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COMMUNICATIONS AND SEARCH AND
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Agenda item 3

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ROUTING MEASURES AND MANDATORY SHIP REPORTING SYSTEMS

Establishment of three new areas to be avoided in the Bering Sea

Submitted by the United States

SUMMARY

Executive summary: This document contains a proposal to establish three areas to be avoided in the Bering Sea

Strategic direction: 5.2

High-level action: 5.2.4

Output: 5.2.4.1

Action to be taken: Paragraph 34

Related documents: Resolution A.572(14), as amended; MSC.1/Circ.1060 and MSC.1/Circ.1060/Add.1

Introduction

1 This document is a proposal by the United States to establish three recommendatory areas to be avoided (ATBA) in the Bering Sea to improve safety of navigation, protect this fragile and unique environment, and facilitate the ability to respond to maritime emergencies. These areas to be avoided will be complemented by two-way routes and precautionary areas which is the subject of a separate document (NCSR 5/3/7).

2 Details of the ATBA are as follows:

- .1 chartlets and a general description of the areas to be avoided are set out in annex 1;
- .2 the names, numbers, editions and geodetic datum of the reference charts used to delineate the areas to be avoided are set out in annex 2; and
- .3 the geographical coordinates that define the areas to be avoided are set out in annex 3.

Summary

- 3 The objectives for submitting the proposed areas to be avoided are to:
- .1 increase ship safety by mitigating the heightened risk created from increasing traffic and shipping activity by maintaining a safe distance between ships and the shoreline;
 - .2 help ships avoid numerous shoals, reefs and islands, particularly where the areas have not been surveyed thoroughly;
 - .3 reduce the risk of shipping accidents and incidents;
 - .4 provide more time to mount a response to a developing maritime emergency e.g. a ship suffering breakdown of its propulsion machinery;
 - .5 prevent and reduce the risk of pollution or other damage to the marine environment, including national and international recognized habitat and species; and
 - .6 avoid the key areas of fishing activities and avoid the presence of subsistence activities.

4 The recent increase in economic activity in the Arctic will lead to an increased impact on the natural environment of the Arctic region. At the same time, potentially increased commercial shipping in the Arctic waters may represent a significant risk of contamination of the sensitive marine environment. Therefore, the establishment of new recommendatory areas to be avoided aims to reduce the potential negative impact on the environment of the Arctic and the risks of environmental accidents and disasters in consequence of marine casualties.

5 The demonstrated need for the establishment of the proposed areas to be avoided is determined by the fact that over the preceding decade the United States has observed and responded to a steady increase of interest in Arctic shipping activities which can be attributed to the reduction of ice in the Arctic Ocean and Chukchi Sea.

6 During the summer of 2007 a record was set for minimum sea-ice coverage in the Arctic which spawned increased interest in the Arctic and Sub-Arctic regions. Since then, international attention has been focusing on a changing Arctic and the potential for increased natural resource exploration as well as the possibility that shorter transit shipping routes could become more viable. The minimum summer sea-ice coverage record was broken again in 2012, furthering interest in natural resource exploration in the Arctic, as well as commercial and recreational use of the Bering Sea and Bering Strait as the main access route to or from these Arctic waters.

7 This interest has manifested itself as increased cargo traffic, passenger vessel traffic, adventure tourism traffic, oil and gas exploration, and research and scientific activities. This upward trend in vessel traffic brings with it an increased likelihood of maritime casualties such as sinking, groundings, collisions, oil discharges and hazardous material releases, which in turn threaten the vulnerable marine environment, which is home to many endangered species and in which remote indigenous communities rely heavily on traditional subsistence activities.

- 8 The proposed areas to be avoided are preferred because they:
- .1 are appropriate for domestic and international waters;

-
- .2 have a defined width/size and clearly delineated boundaries. This helps make it clearer to the navigator where recent hydrographic survey data has been gathered; and
 - .3 would not limit access to areas used for either commercial fishing or subsistence activities.

9 The proposed areas to be avoided will apply to ships 400 gross tonnage and above, as a review of traffic patterns demonstrated these are the ships that will operate in the Bering Sea near the vicinity of the ATBA.

Description of the area

10 The location of the proposed ATBA and associated chartlets are set out in annex 1. The names, numbers, editions, and geodetic datum of reference charts used to delineate the routing measures are set out in annex 2. The geographical positions of the routing measures are set out in annex 3.

Cooperation between States

11 The proposal has been developed solely by the United States since the areas to be avoided are located in the United States territorial sea and exclusive economic zone. Nevertheless, given that the Bering Sea is used by a wide variety of nationalities of ships and sees usage by ships from many different nations, the United States considers it important for the areas to be avoided to gain worldwide recognition through adoption by the International Maritime Organization.

12 The United States conducted significant outreach to users of the Bering Sea and coordinated with Federal and State agencies federally recognized tribes and tribal organizations, and foreign State entities as appropriate and considered the views of maritime community representatives, environmental groups, and other interested stakeholders.

Traffic considerations

13 Existing patterns and density of traffic flow are shown based on AIS data collected between full calendar years 2014 and 2015. Annex 4 provides a table of transit segment data for all ships 400 gross tonnage and above, except fishing vessels, and two maps. Both the maps and the table of transit segments come from the same AIS data set. The first map is a heat map, which generalizes the traffic patterns into a series of graduated colours to show frequency of occurrence. The second map displays all recorded transit segments without any generalization or editing. The unedited map offers visual granularity, but in highly trafficked areas, traffic patterns can become indiscernible. Careful review of both map types will offer the best perspective on transit trends. The accompanying table of data shows the quantity of transit segments recorded for each vessel type. A transit segment is not the precise number of ships for that type, but rather the total number of transit segments recorded for the given ship type.

14 There are no existing aids to navigation associated with the proposed areas to be avoided nor are any proposed at this time.

15 The eastern Bering Sea is a relatively shallow body of water with average depths ranging from 6 to 75 metres. These shallow depths offer minimal under keel clearances as compared to the waters surrounding the western Aleutian Islands and North Pacific Ocean where offshore water depths are well over 900 metres in depth. The shallow depths of the eastern Bering Sea are especially problematic for mariners because some nautical charts for

this area are utilizing hydrographic data obtained over 100 years ago with a leadline at spacing intervals in excess of a mile apart. The shallow water of the Bering Sea along with the outdated hydrographic quality caused the United States to take a conservative approach in the development of routing systems for the area.

16 Fishing vessel activity in the Bering Sea region is quite high and stands as the most prevalent use of the waterway. The 60,925 transit segments associated with fishing vessels represent 52% of the total. While fishing vessels do transit all portions of the Bering Sea, the southern and central Bering Sea and Bristol Bay region sees the highest concentrations of fishing vessel activity, which is concentrated on shallower and more productive fishing grounds. The fishing vessels operating in this area represent a regional fishery of national significance with nearly two million metric tons of fish caught annually and an overall economic impact of around \$5 billion. The majority of the vessels within the fishing industry are small in size compared to other commercial traffic.

17 There are no drilling rigs, exploration platforms or other offshore structures that currently or may exist in the vicinity of this proposed routing system.

18 There are no foreseeable changes in the traffic pattern because of port or offshore terminal development.

Position-fixing in relation to the routing system

19 The following position-fixing aids are available in the area and may be visible based on weather conditions and ships' height of eye:

- .1 Sledge Island Light: FI W 6s 7M;
- .2 Cape Rodney Light: FI W 4s 7M;
- .3 Point Spencer Light: FI W 6s 7M;
- .4 Cape Mohican Light: FI W 6s 7M; and
- .5 Cape Etolin Light: FI W 6s 6M

20 The proposed routing measures are within various radio-navigation satellite services and AIS coverage.

Marine environmental considerations

21 The following environmental factors may affect the shipping in the vicinity of the proposed areas to be avoided:

- .1 the possibility of ice conditions in some areas of the Bering Sea; and
- .2 heavy weather conditions, especially to those ships that lose partial or all mobility due to a ship casualty such as loss of power.

22 Nunivak Island is the second largest island in the Bering Sea and is located about 30 miles offshore from the Yukon and Kuskokwim delta. The island is tundra-covered, about 47 miles long and 66 miles wide, and serves as an important bird habitat. Its shoreline is used by marine mammals that rest from foraging trips. Nunivak Island is located in close proximity to important benthic habitats for 8 different birds and marine mammals as it is situated

between the Kuskokwim and Yukon Rivers along the Alaska coastal current. There is a persistent area of open water immediately south of the island that serves as an important habitat for Pacific walrus during their breeding season. It also serves as an important Pacific walrus haulout area. This area is also a biologically important area to the gray whale.

23 Marine bird colonies with ~325,000 nesting auklets, cormorants, kittiwakes, puffins, and other species are located on the island. Nunivak Island also provides a globally significant IBA for Steller's eider during the non-breeding season, along with state significant populations of brant, Aleutian tern, common eider, and other species.

24 The Nunivak Island ATBA will also protect a subsistence hunting area for the Central Yup'ik from the Native village of Mekoryuk, located on the north side of Nunivak Island.

25 The King Island ATBA will encompass King Island which is located 40 miles offshore from Wales, and about 90 miles to the west of Nome, Alaska. The island is about a mile wide with steep cliffs on all sides. It is historically home to Inupiat residents who relocated to the mainland in the 1960s. To this day, the King Island community maintains traditional customs, linguistics, and hunting practices tied to the island and its resources. King Island provides an important marine bird nesting habitat and marine mammal haulout habitat. The King Island proposed ATBA will protect the subsistence hunting area for the King Island Tribe and provide a spring concentration area for Pacific walrus. The island is also a historic and occasional haulout site for Pacific walrus during the summer and is the location of a high concentration area for Pacific walrus during the fall. Bearded seals, spotted seals, and ringed seals concentrate in this area during the spring and early summer. King Island is also a haven for marine bird nesting colonies for nearly 250,000 birds including murre, puffins, auklets, and kittiwakes. It is also recognized as a globally significant Important Bird Area (IBA) for parakeet auklets, with continental- and state-level significance to populations of murre and auklets.

26 The St. Lawrence Island ATBA will encompass St. Lawrence Island which is situated south of the Bering Strait in the northern Bering Sea. It is the sixth largest island in the United States, the largest island in the Bering Sea, and is about 90 miles long and varies between 8 and 22 miles wide. The island's marine life is heavily influenced by its surrounding oceanography. Cold, nutrient rich waters that originate from the deep Bering Sea shelf edge are carried by the Anadyr current eastward. A polynya, an area of persistent open water, is located immediately south of the island which serves as important habitat during the winter months when the Bering Sea is mostly covered in seasonal sea ice.

27 High concentrations of Pacific walrus are evident both north and south of the island in the winter. An important hotspot is located in the polynya immediately south of the island providing an important foraging habitat. A calving and breeding habitat for the Pacific walrus is located in the polynya south of St. Lawrence Island. In the spring there can be high concentrations of Pacific walrus both to the east and northwest of the island with a particularly important staging area to the northwest of Gambell in the Anadyr annual summer haulout for Pacific walrus on Southwest Cape; and an annual high concentration haulout near the Punuk Islands to the southeast of the island. Various parts of the island experience high volumes of bearded seals, ringed seals and spotted seals.

28 The ATBA will also provide protection to bowhead whales, gray whales, and humpback whales to the north and west of the island, with a high concentration area to the north of Gambell in Anadyr Strait.

29 Subsistence hunting areas will be protected for the St. Lawrence Island Yup'ik who reside in the Native villages of Gambell and Savoonga.

30 The ATBA will also help protect the critical habitat for the spectacled eider to the south of St. Lawrence Island in the polynya that encompasses a globally significant IBA thought to host the entire world's population (~350,000 birds) during winter months. It will also protect the Steller sea lion critical habitat.

Recommendatory routeing system

31 The proposal is for recommendatory routeing measures consisting of three areas to be avoided.

Miscellaneous information

32 On behalf of the United States, the United States Coast Guard's Seventeenth Coast Guard District located in Juneau, Alaska, conducted a Port Access Route Study (PARS) of the Bering Sea, Bering Strait and Chukchi Sea to evaluate the applicability and the need for creation of new ship routing measures. The overarching goal of the PARS is to determine if ship routing measures can help reduce the risk of marine casualties and their impact on the environment, increase the efficiency and predictability of vessel traffic, and preserve the paramount right of navigation while continuing to allow for other reasonable waterway uses. The PARS considered the following matters:

- .1 hydrographic quality analysis;
- .2 subsistence and cultural significance;
- .3 environmental analysis;
- .4 marine casualty analysis; and
- .5 traffic analysis.

Proposed date of implementation

33 It is proposed that the recommendatory areas to be avoided will enter into force six months after the adoption by the Maritime Safety Committee.

Action requested of the Sub-Committee

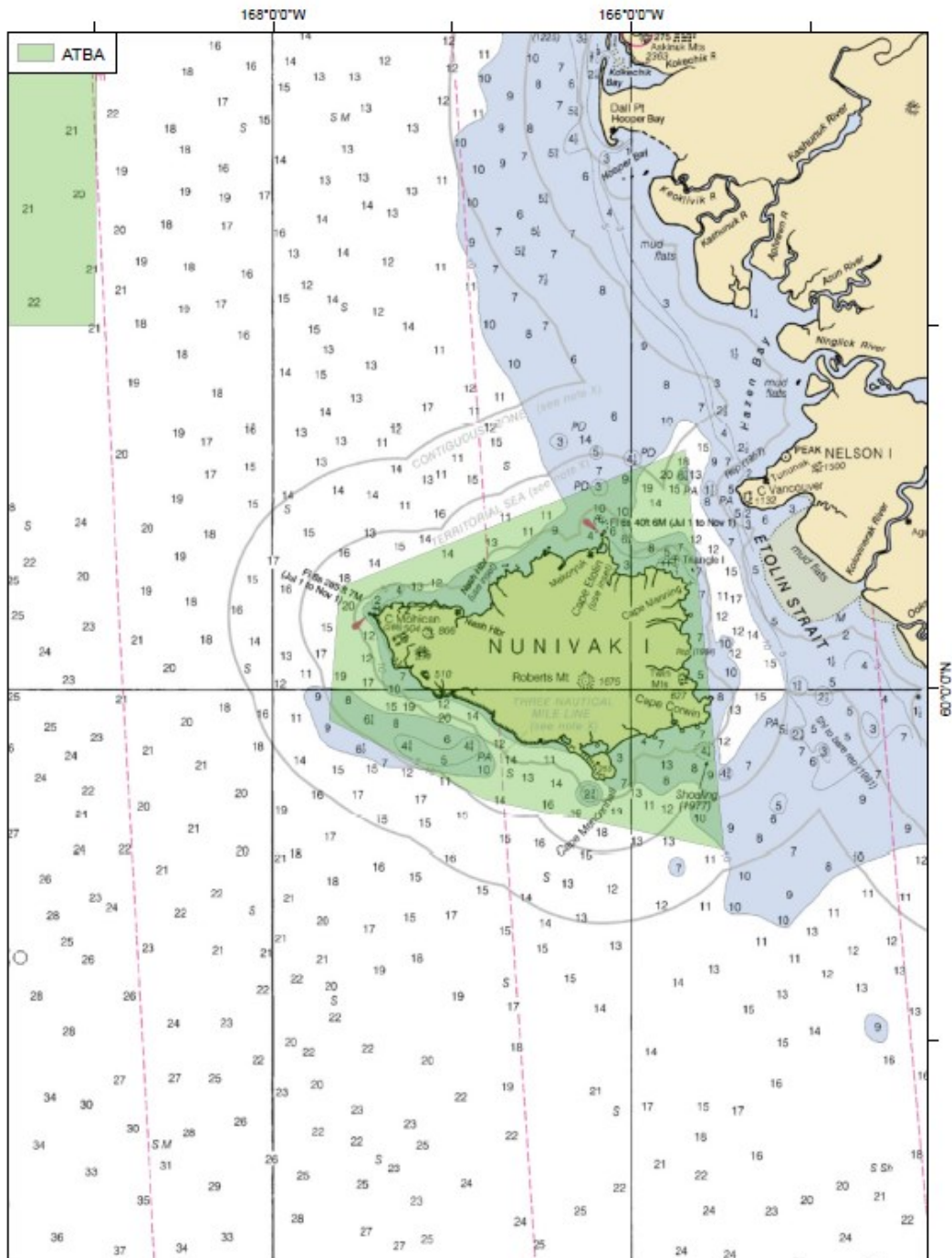
34 The Sub-Committee is invited to consider the proposal and recommend it to the Committee for adoption.

ANNEX 1

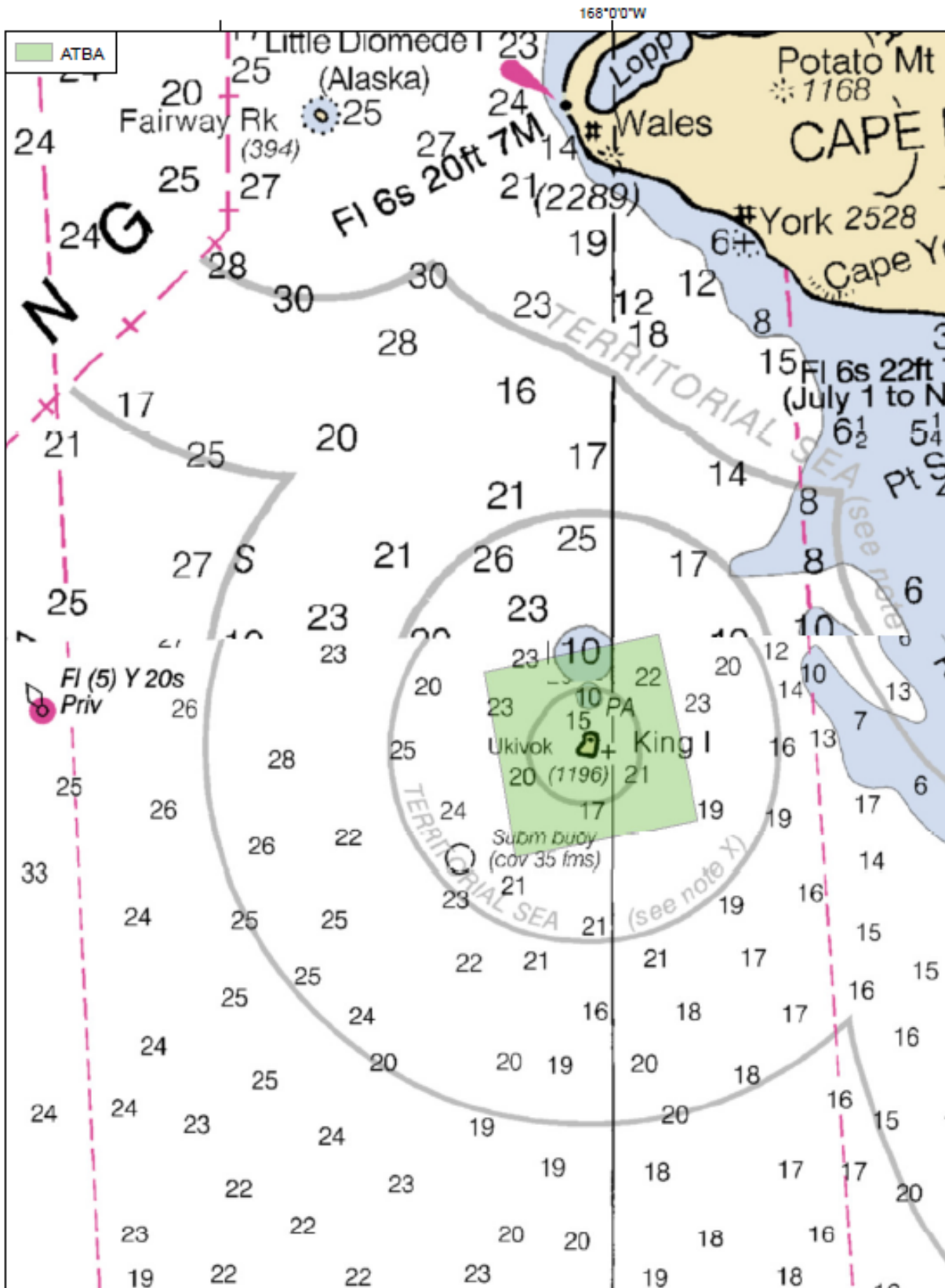
DESCRIPTION OF THE AREAS TO BE AVOIDED IN THE BERING SEA

The proposed ships' routing measures consist of three areas to be avoided in the Bering Sea. These measures apply to 400 gross tonnage and above. Chartlets of the proposed measures are provided below:

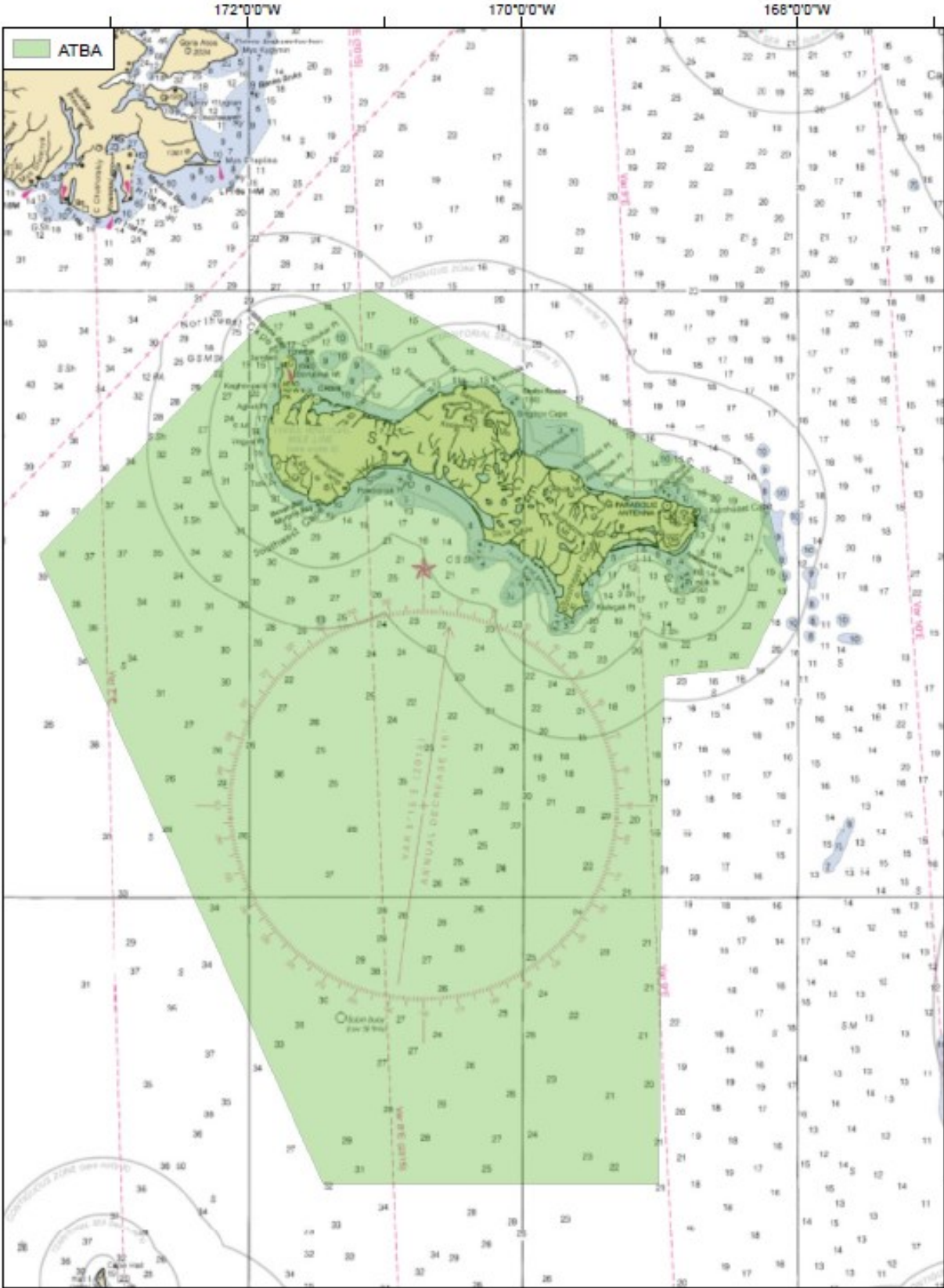
Nunivak Island ATBA



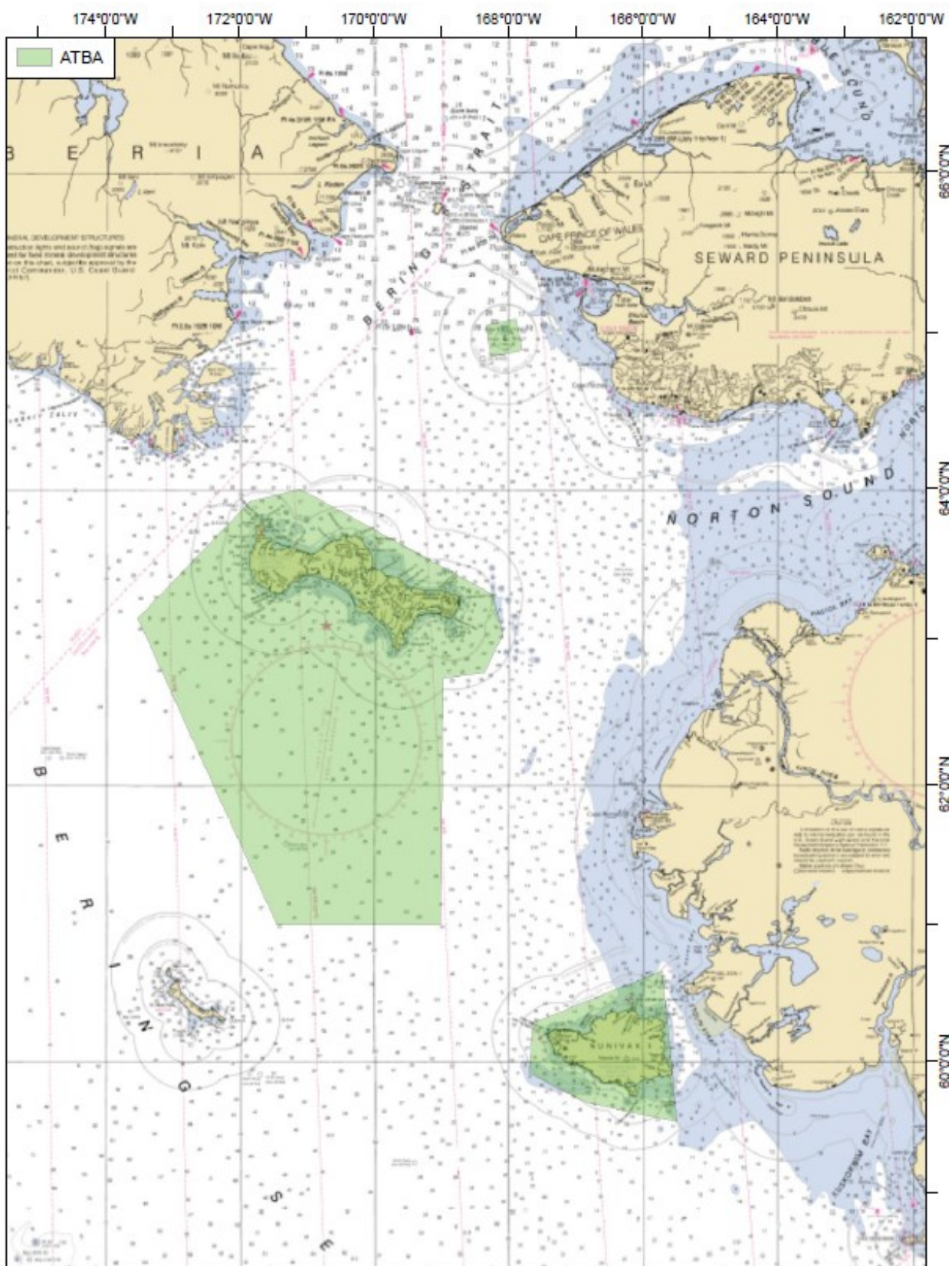
King Island ATBA



St. Lawrence Island ATBA



Bering Sea Areas to be Avoided



ANNEX 2

**NAMES, NUMBERS, EDITION AND GEODETIC DATUMS OF THE
REFERENCE CHARTS**

NAME	NUMBER	EDITION	DATUM
Bering Sea Northern Part	US514	Ed 8	NAD 83
Arctic Coast	US16003	Ed 18	NAD 83
Cape Prince of Wales to Pt. Barrow	US16005	Ed 11	NAD 83
Bering Sea-eastern part; St. Matthew Island, Bering Sea; Cape Etolin, Anchorage, Nunivak Island	US16006	Ed 37	NAD 83
Bering Strait North	US16190	Ed 1	NAD 83
Norton Sound; Golovnin Bay	US16200	Ed 15	NAD 83
Port Clarence and approaches	US16204	Ed 7	NAD 83
Bering Sea, St. Lawrence Island to Bering Strait	US16220	Ed 6	NAD 83

Note: These charts are based on North American 1983 Datum (NAD 83) which is equivalent to World Geodetic System 1984 Datum (WGS 84).

ANNEX 3

GEOGRAPHICAL COORDINATES OF THE AREA TO BE AVOIDED IN THE BERING SEA

(Reference charts: See annex 2.)

Note: All geographical positions are based on World Geodetic System 1984 Datum (WGS 84).)

Note: These areas to be avoided are recommended for ships of 400 gross tonnage and above.

Description of the areas to be avoided

Nunivak Island

An area to be avoided is established bounded by a line connecting the following geographical positions:

(1) 60° 17'.05 N,	167°37'.80 W	(4) 59° 32'.80 N,	165°28'.80 W
(2) 59° 54'.89 N,	167°40'.98 W	(5) 60° 39'.86 N,	165°41'.70 W
(3) 59° 41'.44 N,	166°49'.08 W		

thence back to point (1).

King Island

(6) 65° 03'.12 N,	168° 19'.56 W	(8) 64° 53'.54 N,	167°46'.98 W
(7) 64° 51'.01 N,	168° 14'.82 W	(9) 65° 05'.53 N,	167°52'.92 W

thence back to point (6).

St. Lawrence Island

(10) 63°08'.57 N,	173° 31'.02 W	(15) 63° 01'.78 N,	168°04'.38 W
(11) 61°00'.00 N,	171° 27'.00 W	(16) 63° 17'.99 N,	168°12'.54 W
(12) 61°00'.00 N,	169° 00'.00 W	(17) 63° 59'.95 N,	171°06'.18 W
(13) 62°44'.38 N,	168° 58'.32 W	(18) 63° 54'.80 N,	171°50'.94 W
(14) 62°46'.14 N,	168° 21'.24 W		

thence back to point (10).

ANNEX 4

TRAFFIC TRANSIT DATA

The following list and map products show all ship types with a regulatory weight of 400GT and over. Fishing vessels have been excluded from the dataset for clarity reasons.

<u>Vessel Type</u>	<u>Transit Segment</u>
Bulk Carrier	20120
Container Ship (Fully Cellular)	15228
Refrigerated Cargo Ship	4234
Vehicles Carrier	2829
General Cargo Ship	1927
Open Hatch Cargo Ship	1387
Chemical/Products Tanker	1196
Tug	1003
Products Tanker	498
Wood Chips Carrier	362
Landing Craft	271
Research Survey Vessel	258
Crude Oil Tanker	235
Anchor Handling Tug Supply	159
Passenger/Cruise	147
Buoy Tender	130
Icebreaker	116
Platform Supply Ship	116
Chemical Tanker	112
General Cargo Ship (with Ro-Ro facility)	87
Passenger/Ro-Ro Ship (Vehicles)	78
LPG Tanker	70
Crude/Oil Products Tanker	69
LNG Tanker	57
Pollution Control Vessel	48
Standby Safety Vessel	40
Asphalt/Bitumen Tanker	38
Drilling Ship	38
Yacht	36
Icebreaker/Research	33
Articulated Pusher Tug	31
Drilling Rig, semi-submersible	23
Livestock Carrier	23
Bulk Carrier, Self-discharging	21
Other Vessel Types with less than 20 transit segments	122
Total Transit Segments	51142

Vessels 400GT or Greater Excluding Fishing Vessels 2014 - 2015



Vessels 400GT or Greater Excluding Fishing Vessels 2014 - 2015

