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ROUTEING OF SHIPS, SHIP REPORTING AND RELATED MATTERS

Amendment of the Traffic Separation Scheme in the Bay of Fundy and Approaches

Submitted by Canada

SUMMARY

Executive summary:	This document sets forth a proposal to amend the IMO-adopted traffic separation scheme (TSS) in the Bay of Fundy and approaches for consideration and approval and forwarding to the Maritime Safety Committee for adoption. The purpose for amending the TSS is to reduce ship strikes of the highly endangered North Atlantic Right Whale by shifting the traffic lanes of the TSS from an area with the highest density of Right Whales to an area where there is a lower density
Action to be taken:	Paragraph 6
Related documents:	Ships' Routeing, Seventh Edition, NAV 45/INF.3 (Canada) on Ship Strikes of Endangered North Atlantic Right Whales in the Waters of Eastern Canada

1 Introduction

1.1 The Government of Canada proposes to amend the traffic separation scheme (TSS) in the Bay of Fundy and approaches as set forth in annex 1. The International Maritime Organization originally adopted this TSS in 1982 and it came into effect on 1 June 1983. The TSS provides for the separation of traffic between the southeastern entrance to the Bay of Fundy and the Port of Saint John, New Brunswick and organizes the traffic through an area extensively used for fishing. The TSS is located entirely within Canada's territorial waters and is mandatory for all vessels in accordance with the Collision Regulations. The existing system consists of a continuous inbound and outbound traffic lane and a separation zone. There is a single course alteration between a southern segment, passing through the southeastern entrance to the Bay, and a northern segment, crossing the Bay to the Port of Saint John.

1.2 Since the establishment of this TSS, extensive research has been compiled that shows the need for making changes to the TSS to help protect the North Atlantic Right Whale population. Research has shown that the TSS runs through the middle of critical Right Whale habitat where the risk of ships colliding with a Right Whale is greatest. Ship related mortality and injury to the Right Whale are considered significant obstacles to the successful recovery and viability of the North Atlantic Right Whale population, particularly in light of its small size and low birth rates.

The objective of the proposed amendment to the TSS is, therefore, to organize the traffic flow in and around an environmentally sensitive area where Right Whale densities are greatest, while maintaining the same level of safety provided by the existing TSS. As a result, safety will be maintained and the likelihood of ship-whale interactions will be significantly reduced, resulting in less ship strike mortalities and serious injuries to the Right Whales.

2 Background

2.1 The impact of ship strikes on Right Whales has been well documented. Massive wounds (e.g., fractured skulls, severed tails, and large propeller slashes) found on Right Whale carcasses confirm that collisions between the whales and large ships have been responsible for a number of deaths. Between 1970 and 1999, 36% of all Right Whale mortalities documented by whale biologists have been attributed to ship strikes. Since 1991, 56% of confirmed Right Whale mortalities have been attributed to ship strikes; this represents 50% of the total Right Whale deaths over the last decade. The actual total number of deaths resulting from ship strikes is unknown, however, it is almost certainly higher than the observed number.

2.2 Considerable research has been conducted over the last 20 years on the aggregation of the highly endangered North Atlantic Right Whale in the Bay of Fundy. At present, the entire Right Whale population in the western North Atlantic is estimated to consist of no more than 350 whales. Over two-thirds of the known population is found in the Bay of Fundy area during the northern hemisphere's summer and fall months (June through November). Density maps based on sighting data reveal that there is a significant overlap between the outbound traffic lane of the TSS and the area where the highest density of Right Whales is known to be. Two research projects completed in 2001 assessed the probability of ship-whale collisions in the Bay of Fundy. Both projects identified the area of greatest risk as being within the outbound lane of the existing TSS. Annex 2 provides a clear picture of the co-occurrence of the highest densities of Right Whales and the existing traffic lanes. One study estimated that a shift in the existing TSS by 3.9 miles to the east would reduce the maximum relative probability of a vessel whale encounter by as much as 80%. In light of the above, a change to the TSS is deemed necessary to increase protection of the endangered Right Whales and reduce the risk of ship whale collisions.

3 Traffic considerations

3.1 About 800 vessels use the TSS annually. The TSS was established to accommodate the heavy traffic to and from the Port of Saint John, located at the northern end of the TSS. More than 600 vessels and over 19 million tonnes of cargo pass through the port each year. The Port of Saint John is a major shipping port in eastern Canada for crude and refined oil products. Tankers are the main vessel type using the TSS. For example, in the year 2001, 23 million tonnes of oil was transported through the TSS in ships as large as 350,000 dwt. Bulk carriers, tugs, cruise ships, container ships and government vessels are also frequent users of the TSS.

3.2 Although Saint John traffic represents the vast majority of traffic in the Bay and the largest ships, there are 3 other ports that have regular, but far less frequent traffic. These are the ports of Bayside (New Brunswick) and Eastport (Maine) both located to the west of Saint John and north of Grand Manan Island, and the port of Hantsport (Nova Scotia), located at the far end of the Bay. The ports of Bayside and Eastport traffic have an estimated combined total of about 100 ships calling each year (60 and 40 ships respectively) and Hantsport has about 110 ships per year. Ships destined for these ports follow the southern segment of the TSS through the southeast entrance of the Bay, but then depart from the TSS as they follow a more northerly course (Bayside and Eastport traffic) and easterly course (Hantsport traffic) to their destination. The reverse is true for the outbound traffic from these ports. The routes followed by the Bayside

and Eastport traffic also passes through the middle of the area of greatest Right Whale density. In addition to these main commercial shipping patterns, operating throughout the area are fishing vessels, research ships, whale watching boats, and recreational craft.

3.3 The amendment being proposed to the TSS is supported by adequate hydrographic surveys and charts of the area and appropriate aids to navigation are in place. There is a vessel traffic services system in operation for the Bay of Fundy and participation is mandatory for all ships more than 20 metres in length. Furthermore, there is complete differential GPS coverage and LORAN-C coverage.

3.4 With respect to marine environmental conditions, the Bay of Fundy has strong tidal streams and prevalent fogs. The Bay of Fundy is considered ice-free since the strong tidal action and vertical mixing prevent significant ice formations.

4 Proposal

4.1 The proposed amendment to the TSS consists of three main modifications: 1) the relocation to the northeast of the course alteration point by extending the southern segment; 2) the consequential re-alignment of the northern segment with the approaches to the Port of Saint John; and 3) the establishment of an entry/exit junction with traffic lanes and a separation zone for traffic going to and returning from the ports of Bayside and Eastport. Implementing these changes will shift the traffic lanes of the northern segment to the east through areas where the population density of Right Whales is considerably lower. Although the combined traffic to Bayside and Eastport is only about 100 ships per year, a junction was considered necessary to direct this traffic around and to the north of the Right Whale area.

4.2 Annex 1 provides the geographic coordinates and reference chart information of the proposed amendment to the TSS. A chartlet of the proposed amendment to the TSS superimposed on the existing TSS is provided in annex 3. An additional chartlet (annex 4) shows the relationship between the proposed amendment to the TSS and the density of Right Whales.

4.3 In developing the proposed changes to the TSS, several different route scenarios were evaluated for their effectiveness at reducing the probability of ship whale interaction. At the same time, consideration was also given to the implications for fisheries and other whale populations. A number of alternative routes were also assessed from a navigation perspective. Involved in the discussions on the proposed changes were representatives from the shipping and fishing industry, the Saint John Port Authority, Canadian Coast Guard, Transport Canada Marine Safety, Canadian Hydrographic Service, and a number of biologists, researchers, master mariners and pilots.

4.4 In addition to effectively directing a safe traffic flow around an environmentally sensitive area, the proposed amended TSS will be as effective as the existing TSS at providing a safe and efficient passage for ships. Fishing vessels, whale watching vessels and other vessels operating throughout the area will continue to benefit from the organization of shipping traffic through the Bay. The impact on shipping will be minimal. For Saint John traffic, the revised TSS will add 5 miles to their route, and for the Bayside and Eastport traffic, 11 miles.

5 Measures taken to date

5.1 A Right Whale Conservation Area has been designated in the Grand Manan Basin of the Bay of Fundy where the Right Whale densities are greatest. This conservation area is the whales' primary feeding area for the summer and fall months and covers an area of 15 by

12 nautical miles. The outbound lane of the TSS directs ship traffic through this area of highest Right Whale density.

5.2 The Canadian Notices to Mariners annual edition also provides detailed information about Right Whales in the Bay of Fundy and Roseway Basin conservation areas with precautionary measures for reducing the risk of an interaction. Detailed information is now available on the back of Canadian Hydrographic Charts 4011 and 4012.

5.3 The Department of Fisheries and Oceans Canada has distributed educational materials to mariners through harbour pilots in Saint John, New Brunswick and Halifax, Nova Scotia. The purpose of the program is to provide vessel operators with the latest data on where Right Whales are located and practical advice on how to avoid collisions.

5.4 Vessel captains transiting the Bay of Fundy receive regular advisories on Right Whale locations seasonally from June through November through Saint John vessel traffic services (Fundy Traffic). These advisories are based on periodic vessel surveys.

5.5 Other efforts include the distribution of brochures, flyers, videos, and other information to mariners on the endangered status of the Right Whale and precautionary measures to avoid collisions. Workshops have also been conducted with representatives of the shipping community, whale biologists, environmental groups, and government agencies to examine relevant information and management options. As well, a Canadian Recovery Plan for the North Atlantic Right Whale has been developed.

5.6 While these efforts are helpful for reducing ship strikes of Right Whales, their effectiveness is limited. For example, the periodic vessel surveys are difficult or impossible during bad weather or at night, and even during good sighting conditions whales are often missed. Efforts are ongoing to determine better ways to locate the whales and address the issue of ship strikes.

6 Action requested of the Sub-Committee

The Sub-committee is asked to approve this proposal for an amendment of the traffic separation scheme in the Bay of Fundy and approaches as set forth in annex 1 and forward the proposal to the Maritime Safety Committee for its adoption. Canada requests that the effective date of implementation be six months after adoption.

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ANNEX 1

IN THE BAY OF FUNDY AND APPROACHES

(Reference charts: Canadian Hydrographic Service L/C-4011, 2001 edition.
Note: This chart is based on North American 1983 Geodetic Datum.)

Description of the traffic separation scheme
The traffic separation scheme "In the Bay of Fundy and Approaches" consists of two parts.

Part I

(a) Three separation zones bounded by lines connecting the following geographical positions:

(i)	(1) 44°46'.40 N,	66°14'.39 W	(4) 44°11'.83 N,	66°49'.55 W
	(2) 44°31'.85 N,	66°19'.60 W	(5) 44°30'.70 N,	66°17'.20 W
	(3) 44°14'.95 N,	66°52'.70 W	(6) 44°45'.90 N,	66°11'.68 W
(ii)	(7) 44°48'.32 N,	66°13'.65 W	(9) 44°46'.88 N,	66°11'.30 W
	(8) 44°47'.33 N,	66°14'.00 W	(10) 44°47'.86 N,	66°10'.95 W
and (iii)	(11) 45°02'.5 N,	66°08'.25 W	(13) 44°48'.80 N,	66°10'.58 W
	(12) 44°49'.3 N,	66°13'.30 W	(14) 45°02'.00 N,	66°05'.55 W

(b) A traffic lane for north-eastbound traffic is established between the separation zones and a line connecting the following geographical positions:

(15) 44°09'.50 N,	66°47'.05 W	(17) 45°01'.50 N,	66°02'.80 W
(16) 44°29'.60 N,	66°14'.75 W		

(c) A traffic lane for south-westbound traffic is established between the separation zones and lines connecting the following geographical positions:

(i)	(18) 45°03'.00 N,	66°11'.00 W	(19) 44°49'.80 N,	66°15'.98 W
and (ii)	(20) 44°46'.90 N,	66°17'.00 W	(22) 44°17'.35 N,	66°55'.17 W
	(21) 44°33'.00 N,	66°22'.00 W;		

Part II

(d) A separation zone bounded by a line connecting the following geographical positions:

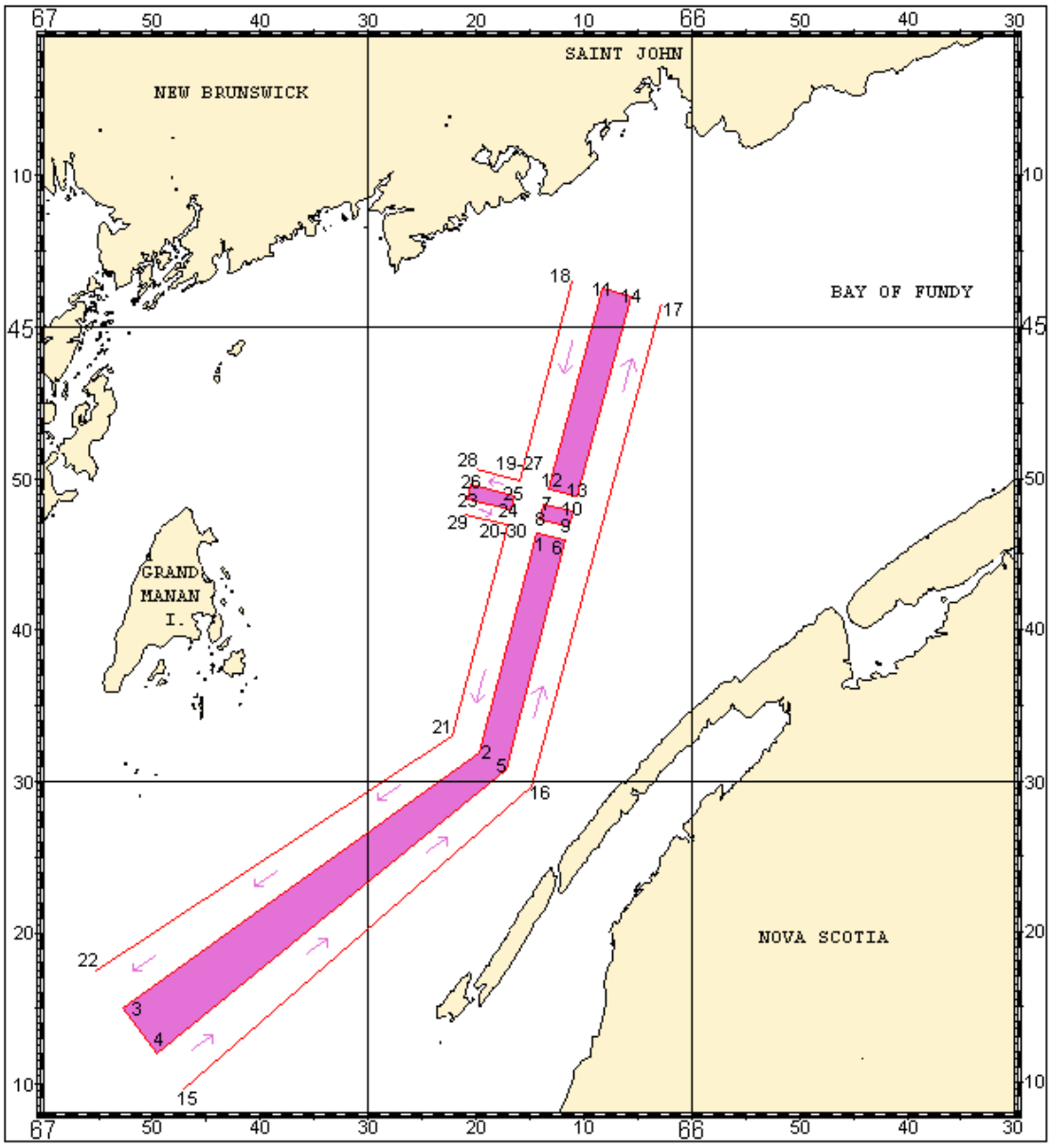
(23) 44°48'.60 N,	66°20'.72 W	(25) 44°48'.88 N,	66°16'.35 W
(24) 44°47'.90 N,	66°16'.70 W	(26) 44°49'.58 N,	66°20'.40 W

(e) A traffic lane for north-westbound traffic is established between the separation zone and a line connecting the following geographical positions:

(27) 44°49'.80 N,	66°15'.98 W	(28) 44°50'.58 N,	66°20'.05 W

(f) A traffic lane for south-eastbound traffic is established between the separation zone and a line connecting the following geographical positions:

(29) 44°47'.65 N,	66°21'.10 W	(30) 44°46'.90 N,	66°17'.00 W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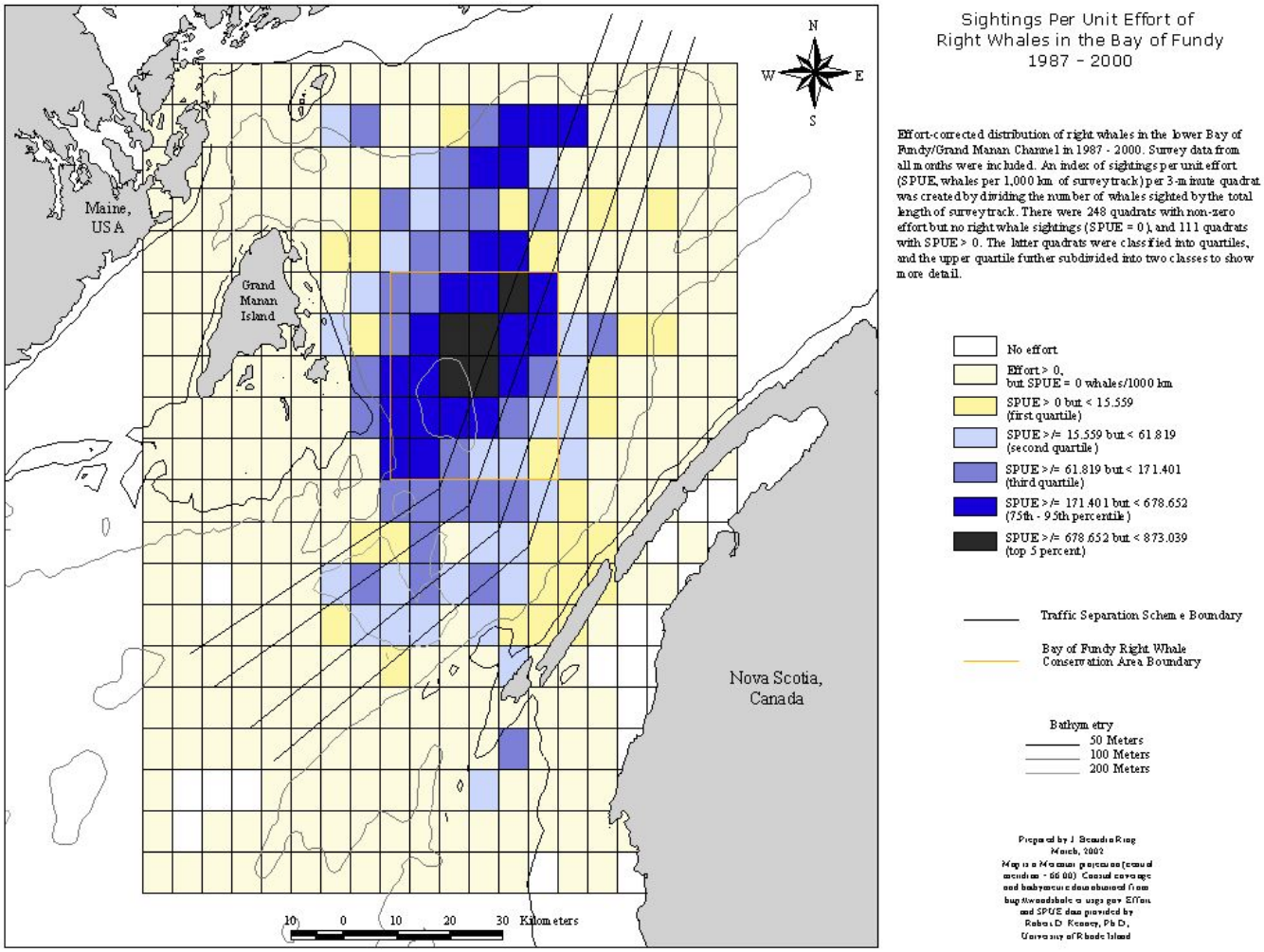
ANNEX 2

Chartlet showing density of Right Whales and existing traffic lanes



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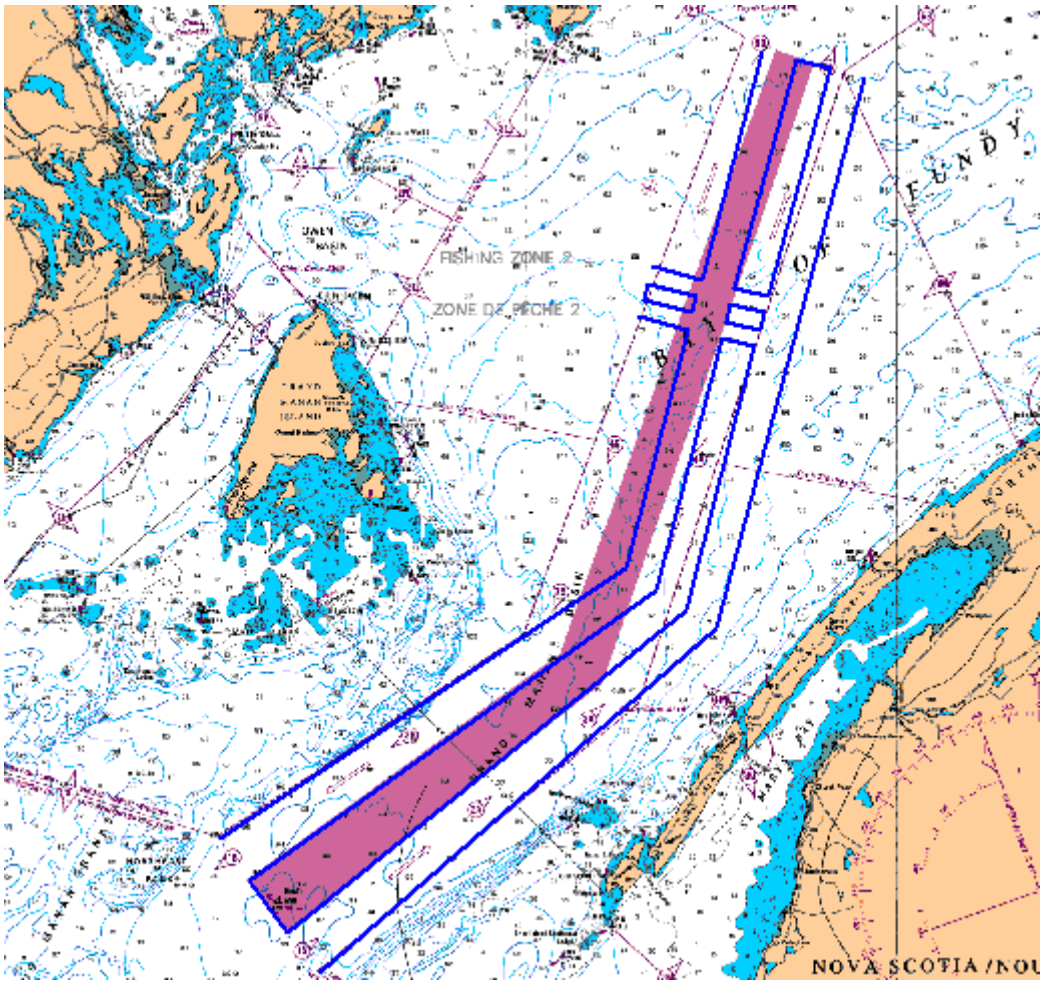
ANNEX 3

Chartlet showing the proposed amendment to the TSS superimposed on the existing TSS



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ANNEX 4

Chartlet showing proposed amendment to the TSS and the density of Right Whales