

**SECOND PORT ACCESS ROUTE STUDY**  
**TO**  
**ANALYZE POTENTIAL VESSEL ROUTING MEASURES**  
**FOR REDUCING VESSEL (SHIP) STRIKES**  
**OF**  
**NORTH ATLANTIC RIGHT WHALES**

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**UNITED STATES COAST GUARD**

## **I. REQUIREMENT**

The Administration is developing measures to reduce ship strikes of right whales. The goal of these measures is to address the lack of recovery of the right whale by reducing the likelihood and threat of ship strikes.

Section 626 of the Coast Guard and Maritime Transportation Act of 2004 (the 2004 Act) (enacted August 9, 2004) mandated that the Coast Guard: (1) Cooperate with the National Oceanic and Atmospheric Administration “in analyzing potential vessel routing measures for reducing vessel strikes of North Atlantic Right Whales”, and (2) provide a final report of the analysis to Congress within 18 months after the date of enactment of the Act.

The final report was delivered to Congress as required. The report contained possible future action items such as establishing a Great South Channel area to be avoided (ATBA). If the ATBA was proposed to be established, its location would require that the Boston traffic separation scheme (TSS) in the vicinity of Cape Cod be amended.

## **II. GENERAL**

The North Atlantic right whale, *Eubalaena glacialis*, is considered one of the most endangered large whale species in the world. Right whales have been listed as endangered under the Endangered Species Act (ESA) since its passage in 1973 (35 FR 8495, June 2, 1970). Although precise estimates of abundance are not available, it appears that the eastern North Atlantic population is nearly extinct and the western North Atlantic population numbers approximately 300 whales. (See Ward-Geiger, Silber, and Baumstark, and Pulfer, 2005.) The status of North Atlantic right whales is a very serious issue, especially for the National Marine Fisheries Service (NMFS) and the United States Coast Guard. While calf production has increased somewhat in recent years, reproduction has been erratic over the last few decades, and recovery is seriously affected by fatalities and serious injury resulting from human activities, primarily from collisions with vessels (ship strikes) and entanglement in fishing gear.

The Coast Guard is charged with enforcing the Marine Mammal Protection Act (MMPA), ESA, and the regulations issued under those statutes. One of the Coast Guard's core missions and strategic goals is the protection of the marine environment, including the conservation of living marine resources and enforcement of living marine resource laws. The Coast Guard works in collaboration with NMFS to prevent ship strikes. The Coast Guard issues local and written periodic notices to mariners concerning ship strikes, issues NAVTEX messages alerting mariners to the location of right whales, and actively participates in the Mandatory Ship Reporting (MSR) Systems that provide information to mariners entering two specific areas, one in the northeastern United States and one in the southeastern United States. In addition, the Coast Guard provides patrols dedicated to enforcement of the ESA and the MMPA; limited vessel and aircraft support to facilitate right whale research and population monitoring; funding to support the Sighting Advisory (SAS)/Early Warning System (EWS); vessels and aircraft to assist in right whale disentanglements and strandings; and disseminates NMFS information packets to

vessels boarded in or near right whale waters. As part of its Strategy development, and consistent with section 626 of the 2004 Act, NMFS asked the Coast Guard for assistance in its ship-strike rulemaking by conducting a Port Access Route Study (PARS).

Under the Ports and Waterways Safety Act (PWSA) (33 U.S.C. 1223(c)), the Commandant of the Coast Guard may designate necessary fairways and traffic separation schemes (TSSs) to provide safe access routes for vessels proceeding to and from U. S. ports. In addition, the PWSA provides that such designation of fairways and TSSs must recognize, within the designated areas, the paramount right of navigation over all other uses. The PWSA also allows the Coast Guard to adjust the location or limits of designated fairways or TSSs. Through the study process, the Coast Guard must consult with Federal, State, and foreign state agencies (as appropriate) and consider the views of maritime community representatives, environmental groups, and other interested stakeholders received through the public comment process. The Coast Guard must also take into account all other uses of the area under consideration including as appropriate:

- the exploration for, or exploitation of, oil, gas, or other mineral resources;
- the construction or operation of deepwater ports or other structures on or above the seabed or subsoil of the submerged lands or the Outer Continental Shelf (OCS) of the U. S.;
- the establishment or operation of marine or estuarine sanctuaries; and
- activities involving recreational or commercial fishing.

Designation shall, to the extent practicable, reconcile the need for safe access routes with the needs of all other reasonable uses of the area involved. Additionally, for the original PARS, Section 626 of the 2004 Act specifically required that routing measures be considered to reduce ship strikes of North Atlantic right whales.

Most commercial vessels calling at U.S. ports are foreign flag vessels. The United States, after Executive Branch review and clearance, may submit proposed routing measures recommended by a PARS--in particular traffic separation schemes (TSSs)--to the International Maritime Organization (IMO) for approval, adoption, and implementation. However, not all routing measures must be submitted to IMO. For instance, the routing measures analyzed by the original PARS for the southeastern United States and for Cape Cod Bay were not submitted to IMO, while the amendment to the northern portion of the Boston TSS (a previously IMO adopted measure) was submitted to IMO. A seasonal ATBA and the amending of the southern portion of the Boston TSS are being proposed for IMO submission. The International Convention for the Safety of Life at Sea (SOLAS) recognizes IMO as the competent international body for developing guidelines, criteria and regulations at the international level for ships' routing systems. Upon adoption of a routing measure, IMO issues a circular to its approximately 166 Member States to provide geographic coordinates of the adopted routing measure. The routing measure is then added to navigational charts issued by various entities worldwide, including National Oceanic and Atmospheric Administration (NOAA) navigational charts. As to the proposed amendment of the Boston TSS, the Coast Guard will begin the process of updating the list of offshore traffic separation schemes and precautionary areas

at 33 C.F.R. Part 167 during or after IMO action on the proposal by the United States, including issuing a Federal Register notice and providing opportunity for public comment. The traffic separation schemes and other routing measures that have been adopted worldwide by IMO can be found at [www.imo.org](http://www.imo.org).

On November 19, 2007, the Coast Guard published a notice of study in the *Federal Register* (72 FR 64968) which provided the reason for this study, procedures by which the public could comment on the study, descriptions of the geographic areas to be studied, and a timetable and process that the Coast Guard was going to use in conducting its PARS.

### **III. BACKGROUND**

#### DEFINITIONS

The following definitions are from the IMO's publication "Ships' Routing" (except those marked by an asterisk, which are terms derived from Coast Guard regulations) and should help the reader to understand terms used throughout this document:

Area to be avoided or ATBA means 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 should be avoided by all vessels, or certain classes of vessels.

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

Fairway\* means a lane or corridor in which no artificial island or structure, whether temporary or permanent, will be permitted so that vessels using U.S. ports will have unobstructed approaches.

Inshore traffic zone means a routing measure comprising a designated area between the landward boundary of a traffic separation scheme and the adjacent coast, to be used in accordance with the provisions of Rule 10(d), as amended, of the International Regulations for Preventing Collisions at Sea, 1972 (COLREGS).

No anchoring area means a routing measure comprising an area within defined limits where anchoring is hazardous or could result in unacceptable damage to the marine environment. Anchoring in a no anchoring area should be avoided by all vessels or certain classes of vessels, except in case of immediate danger to the vessel or the persons on board.

Precautionary area means a routing measure comprising an area within defined limits where vessels must navigate with particular caution and within which the direction of traffic flow may be recommended.

Recommended route means a route of undefined width, for the convenience of vessels in transit, which is often marked by centerline buoys.

Recommended track means a route which has been specially examined to ensure so far as possible that it is free of dangers and along which vessels are advised to navigate.

Regulated Navigation Area or RNA\* means a water area within a defined boundary for which regulations for vessels navigating within the area have been established under 33 CFR part 165.

Roundabout means a routing measure comprising a separation point or circular separation zone and a circular traffic lane within defined limits. Traffic within the roundabout is separated by moving in a counterclockwise direction around the separation point or zone.

Separation Zone or separation line means a zone or line separating the traffic lanes in which vessels are proceeding in opposite or nearly opposite directions; or from the adjacent sea area; or separating traffic lanes designated for particular classes of vessels proceeding in the same direction.

Traffic lane means an area within defined limits in which one-way traffic is established. Natural obstacles, including those forming separation zones, may constitute a boundary.

Traffic Separation Scheme or TSS means a routing measure aimed at the separation of opposing streams of traffic by appropriate means and by the establishment of traffic lanes.

Two-way route means 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.

Vessel routing system means any system of one or more routes or routing measures aimed at reducing the risk of casualties; it includes traffic separation schemes, two-way routes, recommended tracks, areas to be avoided, no anchoring areas, inshore traffic zones, roundabouts, precautionary areas, and deep-water routes.

## *STUDY AREA*

The study area is the area bounded to the west by a line drawn at longitude 070° W; bounded to the north by a line drawn at latitude 43° 00' N; bounded to the east by the boundary of the exclusive economic zone; and bounded to the south by a line drawn at latitude 40° 30' N. This area includes the northern right whale critical habitat, mandatory

ship reporting system area, and the Great South Channel including Georges Bank out to the exclusive economic zone (EEZ) boundary.

## *ANALYSIS*

During the course of a routine PARS, the Coast Guard reviews port data, which would include vessel types, vessel traffic density, types of cargo, economic impacts, port improvements, vessel safety, and overall environmental impacts. In addition, the Coast Guard reviews comments received on the PARS notice. Further, if meetings of any type are held, comments received at those meetings are also considered.

In analyzing potential vessel routing measures for reducing vessel strikes of North Atlantic right whales, and to be consistent with the original PARS, the Coast Guard and NOAA agreed that this PARS would be narrower in scope than a routine PARS because the Coast Guard did not consider economic impacts. These impacts would be considered by NMFS as part of an economic analysis it is doing as part of the implementation of its Strategy. The Coast Guard also reviewed research papers published and/or provided by NMFS which, in addition to advising on right whale habitat and migration patterns, also analyzed ship transit data, especially those studies that cite Mandatory Ship Reporting System data.

Six comment submissions were received on its PARS announcement in the *Federal Register* and were reviewed by the Coast Guard. All comments submitted were by individuals or organizations that want to see right whales protected. Comments were highly supportive of the Coast Guard's efforts to protect whales. No comments were submitted by vessel owners/operators or shipping companies.

NMFS advises that right whales tend to migrate seasonally in a corridor along the eastern seaboard of the U. S. and Canada between winter calving/nursing areas in the southern region (near the border between Georgia and Florida) and summer feeding grounds in the northern region ( e.g. Cape Cod, Great South Channel, Bay of Fundy). In waters off the southeast U. S. and mid-Atlantic right whales are often found within 30 nautical miles of the coast. Their fall southward migration primarily occurs in November and December, and their spring northward migration primarily occurs in March and April. Accordingly, depending upon the time of the year, right whale sightings may occur within 30 nautical miles of the shore along much of the U. S. east coast, whereas in New England and Canadian waters this distance is greater. (*See Ward-Geiger, et al., 2005.*)

The following charts provided by NMFS (figures 1 through 3) provide summaries of right whale sighting information in the northeast region during the months indicated, show a possible depiction of a proposed seasonal ATBA, and provide background on the migration time period and distribution of right whales.

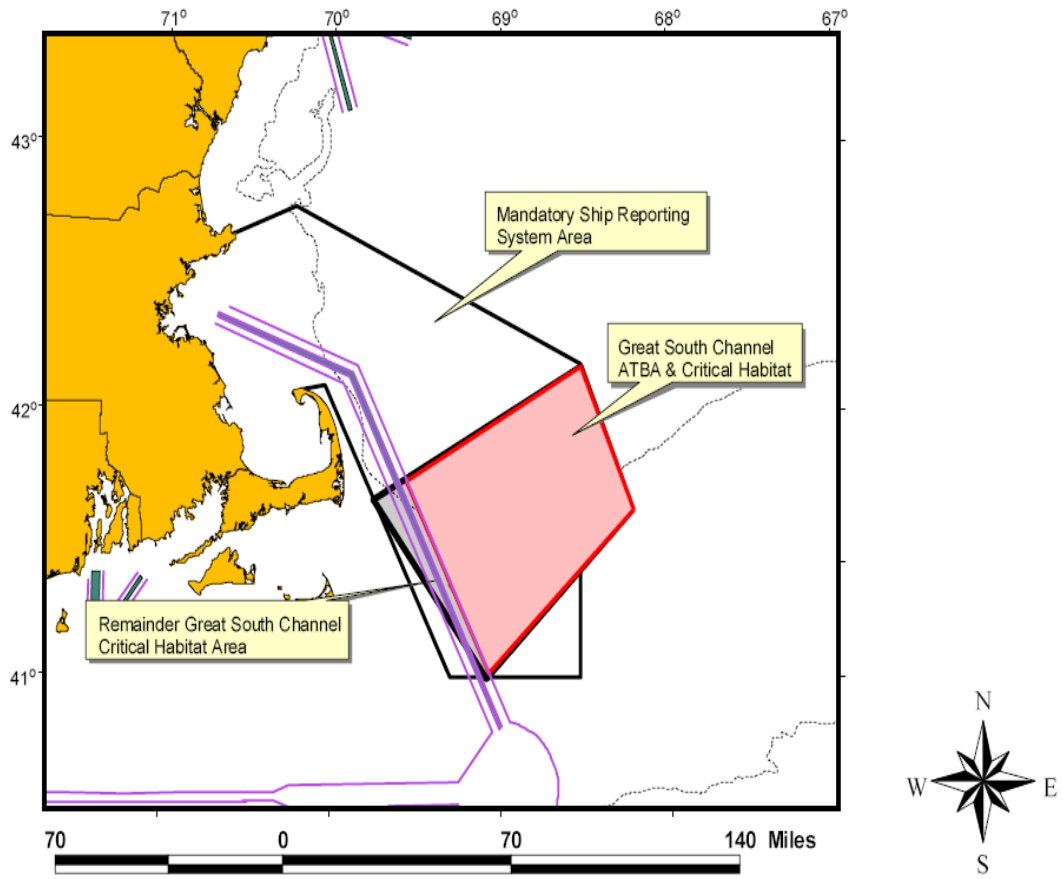


Figure 2. Mandatory Ship Reporting System, proposed Area To Be Avoided (ATBA) and Critical Habitat areas.

Figure 1. (See Merrick, 2007)

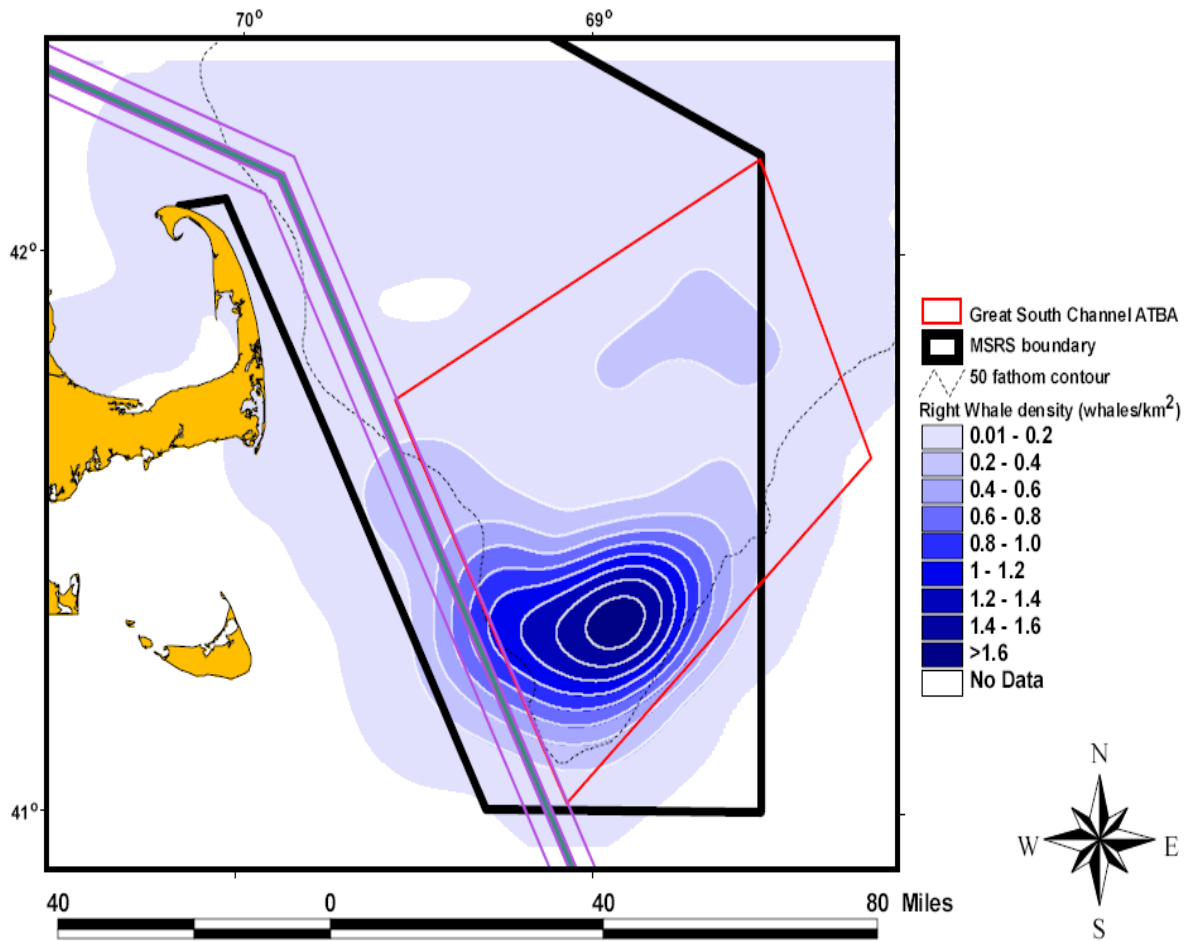


Figure 4. Northern right whale sighting densities (whales/km<sup>2</sup>) in the Great South Channel during April–July, 1999–2005 shown with the Great South Channel Area To Be Avoided (ATBA) and Mandatory Ship Reporting System (MSRS) boundary.

Figure 2. (See Merrick, 2007)



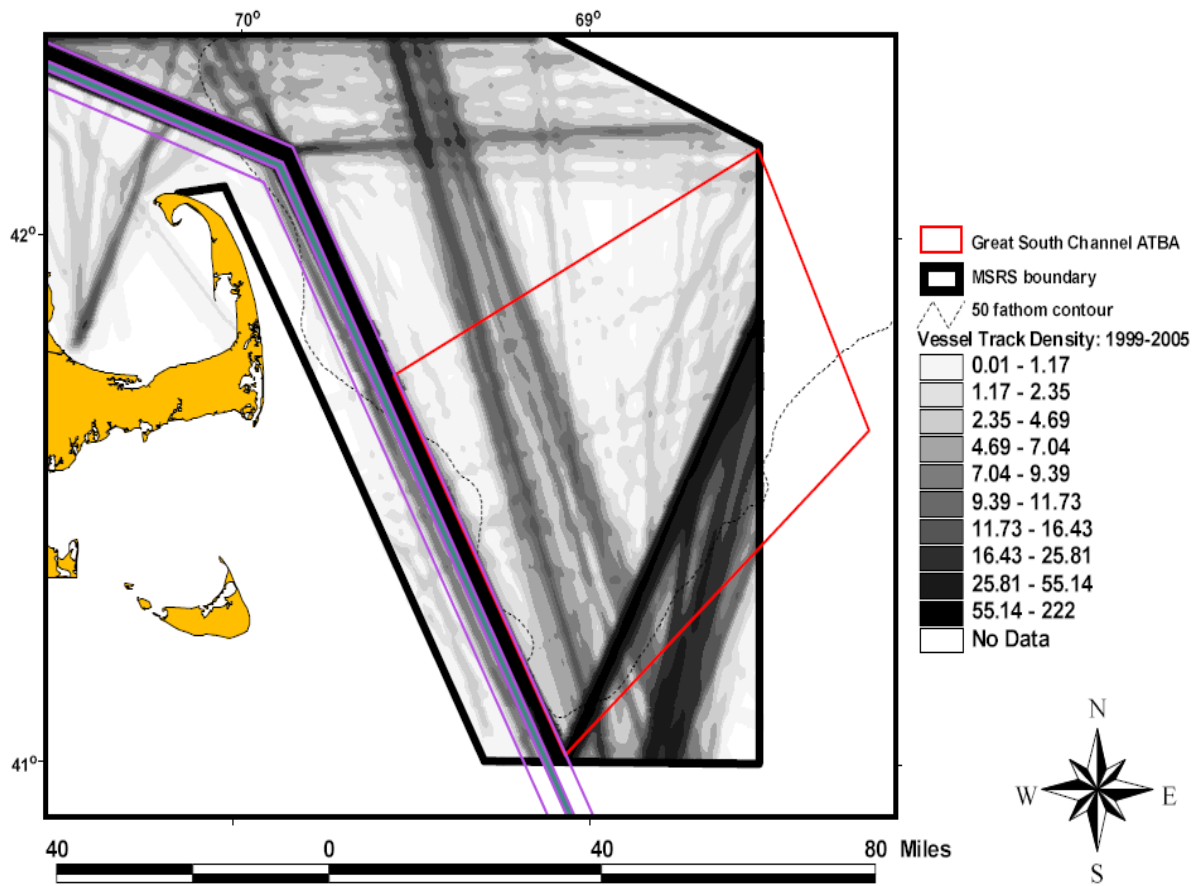


Figure 5. Mandatory ship reporting system (MSRS) boundaries and densities of ship track (km of ship track/km<sup>2</sup>) through the potential Great South Channel Area To Be Avoided (ATBA for April-July, 1999-2005.

Figure 3. (See Merrick, 2007)

#### **IV. ROUTING MEASURES REVIEWED**

NMFS considers the use of routing measures an essential component of its Ship Strike Reduction Strategy, because use of such measures by vessels could reduce exposure of right whales to ships and thus reduce the likelihood of a ship strike to the extent practicable, while minimizing adverse impacts on the shipping industry. During the consultation process between the Coast Guard and NMFS, two potential routing measures were discussed to determine applicability and usefulness in protecting right whales from ship strikes. These measures were defined previously and a discussion of their uses and applicability to prevent ship strikes are provided below:

- A. *Area to Be Avoided* - is a routing measure that describes an area within defined limits in which vessels would be advised not to enter or avoid because of its vital importance to right whales. Right whales face their highest risk of ship strikes in this area during a four month period because of the significant seasonal whale aggregations that occur and their close proximity to ship traffic. Moreover, it is important to note that there are right whales in this area that are rarely, if ever, seen elsewhere. By “moving” ships away from the right whales’ critical habitat and their normal summer feeding grounds, the risk of collision between ships and right whales would be reduced.
- B. *Traffic separation scheme (TSS)* – is a measure that separates traffic by having vessels travel in a lane in a particular direction. In addition, the lanes are separated by a separation zone or line. A vessel in a TSS must comply with Rule 10 of the International Regulations for Preventing Collisions at Sea, 1972, as amended (COLREGS). Rule 10 requires that a vessel using a TSS stay within its lane and avoids crossing traffic lanes as far as practicable. TSSs are usually placed at the entrance of a harbor, especially if there is a large volume of vessel traffic that transits to and from the harbor. This measure provides a high level of predictability to ship movements and locations and, if used properly by all vessels in relative proximity to each other, can reduce the risk of collision. TSSs can potentially be located where studies indicate that the exposure of right whales to vessels is lower, thereby potentially reducing the risk of ship strikes.

#### **V. RECOMMENDED RATHER THAN MANDATORY MEASURES**

During the consultations between the Coast Guard and NMFS, the issue of whether the ATBA and the TSS should be recommended or mandatory was discussed.

One of the Coast Guard’s primary missions is to promote safety at sea. The Coast Guard has found that a key factor in vessel safety is to maintain the ability and responsibility of the ship’s master to operate (navigate) a vessel based on surrounding circumstances. Vessel operators must account for a multitude of variables and risks posed by continuously changing elements such as sea state, weather, visibility, vessel condition, and other vessel traffic. Constraining a vessel operator’s discretion to act appropriate to

circumstances can pose serious risks of collision, grounding, or other casualties with implications for both safety and the greater marine environment. Accordingly, the Coast Guard generally supports the establishment of recommended rather than mandatory routing measures.

NMFS agreed that recommended measures should be pursued, unless compliance with such measures is low. NMFS and the Coast Guard will develop proper monitoring methods and techniques to determine compliance with the measures. If there is non- or low compliance with the recommended measures, steps may be taken to pursue making them mandatory. The agreement by NMFS to proceed with recommended measures is based on an understanding that recommended measures are easier to implement, may be implemented more quickly, and that mariners generally accept and follow such measures.

## **VI. ROUTING MEASURES FOR THE STUDY AREA**

As previously discussed in the original PARS, the Coast Guard noted that NMFS mentioned in its ANPRM that it is considering recommending the establishment of an Area to be Avoided (ATBA) off of Great South Channel. The potential impact of this ATBA is that vessels transiting north and south which previously avoided using the TSS may begin to use the TSS because they would be prohibited or advised to avoid passing through the ATBA and could potentially have a shorter voyage through the TSS than by going around the ATBA and George's Bank to the east. These vessels would leave the lanes once past the boundaries of the ATBA. Right whales occupy the area north of the ATBA. (*See Merrick, 2005*). Therefore, it may be necessary to create additional routing measures such as another TSS or two-way route that would break off to the north from the existing TSS where the risk of right whale and vessel interaction may potentially be lower. Both NMFS and the Coast Guard will continue to investigate this possible shift in vessel traffic patterns and determine the validity and necessity of creating additional routing measures.

Because the proposed seasonal ATBA would overlap the existing TSS, it would then become necessary to amend the Boston TSS in that section that runs parallel to Cape Cod (north – south orientation). The amended TSS would consist of traffic lanes 1.5 nautical miles wide vice their current 2 nautical mile width. Based on advances in vessel navigation, the Coast Guard believes that 1.5 mile lanes would provide a sufficient margin of safety. The separation zone dimensions would remain the same. These dimensions will now be uniform throughout the entire length of the TSS in the approaches to Boston. Also, the current western edge of the TSS remains where it is currently located (figures 4 through 6).

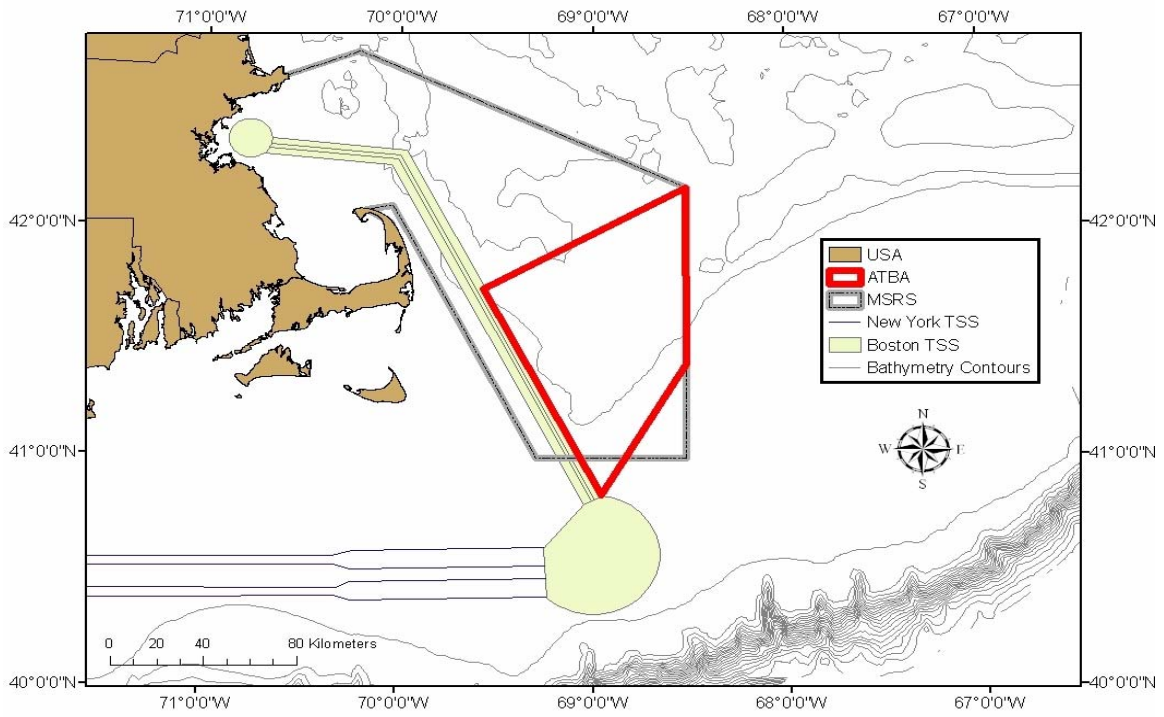


Figure 4. Proposed ATBA (in red). Note overlap with TSS.

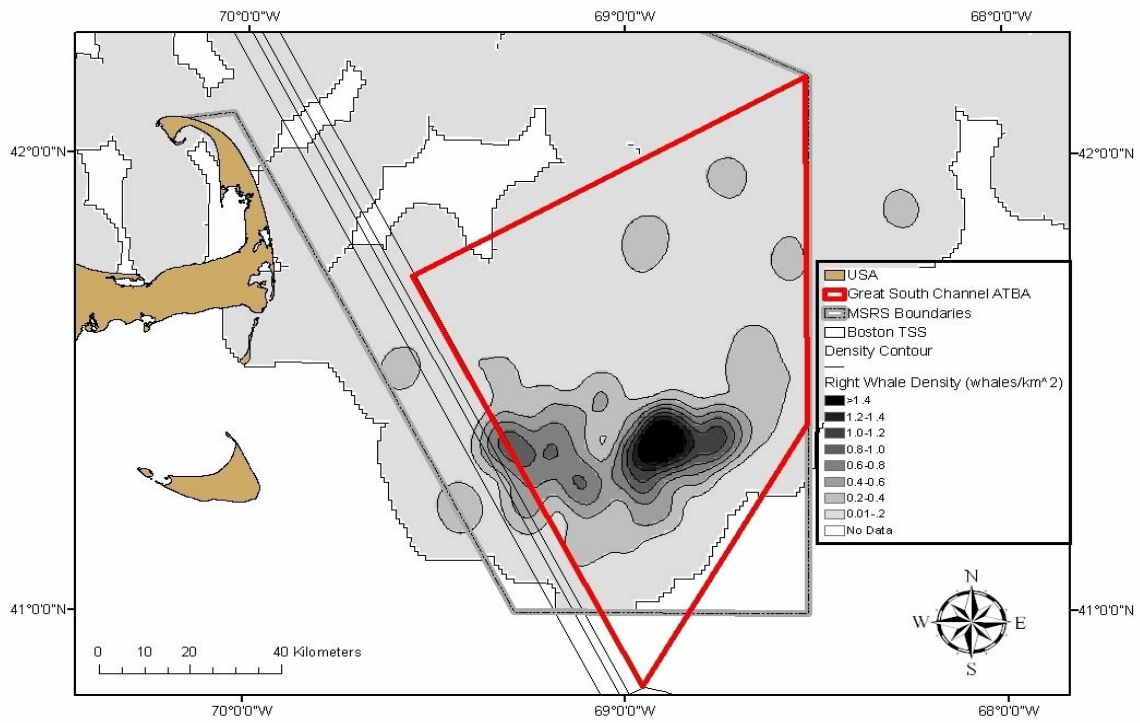
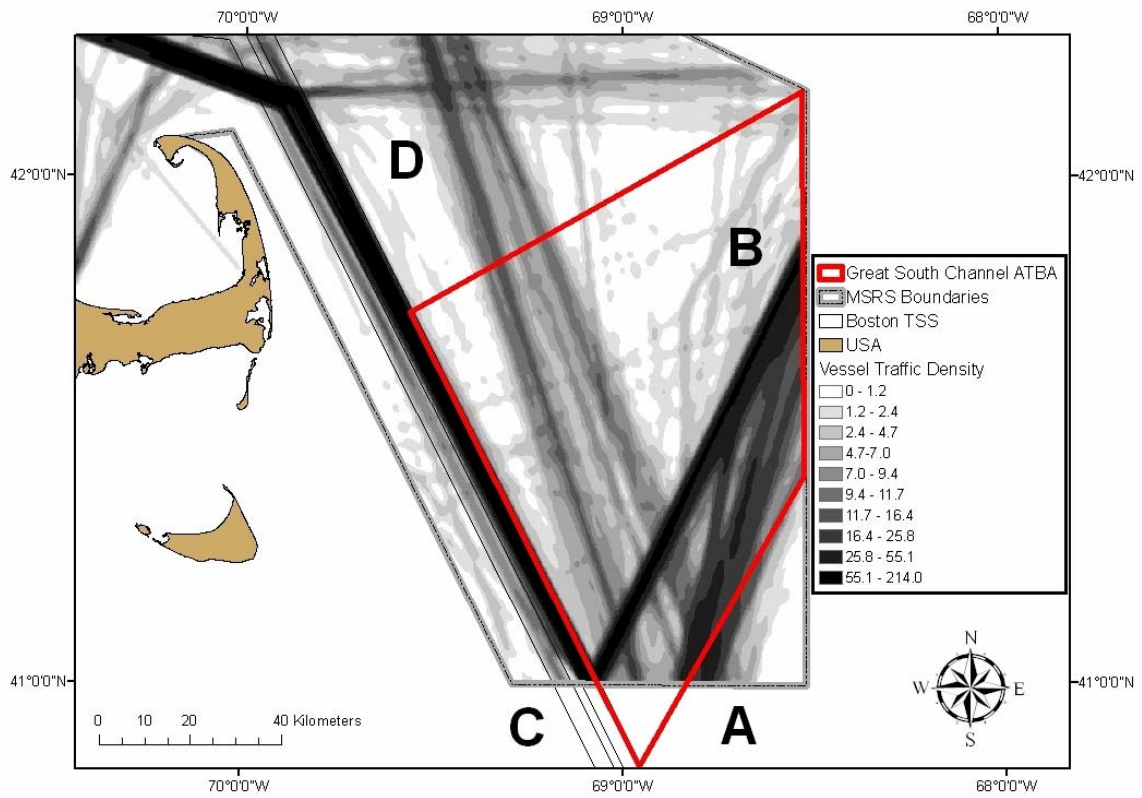


Figure 5. Proposed ATBA (in red) in relation to right whale density.



## **VIII. SUMMARY OF RECOMMENDATIONS**

The Coast Guard summarizes its recommendations as:

- Create a seasonal Area To Be Avoided (ATBA) as shown, and
- Amend the TSS in the Approach to Boston, MA.

## **IX. FUTURE ACTION ITEMS**

The following are action items that may be required as a result of this PARS:

- The U. S. Government will develop and submit to IMO documents for amending the Boston TSS and the establishing of the Great South Channel ATBA;
- USCG will publish a final notice of study results;
- Maritime community and other stakeholders to be advised of routing measures;
- Aids to navigation to be added, moved or removed to accommodate or mark new routing measures; and
- If any regulations are necessary, such regulations will be promulgated by the appropriate agency.

## **X. REFERENCES**

Merrick, R. 2005. Seasonal management areas to reduce ship strikes of Northern right whales in the Gulf of Maine. Northeast Fisheries Science Center.

Merrick, R., T. V. N. Cole. 2007. Evaluation of Northern right whale ship strike reduction measures in the Great South Channel of Massachusetts. Northeast Fisheries Science Center.

National Marine Fisheries Service. 2005. Recovery Plan for the North Atlantic Right Whale (*Eubalaena glacialis*). National Marine Fisheries Service, Silver Spring, MD.

NDC. 2004. Publications and U. S. waterway data CD. U. S. Army Corps of Engineers.

Russell, B. A. 2001. Recommended measures to reduce ship strikes of North Atlantic right whales.

Russell, B., A.R. Knowlton, J. B. Ring. 2003. Vessel traffic management scenarios based on recommended measures to reduce ship strikes of Northern right whales.

Ward-Geiger, L.I., G. K. Silber, R. D. Baumstark, T. L. Pulfer. 2005. Characterization of Ship Traffic in Right Whale Critical Habitat. *Coastal Management*, 33:263-278.