

ROUTEING OF SHIPS, SHIP REPORTING AND RELATED MATTERS

Amendment of the Traffic Separation Scheme “In the Approach to Boston, Massachusetts”

Submitted by the United States

SUMMARY

Executive summary:	This document sets forth a proposal to amend the north-south leg of the IMO-adopted traffic separation scheme “In the approach to Boston, Massachusetts” for consideration and approval, and forwarding to the Maritime Safety Committee for adoption. The objective of this proposed amendment is to narrow the lanes in this portion of the Boston TSS to be consistent with the width of the east-west lanes and thus significantly reduce the likelihood of ship strike deaths and serious injuries to North Atlantic right whales, while maintaining and improving maritime safety.
Action to be taken:	Paragraph 19.
Strategic Direction:	5.2
High-level Action:	5.2.4
Planned Output:	5.2.4.1
Related documents:	General Provisions on Ships’ Routeing, Eighth Edition, Regulation 10 of Chapter V of the International Convention on the Safety of Life at Sea, MSC 83/28, MSC 82/24, MSC 76/23, MSC 70(23), MSC 43(64), MSC 69/Inf. 21, MEPC 55/22, MEPC 40/Inf. 9, NAV 54/3/xx (Note to Secretariat: ATBA proposal), NAV 53/3/13, NAV 52/3/3, NAV 48/3/5, NAV 47/Inf. 2, NAV 44/3/1, NAV 27/3/2, NAV XIV/2(c)/3.

Introduction

1. The United States proposes to amend the traffic separation scheme “In the approach to Boston, Massachusetts” (Boston TSS or TSS) by narrowing the north-south lanes as set forth in Annex 1. A chartlet of this proposed amendment is attached to Annex 1. This proposal is

related to the U.S. proposal to establish an area to be avoided (ATBA) in the Great South Channel, NAV 54/3/xx, because the western boundary of the ATBA is directly adjacent to the TSS.

2. The International Maritime Organization originally adopted the Boston TSS in 1973. It was amended in 1983 to include a precautionary area at its seaward terminus to connect it to the TSS, "Off New York". It was again amended in 2006 to realign the east-west leg of the TSS and to narrow the width of each lane from two miles to a mile and a half. These amendments were adopted to significantly reduce the likelihood of deaths and serious injuries to right whales resulting from ship strikes. The Boston TSS includes two precautionary areas; a mile wide separation zone; and two traffic lanes, one on each side of the separation zone. While the traffic lanes in the east-west leg of the TSS have been narrowed to a mile and half each (with the mile wide separation zone in between), each of the traffic lanes in the north-south leg remain two miles wide.

3. The objective of this proposal is to make the traffic lanes of the Boston TSS a consistent width; therefore, it is proposed that the north-south traffic lanes be narrowed from two miles to a mile and half each consistent with the width of the east-west lanes. This narrowing of the lanes will also provide further protection to right whales from ship strikes because the lanes will be moved away from an area with a high density of right whales.

4. Right whales have long been the subject of international protection. The species is listed internationally as endangered on Annex I of the Convention on International Trade in Endangered Species of Wild Fauna and Flora and in the International Union for the Conservation of Nature's Red Book. Additionally, a group of international scientists, convened by the International Whaling Commission (IWC) to evaluate the status of right whales internationally, has recognized the urgent need for protective measures to prevent the demise of this species. Moreover, most recently, the report of the Ship Strikes Working Group of the IWC's Conservation Committee was submitted to the October 2006 meeting of the Marine Environment Protection Committee (MEPC) (MEPC 55/22). The MEPC agreed with the IWC's Working Group that the International Maritime Organization is the competent body to address ship strikes of cetaceans and invited delegations to submit proposals to relevant Committees and Sub-committees for consideration. This proposal is in accordance with that invitation.

Background

5. The North Atlantic right whale is one of the world's most endangered large whale species and is in serious jeopardy of extinction. Ship collisions are the greatest known source of human-induced mortality of this whale; such collisions are a major contributing cause to the decline of the right whale and a significant obstacle to the species' recovery. The right whale population is estimated to consist of less than 350 individuals¹ and has either declined in size or remained static since the 1980s.

¹ Waring GT, Josephson E, Fairfield CP, Maze-Foley K, editors. 2007. U.S. Atlantic and Gulf of Mexico Marine Mammal Stock Assessments (2006); NOAA Tech Memo NMFS NE 201, 378.

6. Right whales are especially vulnerable to ship strikes due to their distribution, behavior, and physical attributes. Right whales have a largely coastal, continental shelf distribution, thereby bringing them into contact with human population centers and major shipping lanes. They are highly buoyant and spend long periods resting at or just below the water's surface. Right whales may occur in surface active groups (*i.e.*, four to twenty individuals engaging in frequent physical contact and courtship behavior), and engage in skim feeding, in which they gather plankton by swimming slowly near the surface with their mouths open. During resting, feeding and surface active situations, whales may be unaware of approaching ships. Mothers nursing calves are frequently observed at the surface, and calves have limited diving capacities so they are the most vulnerable to ship strikes. Right whales are slow-moving, with occasional speeds of up to only five to six knots. They are also difficult for mariners to see, especially in rough seas and at night, due to their low profile and dark coloration. They are black in color, have a broad back, and no dorsal fin.

7. The right whale is primarily a coastal species and occurs seasonally in five high use areas—three off the eastern United States and two off southeastern Canada. Each area lies in or adjacent to major vessel traffic corridors. As depicted in Annex 2, there are a significant number of right whales that occur in the area of the north-south lanes of the Boston TSS during the four-month period from April 1st – July 31st. Therefore, a large portion of these lanes, as well as the area directly to the east of them, has been designated under U.S. law as habitat critical for the survival of right whales.

8. The risk of ship strikes of right whales has been well demonstrated. Massive wounds (*e.g.*, fractured skulls, severed tails) found on right whale carcasses suggest that collisions with large ships were responsible for the deaths. Two right whales, on average, are known to be killed or seriously injured each year as a result of collisions with ships. During a 15 month period from February 2004 to April 2005, at least four adult females—three of which were carrying near term fetuses—were killed by ship strikes. The loss of these reproductive females is significant, particularly because two of them were at the beginning of their calf-bearing years. Necropsies performed on right whales have shown that over 50% of deaths can be attributed to ship strikes; however, the actual number of deaths from ship strikes is almost certainly higher because many deaths likely go unrecorded as carcasses drift out to sea or the cause of death is undetermined.

9. Since the establishment of the TSS in 1973, extensive research has been conducted that demonstrates and supports the need for narrowing the north-south lanes of the TSS to help protect right whales from collisions with ships. Studies based on this research show that there is a significant overlap between the areas where right whales commonly occur in high densities and the existing north-south lanes. Annex 2 contains a density map of right whales relative to these lanes which is based on research conducted from 1999-2005. This large density of whales is generally during the four month period from April 1st – July 31st when large concentrations of right whales' preferred prey, copepods, are found in this area. Copepods are concentrated in this area because of sea floor bathymetry, water convergences driven by tidal currents, and other oceanographic features. The density map shows that the easternmost lane currently overlaps the area with the greatest density of whales. Narrowing the width of each lane by a half mile, while retaining the western boundary of the TSS and the width of the mile wide separation zone, would

result in moving the ships one mile away from the greatest density of whales and would minimize the overlap between this area of high densities of whales and ships.

10. A public process and a number of consultations, public hearings, workshops, and industry and stakeholder meetings with regard to the issue of ship strikes of right whales in general, and the proposed amendment of the TSS in particular, have been undertaken with representatives from the shipping industry, master mariners, the Massachusetts Port Authority, harbor pilots, environmental interests, marine mammal researchers, and representatives from federal, state, and local governments. These stakeholders' concerns were carefully considered and taken into account in the development of this TSS amendment proposal, including the impact on industry and the protection of right whales. The United States Coast Guard also conducted a Port Access Route Study in which various options for routing measures were considered as well as the impact on maritime safety of this proposed measure. Additionally, by using information gained from the U.S. Northeast Mandatory Ship Reporting System (MSR),² it was possible to take into account the burden on, and practical navigation aspects for, the shipping industry.

Traffic considerations

11. The TSS was established to facilitate the safe movement of ships into and out of Boston Harbor. Ships may use the TSS when entering and departing port. The TSS is recommended for use by all seagoing vessels, but is not necessarily intended for use by tugs, tows, or other small vessels that traditionally operate outside the usual steamer lanes or close to the shoreline. It is composed of a continuous inbound and outbound traffic lane and separation zone, with one course alteration east of the northern tip of Cape Cod.

12. There are approximately 1,000 seagoing ships that call on the port of Boston annually, including bulk carriers, container ships, passenger vessels, barges, cargo ships, and tankers. Data obtained from the MSR provides an estimate that in the Boston TSS there are 36 voyages (inbound and outbound) per month or 432 voyages per year.

13. The proposed TSS amendment is supported by adequate hydrographic surveys and charts of the area and appropriate aids to navigation are in place. There is also complete differential GPS coverage and LORAN-C coverage. With respect to environmental conditions, the weather in the Boston area is variable. Fog is prevalent throughout the year and ice rarely forms in the main shipping channel.

Proposal

14. This proposal seeks to amend the north-south lanes of the Boston TSS to narrow the width of each of the lanes from two miles to a mile and a half; however, the western boundary of

² In 1998, the Maritime Safety Committee approved the establishment of two Mandatory Ship Reporting systems off the U.S. east coast, one in the northeast United States (off the coast of Boston and Cape Cod) and one in the southeast United States (off the coasts of Georgia and Florida). Ships of 300 gross tons and above are required to participate in these systems when they cross into the reporting system and report such things as course, speed, entry into system, destination, and route. In response to a ship's report, the shore-based authority sends information to assist mariners navigating through the area, such as the latest known location of the whales and other guidance on ways to avoid a ship strike.

the TSS and the width of the mile separation zone would remain unchanged. There are several reasons for this amendment. First, it would move ships away from the greatest density of whales and minimize the overlap between this area of high densities of whales and ships. Second, this amendment would make the width of the north-south lanes of the Boston TSS consistent with the width as the east-west lanes (the dimensions of the TSS would therefore be consistent throughout its entire length), thereby potentially increasing compliance through uniformity and avoiding potential confusion by mariners as to where the rules of the TSS apply. No problems have been reported by ships using the amended east-west lanes. Third, there are no adverse implications for maritime safety, because ships' navigational capabilities have become much more refined since this TSS was originally established in 1973. Moreover, nothing in the historical records indicate that these lanes must remain at their current width. Finally, the United States has compared the proposed width of these lanes with the width of other TSS lanes globally and the proposed width is consistently uniform with other TSSs approved by this Subcommittee.

15. The burden imposed on shipping by this proposed amendment is minimal while the benefits for right whale protection are significant. The narrowing of the lanes, especially the inbound lane, results in a slight reduction of travel time (approximately four and a half minutes) and distance (approximately 1 nautical mile).

16. Maritime safety considerations have been carefully taken into account in the development of this proposal, in particular through a Port Access Route Study conducted by the U.S. Coast Guard which considered various alternatives and scenarios. Maritime safety should increase because of a decrease in the potential for any damage to a ship from hitting a large whale and also, if there is a decrease in ship encounters with whales, there will be a decreased chance of collisions between a ship taking avoidance action and another vessel. Additionally, maritime safety should be furthered because by making the TSS a consistent width, any potential confusion will be avoided regarding where the rules of the TSS apply.

Additional Actions Taken by the United States

17. The United States has taken a number of steps to identify and implement measures to reduce ship strikes of right whales. One important action that is directly relevant to this proposal was the adoption in 2006 of the U.S. proposal to amend the east-west portion of the Boston TSS by realigning and narrowing the lanes. Another important action was the adoption of the U.S. proposal by IMO in 1998 to establish two mandatory ship reporting systems (MSRs) which educate mariners about the threat of ship strikes and provide them with the last known location of right whales as well as other guidance on ways to avoid a ship strike.

18. Other steps that have been taken include the examination and identification of relevant information and management options. These options have formed the basis for the development of a Right Whale Ship Strike Reduction program, which addresses such issues as research and development of technologies to reduce the risk of ship strikes, a merchant mariner education and outreach program, and targeted operational measures. Guidelines for measures mariners may take to avoid right whales are now published in various navigational aids such as U.S. Coast Pilots, Notices to Mariners, Sailing Directions, and Admiralty Publications and broadcast over VHF radio by NOAA weather radio and U.S. Coast Guard facilities. Information brochures,

placards, and computer CDs are also being distributed to mariners. A combination of aerial and vessel surveys are conducted seasonally to attempt to locate right whales so that this information can be provided through various telecommunication networks to mariners operating in the vicinity of whales. These surveys unfortunately locate only a small percentage of the whales, information from surveys remains valid only for a short time because the whales move, and the surveys cannot be conducted at night or in poor weather. Despite these limitations, the surveys are the best means currently available for detecting the location of the whales and thus provide valuable information to mariners.

Action Requested of the Sub-Committee

19. The Sub-committee is requested to approve the proposed amendment to narrow the north-south lanes of the TSS in the Approach to Boston, Massachusetts as set forth in Annex 1 and forward the proposal to the Maritime Safety Committee for adoption. The United States requests that the effective date of implementation would be six months after adoption.

ANNEX 1

IN THE APPROACH TO BOSTON, MASSACHUSETTS

(Reference charts: United States 13009 (2007 edition); 13200 (2007 edition. *Note*: These charts are based on North American 1983 Datum which is equivalent to WGS 1984 datum.)

Description of the traffic separation scheme

(a) A separation zone, one mile wide, is centered upon the following geographic positions:

(1) 42°20'.74 N	070°39'.06 W	(3) 40°49'.24 N	069°00'.78 W
(2) 42°18'.29 N	070°01'.18 W		

(b) A traffic lane for northbound traffic is established between the separation zone and a line connecting the following geographical positions:

(4) 40°50'.46 N	068°58'.60 W	(6) 42°22'.69 N	070°38'.61 W
(5) 42°20'.16 N	069°59'.47 W		

(c) A traffic lane for southbound traffic is established between the separation zone and a line connecting the following geographical positions:

(7) 42°18'.82 N	070°40'.49 W	(9) 40°48'.03 N	069°02'.95 W
(8) 42°16'.39 N	070°02'.88 W		

Precautionary areas

(a) A precautionary area of radius 6.17 nautical miles is centered upon geographical position 42°22'.71 N, 070°46'.97 W.

(b) A precautionary area is bounded to the east by a circle of radius 15.5 miles, centered upon geographical position 40°35'.01 N, 068°59'.96 W, intersected by the traffic separation schemes “In the approach to Boston, Massachusetts” and “Eastern Approach, Off Nantucket” (part II of the traffic separation scheme “Off New York”) at the following geographical positions:

(4) 40°50'.46 N	068°58'.60 W	(11) 40°23'.75 N	069°13'.95 W
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The precautionary area is bounded to the west by a line connecting the two traffic separation schemes between the following geographical positions:

(9) 40°48'.03 N	069°02'.95 W	(10) 40°36'.76 N	069°15'.13 W
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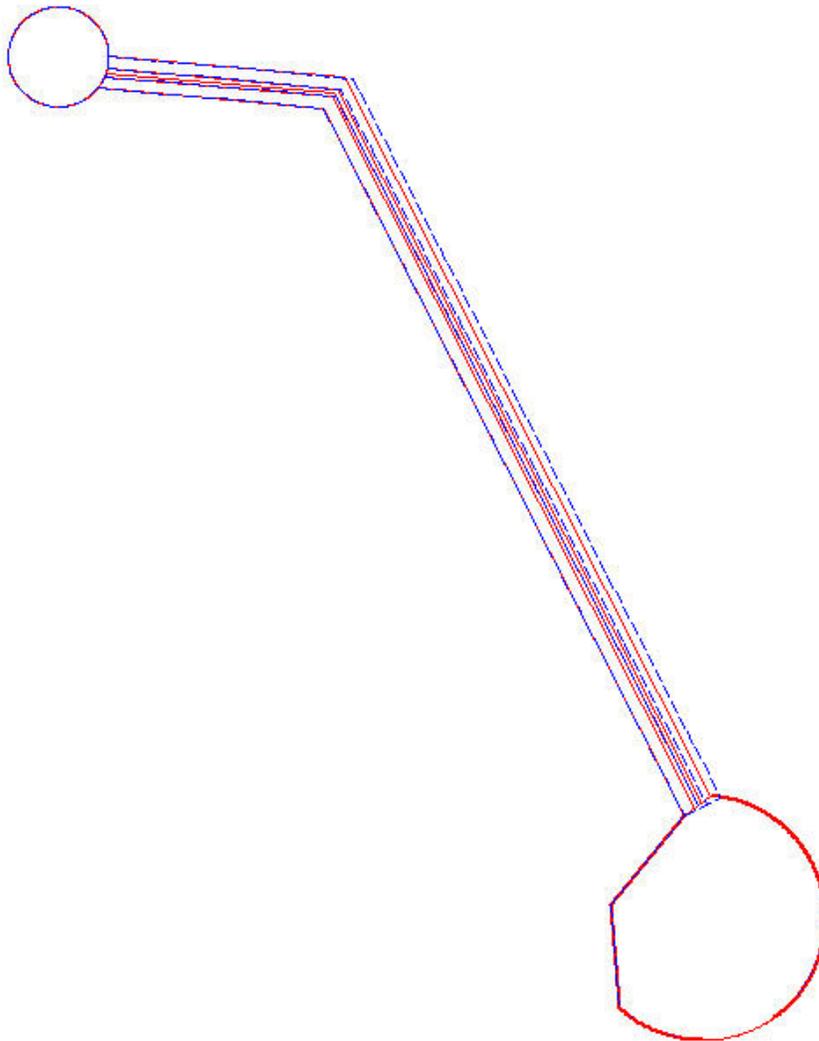
ANNEX 1

CHARTLET

Proposed Revision to Boston TSS

New Separation Zone and Lanes Shown in Red

Original Separation Zone and Lanes Shown in Dashed Blue



ANNEX 2

Seasonal Management Areas and Right Whale Sighting Densities For Northeast U.S. Waters: 1999-2005

