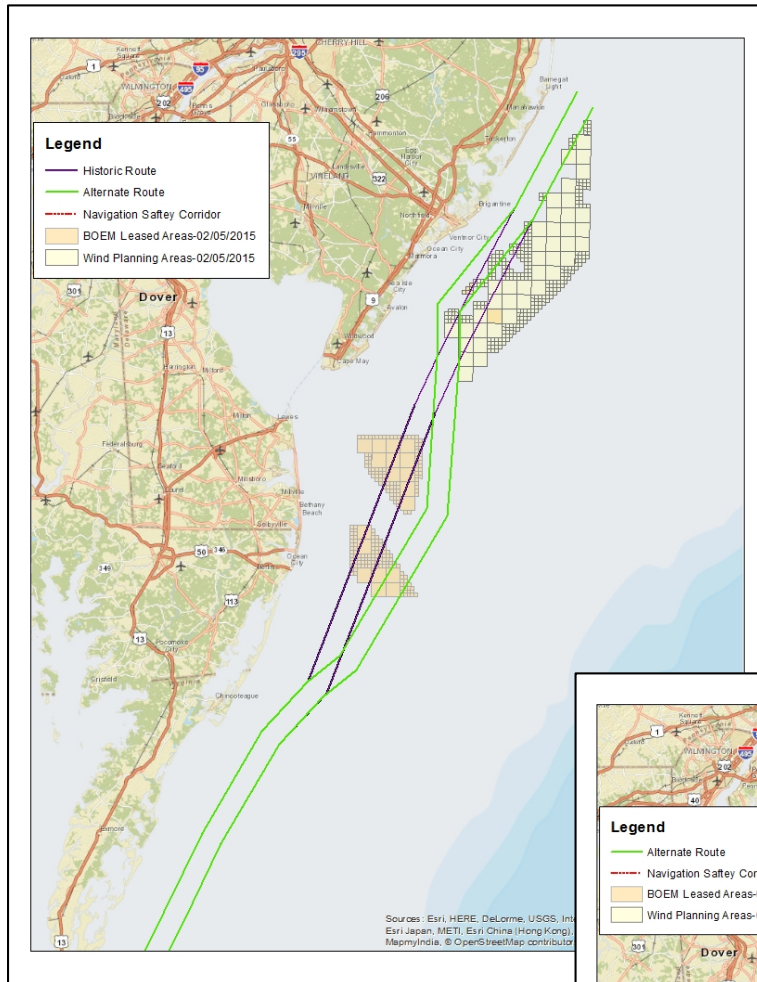


Figure 6 – Comparison of the Historic and Alternate Alongshore Towing Vessel Routes

With the addition of the navigation safety corridor to the alternate route, the remaining area for development was greatly improved and would support large scale commercial development.

An alternate route was explored that followed the criteria in the planning guidelines and corridor width recommendations, with the goal of minimizing conflicts with the areas proposed for development. The resulting alternate towing vessel navigation route is displayed in Figure 6 along with the historic route.

The resulting alternate route significantly reduced the areas of conflict.

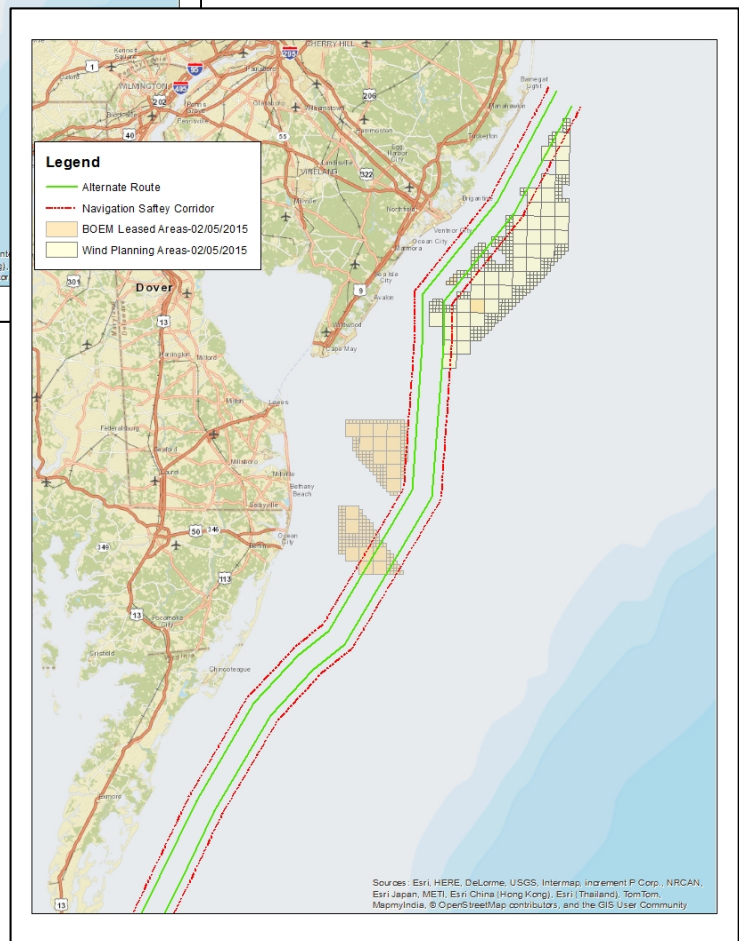


Figure 7 – Alternate Towing Vessel Route Displayed with the Corresponding Navigation Safety Corridor

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E. Alongshore Towing Vessel Routes from Chesapeake Bay to the Florida Straits and from New York to Rhode Island Sound

A similar process was followed to identify the towing vessel navigation routes using AIS data and applying the recommended navigation route and navigation safety corridor widths for the areas to the North and South of the Mid-Atlantic Routes. The resulting navigation routes and safety corridors are depicted along with the 2011 Towing Vessel Density, in Figures 8, 9 and 10.

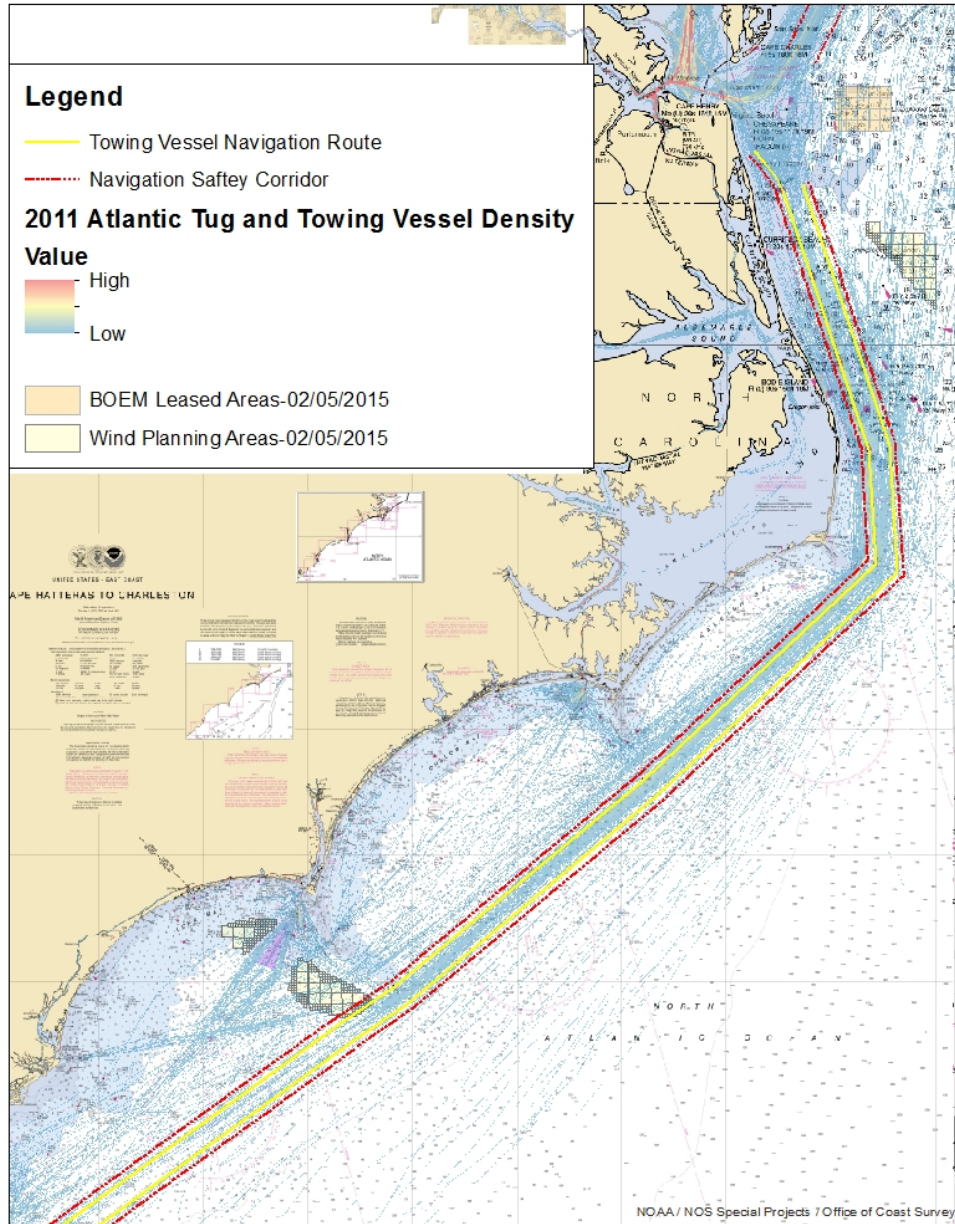


Figure 8 - Towing Vessel Route and Safety Corridor Compared to 2011 Towing Vessel Density Offshore of North Carolina

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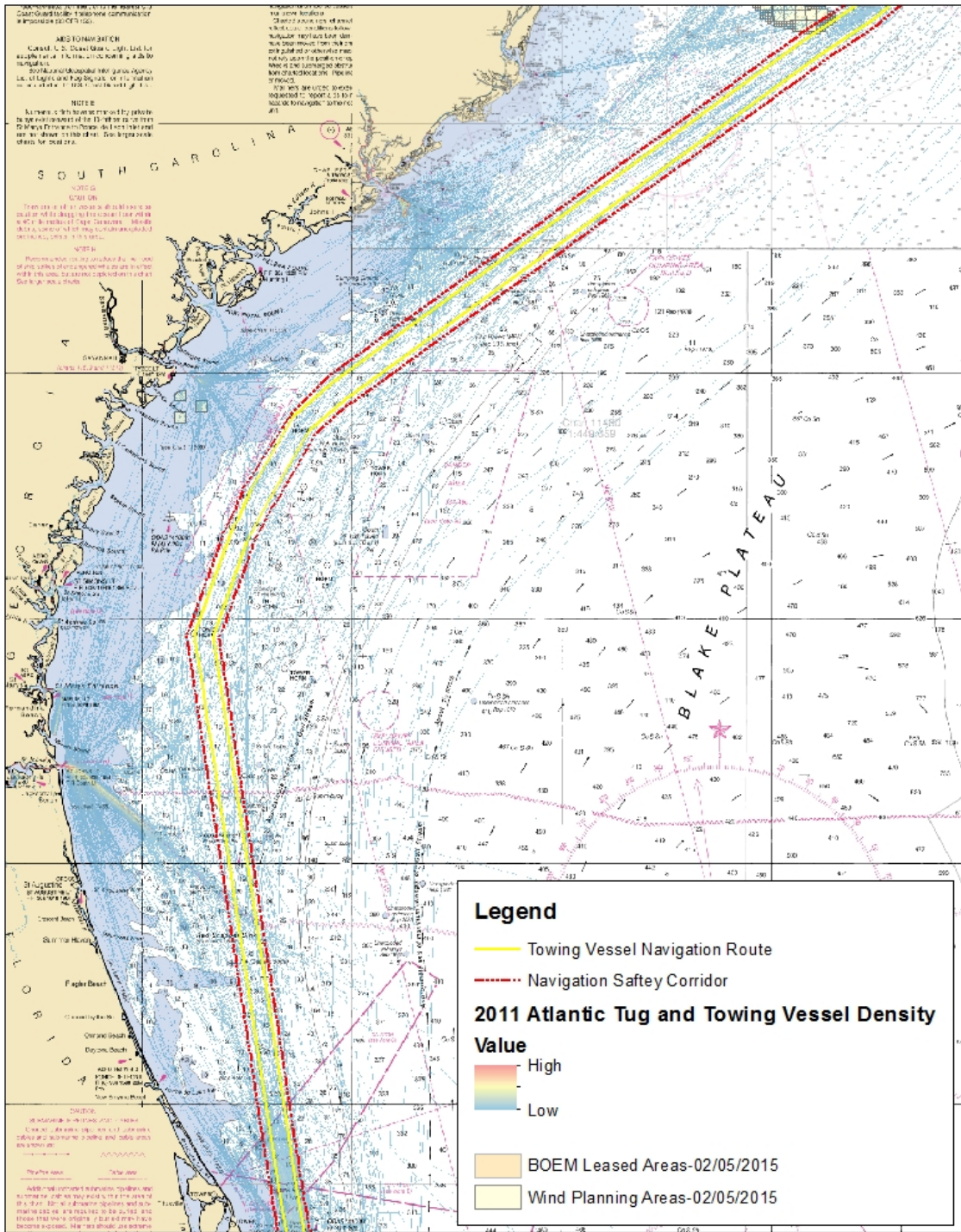


Figure 9 - Towing Vessel Route and Safety Corridor Compared to 2011 Towing Vessel Density for the Southeast

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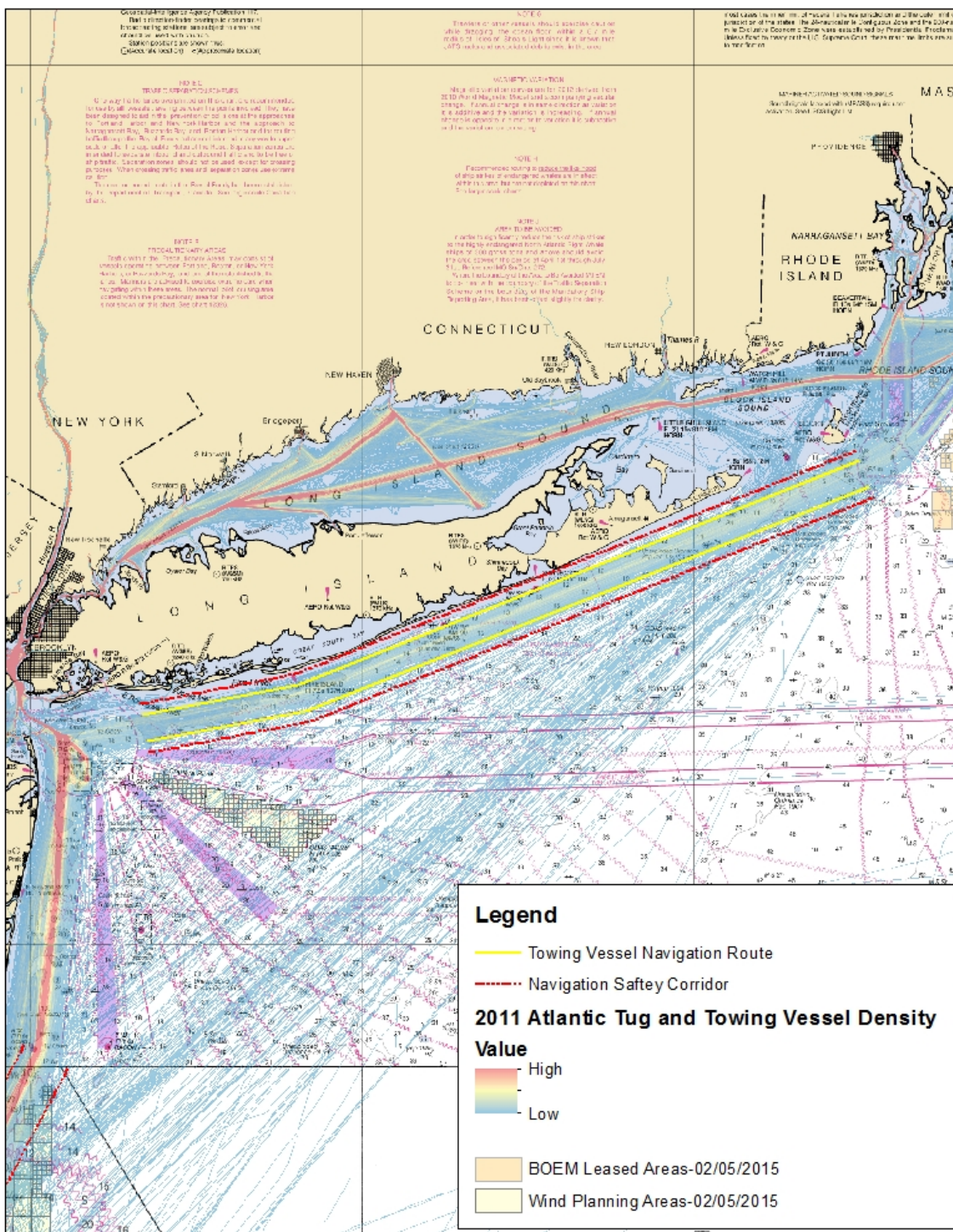


Figure 10 - Towing Vessel Route and Safety Corridor from New York to Rhode Island Sound Compared to 2011 Towing Vessel Density Offshore of New York and New Jersey

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F. Deep Draft Routes off the Atlantic Coast

The focus for deep draft vessel routes was for identifying major routes between ports. A safety corridor width of 10NM was chosen as a reasonable width to represent shipping routes for planning purposes based on the increasing size and numbers of vessels combined with the higher speeds when transiting offshore. Due to the increased sea room and flexibility for vessel to avoid structures, navigational safety becomes less of a concern when displacing vessel traffic. The following deep draft navigation safety corridors capture a few of the major offshore routes and are recommended to be used as an indication of vessel conflicts when conducting marine planning activities in addition to AIS data and other resources.

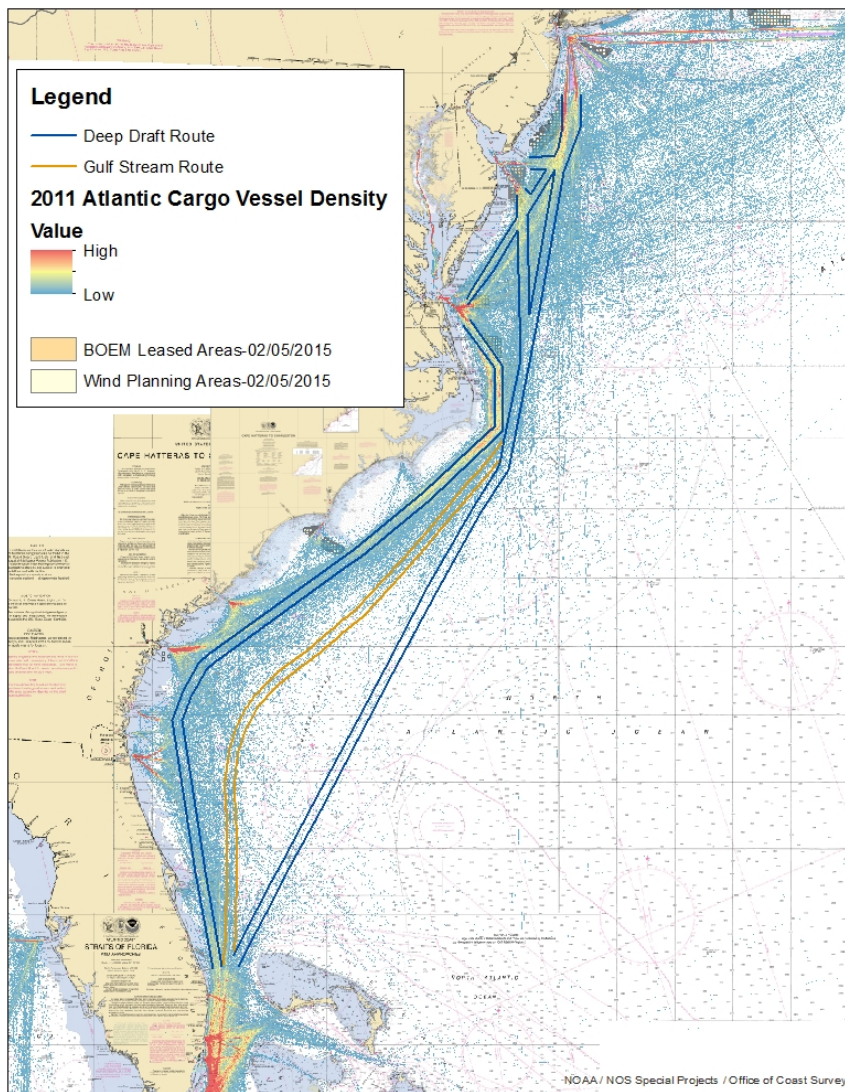


Figure 11 depicts the deep draft vessel navigation safety corridors along the Atlantic Coast from New York to the Florida Straits along with the 2011 Cargo Vessel Density as a surrogate for deep draft vessels.

Figure 11 - Deep Draft Navigation Safety Corridors with 2011 Cargo Vessel Density

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The following series of maps provide a more detailed view of the Deep Draft Navigation Safety Corridors.

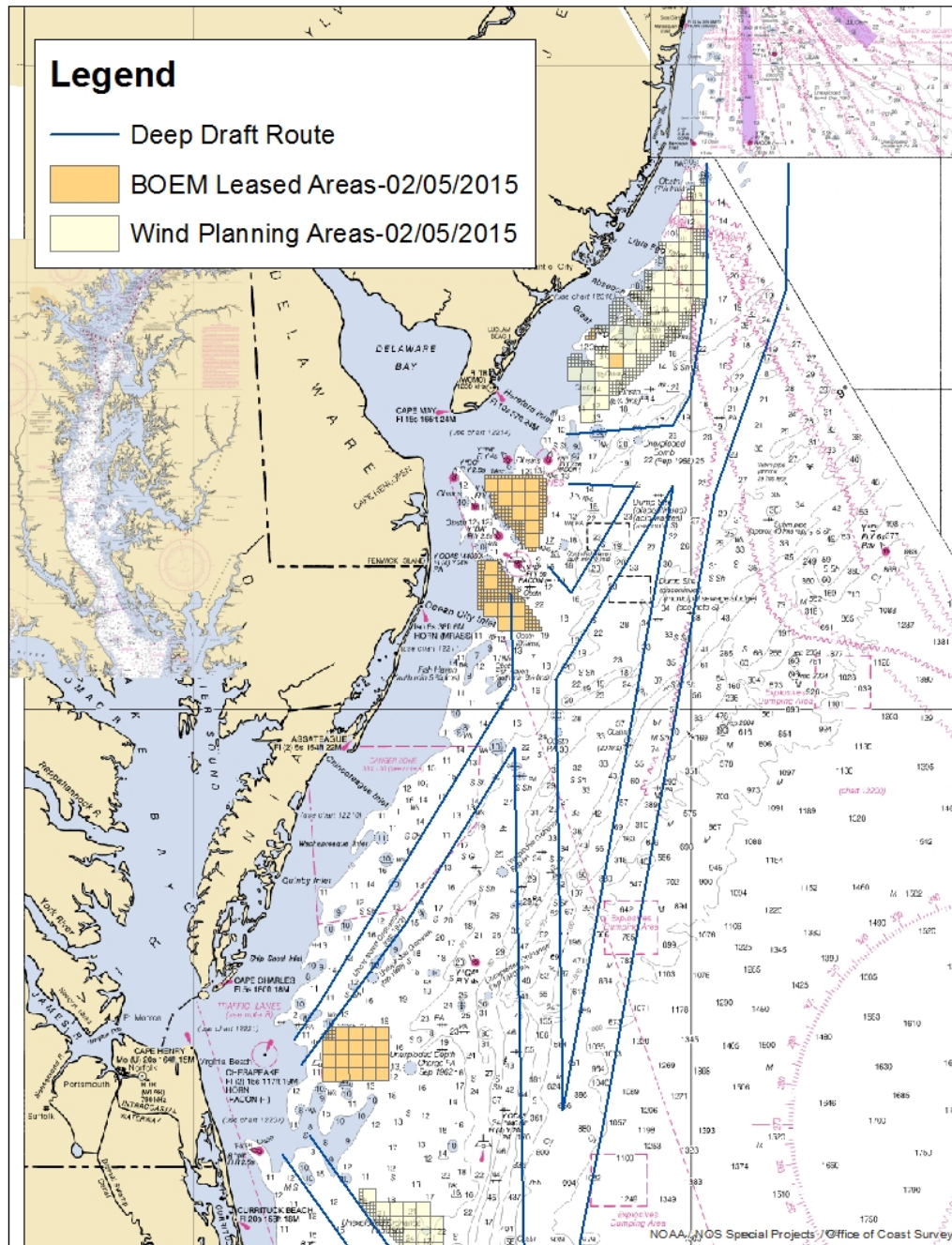


Figure 12 - Deep Draft Navigation Safety Corridors in the Mid-Atlantic

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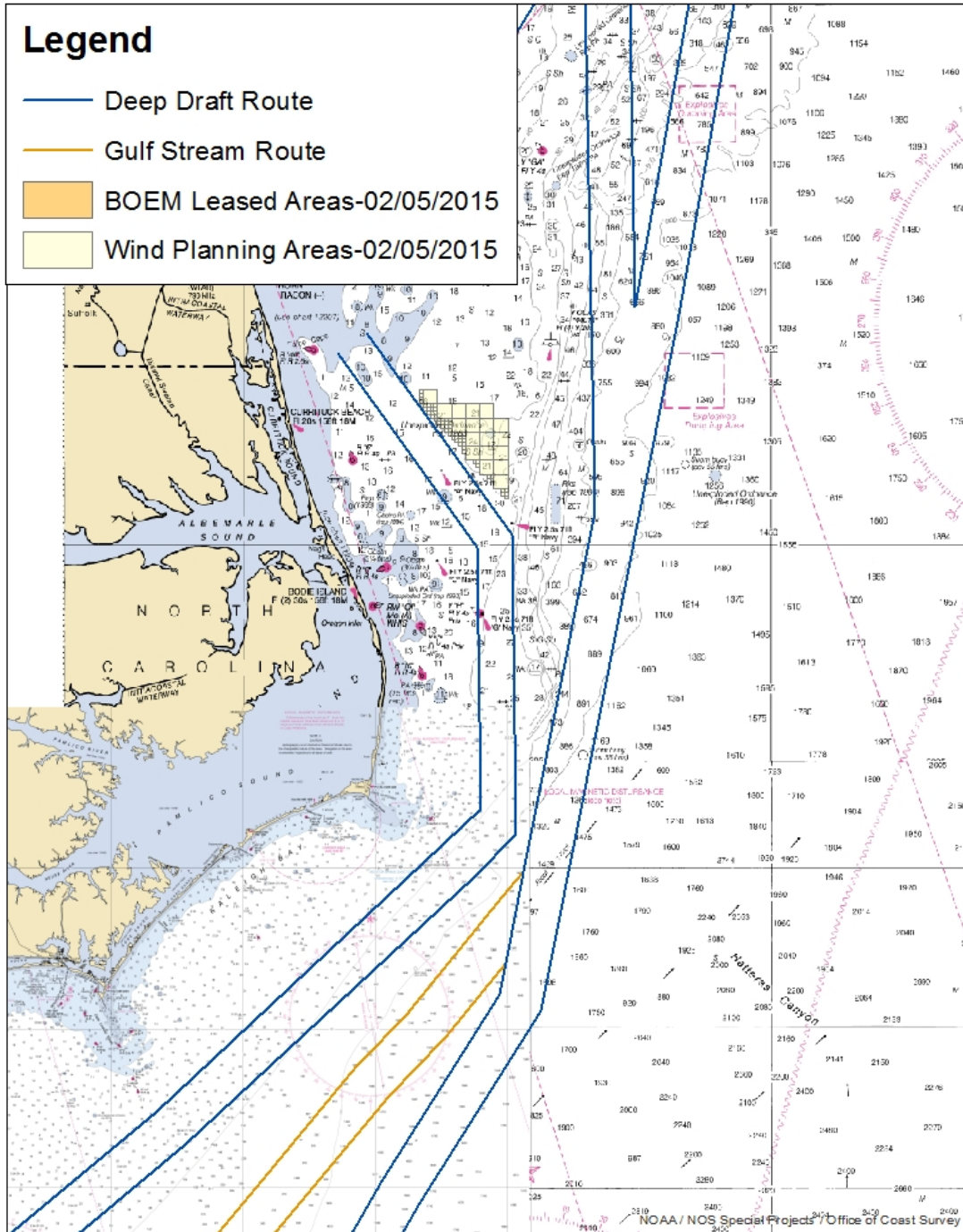


Figure 13 - Deep Draft Navigation Safety Corridors in the vicinity of Cape Hatteras

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Figure 14 depicts the deep draft routes in the southeast including a route that follows the Gulf Stream current in the Northbound direction shown in yellow.

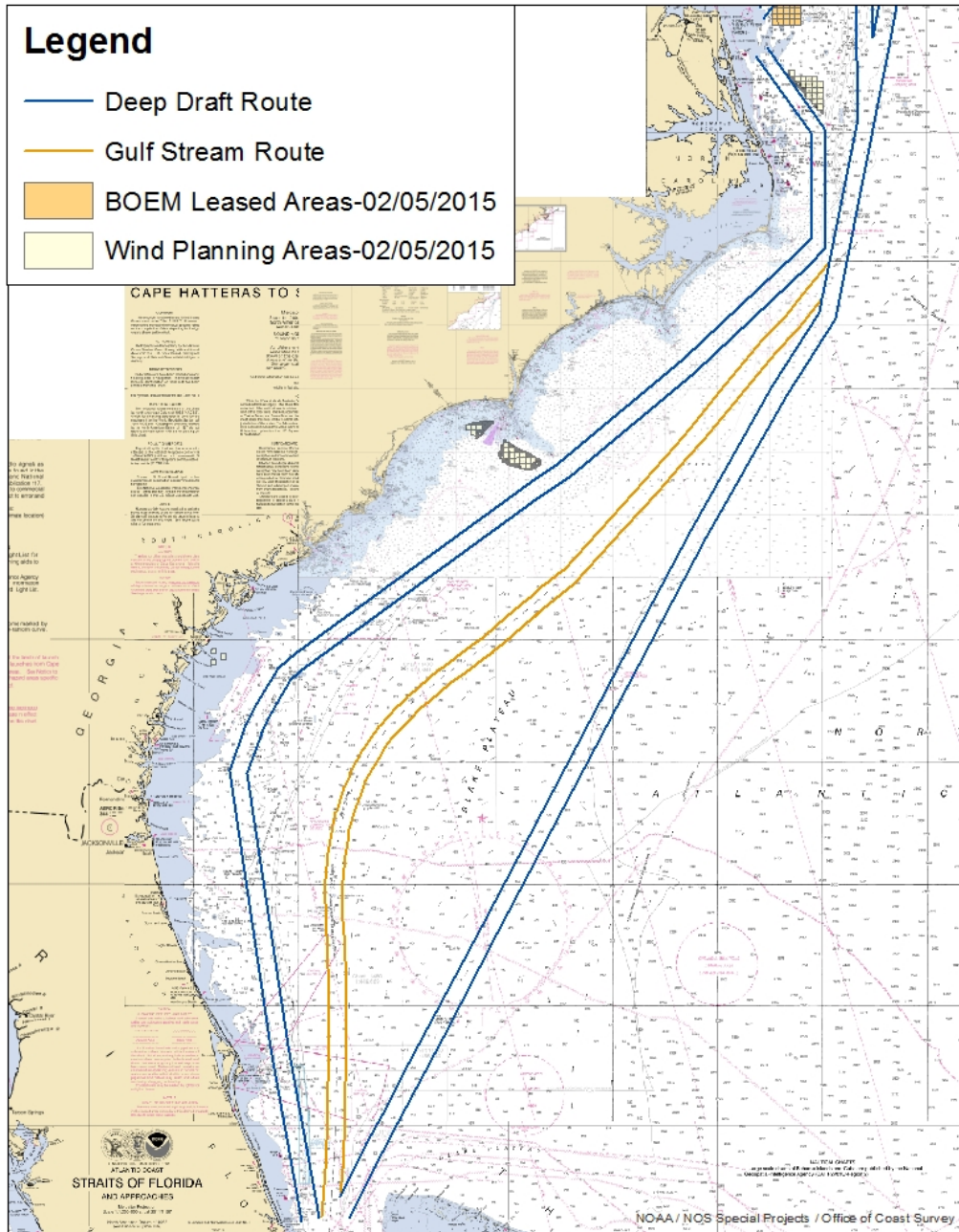


Figure 14 - Deep Draft Navigation Safety Corridors in the Southeast

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An overlay of 2011 Cargo Density with deep draft routes in the Southeast clearly demonstrates that there are significant number of routes that have not been captured with the navigation safety corridors that have been identified. In particular, special consideration needs to be given for routes into and out of major port areas.

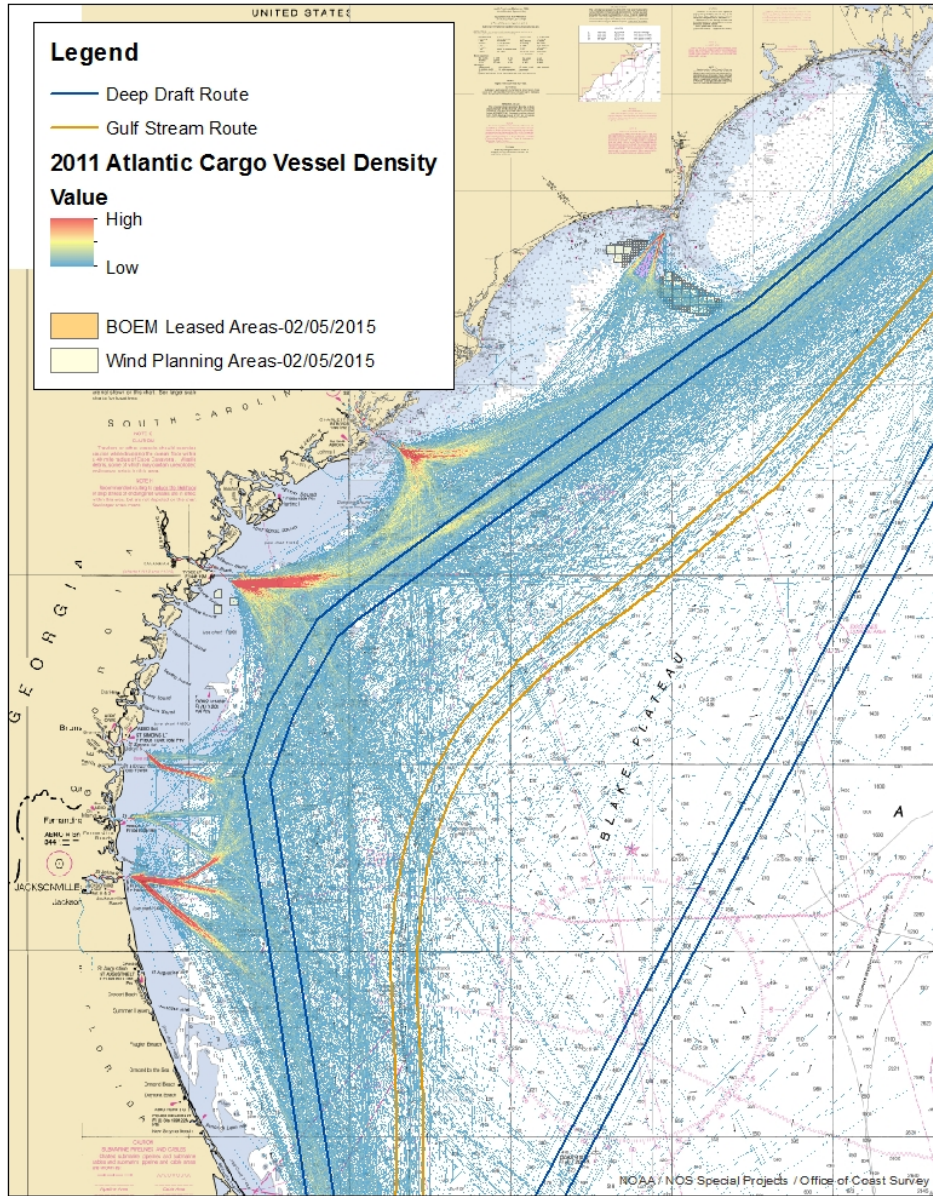


Figure 15 - 2011 Cargo Vessel Density and Deep Draft Routes in the Southeast

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G. Combination of Towing and Deep Draft Navigation Safety Corridors

Figure 16 depicts a combination of the towing and deep draft navigation safety corridors from Rhode Island Sound to the Florida Straits.

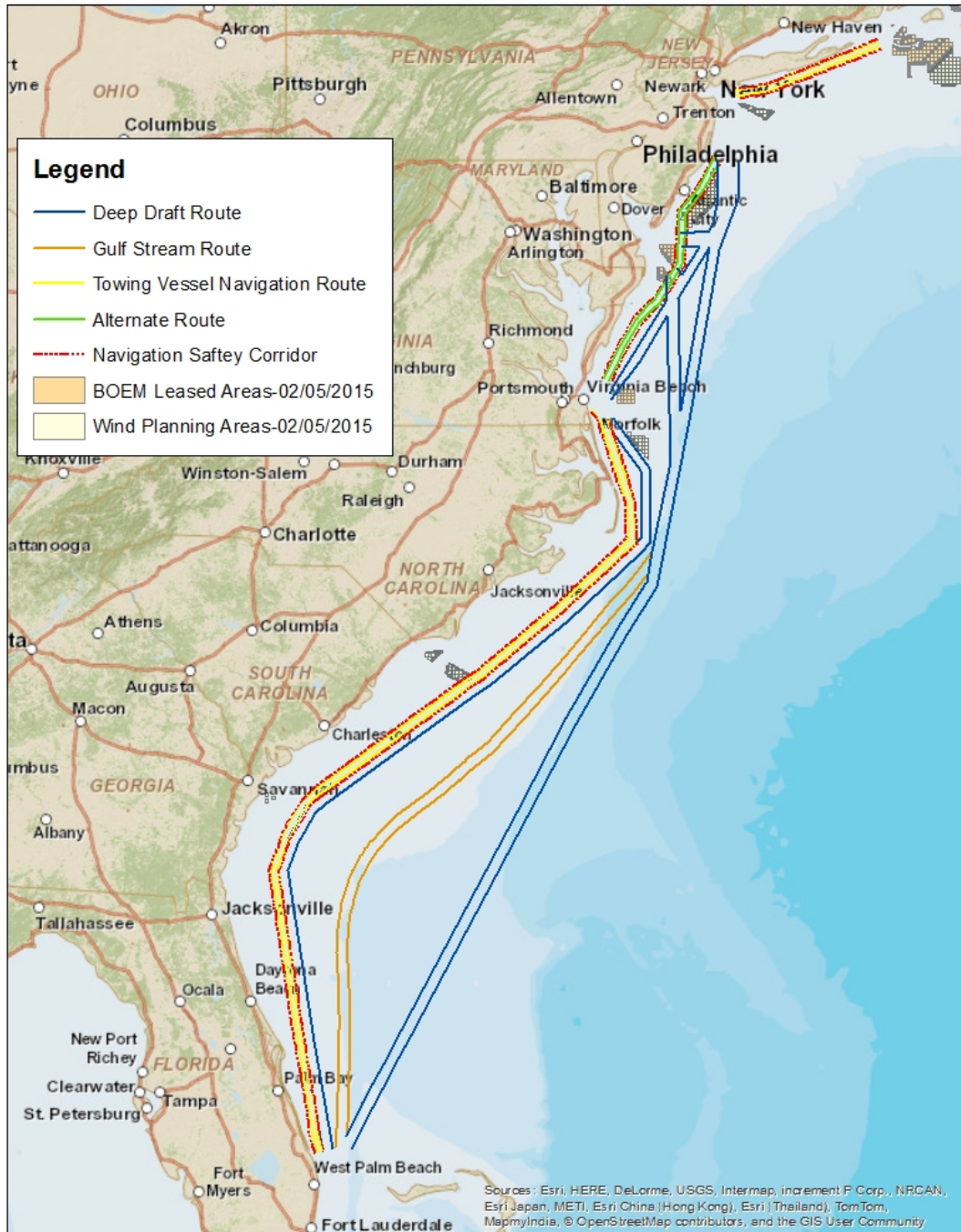


Figure 16 - Combination of Towing Vessel and Deep Draft Navigation Safety Corridors

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A side by side depiction of the towing vessel and deep draft corridors in the Southeast shows the two overlap. The inshore boundary of the deep draft navigation safety corridor matches the offshore boundary of the towing vessel navigation route resulting in an overlap of 2NM.

