

SUB-COMMITTEE ON SHIP DESIGN AND  
EQUIPMENT  
57th session  
Agenda item 11

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## **DEVELOPMENT OF A MANDATORY CODE FOR SHIPS OPERATING IN POLAR WATERS**

### **Proposals related to an environmental chapter of a mandatory Code for ships operating in polar waters (Polar Code)**

**Submitted by Denmark, Finland, Iceland, Norway and the United States**

#### **SUMMARY**

*Executive summary:* This document contains proposals on environmental topics for inclusion into the mandatory Polar Code and provides supporting rationale

*Strategic direction:* 5.2

*High-level action:* 5.2.1

*Planned output:* 5.2.1.17

*Action to be taken:* Paragraph 20

*Related documents:* Resolution A.1024(26); MEPC 60/21/1; MEPC 63/23, paragraphs 11.9 to 11.17; MEPC 94/23 paragraphs 11.11 to 11.12; DE 54/13/7, DE 54/13/8, DE 54/13/9; DE 55/12/5, DE 55/12/8, DE 55/12/9, DE 55/12/16, DE 55 12/17, DE 55 12/18, DE 55/12/19, DE 55/12/20, DE 55/12/21; DE 56/10/9, DE 56/10/11, DE 56/10/12, DE 56/10/13, DE 56/10/19, DE 56/INF.3, DE 56/INF.14, DE 56/WP.4 and DE 57/11/1

#### **General**

1 The development of a mandatory Polar Code covering safety and environmental aspects of operations in polar waters has been mandated by the International Maritime Organization (IMO) through the Maritime Safety Committee (MSC) and the Marine Environment Protection Committee (MEPC). The decisions in 2009 by both MSC and MEPC to endorse a proposal for a new work programme element were meant to address the growing potential that increased shipping, amounts of cargo, and number of persons voyaging on ships in the Polar Regions, both north and south, will adversely affect maritime safety and the marine environment.

2 MEPC at its sixty-third and sixty-fourth sessions and MSC at its ninety-first session considered the proposals and actions taken by DE 55 and DE 56 and noted the decision to develop an environmental protection chapter in the draft Polar Code. MEPC recommended

that the mandatory provisions of the Polar Code take legal effect through amendments to applicable existing IMO instruments, including, with respect to environmental provisions, International Convention for the Prevention of Pollution from Ships (MARPOL) and related conventions. MEPC furthermore endorsed the specific decisions taken so far by the Sub-Committee with regard to various environmental aspects of the Polar Code.

3 The last few years have seen an increase in shipping traffic in both Polar Regions, growing expressions of interest/intent to further increase shipping activity (particularly in the Arctic), and also some ship incidents for which response capabilities have been limited. The co-sponsors note that a range of environmental protection measures have been introduced for Antarctic waters both under MARPOL and through the Antarctic Treaty. Antarctic waters are designated as special areas under MARPOL Annexes I, II and V. Furthermore, the Protocol on Environmental Protection to the Antarctic Treaty contains additional special regulations to protect the marine environment. While the Arctic presents the additional challenge of balancing the regulation of a working ocean and addressing environmental risks, the Arctic and Antarctic share some of the same environmental concerns.

4 Polar waters encompass a number of unique eco-systems. Compared to marine eco-systems in lower latitudes, polar eco-systems are characterized by dramatic seasonal variations in physical conditions (e.g., ice cover, light/darkness) and biological productivity, lower decomposition rates, and generally limited resilience to environmental changes. These characteristics make Polar water eco-systems more vulnerable to impacts of increased activity, including shipping. In addition, the accelerating rate of change in Polar environments, especially in the Arctic – as demonstrated by declining summer sea ice extent and thickness, ocean acidification, and shifts in species – highlights the dynamic nature of the current Polar environment and raise uncertainty regarding the impact that increased activity will have on these regions. It is the view of the co-sponsors that these factors and the potential of increased risk for the Polar environment strongly support the development of appropriate safety and environmental standards for Polar shipping and the establishment of mandatory requirements and recommendatory provisions to address gaps in existing regulations.

## **Discussions**

5 Based on the above, the co-sponsors have considered current and pending regulations (e.g. MARPOL, International Convention for the Control and Management of Ships' Ballast Water and Sediments (BWM Convention), and the International Convention on the Control of Harmful Anti-fouling Systems on Ships (AFS Convention)) in order to identify areas where these are considered inadequate to mitigate or eliminate the higher risks identified above and where additional measures may be necessary. The proposals below are related to issues that in the opinion of the co-sponsors are relevant everywhere in Polar waters as defined by the Polar Code. Additional protective measures may be necessary in all or limited parts of the Arctic and the Antarctic and such proposals should be submitted and discussed through the appropriate IMO mechanisms.

## **MARPOL Annex I**

6 It is the opinion of the co-sponsors that:

- .1 discharge of oil and oily mixtures from the cargo area of an oil tanker as currently regulated in MARPOL I/34 allows for the release of an unacceptable amount of oil into Polar waters. In order to address the negative environmental impacts of these discharges, further consideration should be given to mitigation measures, such as: limiting the rate of discharge, establishing minimum distance from land and ice for discharge, and banning discharges of oil and oily mixtures from cargo areas;

- .2 leakages through lubricated hull fittings represent additional unwanted release of oil into Polar waters. Operation in ice places significant asymmetrical loads on stern tube bearings, which tends to increase lubricant outflows. These discharges can also adhere to ice, decreasing the potential for dilution. Non-toxic biodegradable lubricants and water-based systems are available and should be recommended for ships operating in Polar waters. Mandatory use of such systems may be warranted following further consideration of the long term performance of these systems in Polar waters; and
- .3 discharge of oil and oily mixtures other than discharges described in 6.1 as currently regulated in MARPOL I/15 allow for the release of an unacceptable amount of oil into Arctic waters. In order to address the negative environmental impacts of these discharges, further consideration should be given to mitigation measures, such as: distance to land and ice, ice cover, total discharge amount, and oil filtering equipment specifically arrangements for alarm and automatic stopping.

7 A proposal to ban the use and carriage of heavy fuel oil in the Arctic has been submitted to DE Sub-Committee. In the opinion of the co-sponsors this topic should not be taken up by DE Sub-Committee and any such proposal should be submitted to MEPC.

#### **MARPOL Annex II**

8 In the opinion of the co-sponsors discharges of noxious liquid substances (NLS) should be banned in Arctic waters. The co-sponsors note that discharges of NLS in the Antarctic Area are currently banned under MARPOL Annex II.

#### **MARPOL Annex III**

9 Additional measures to avoid loss of containers in Polar waters have been proposed in earlier discussions regarding an environmental chapter of the Polar Code. The co-sponsors note that the Sub-Committee on Dangerous Goods, Solid Cargoes and Containers (DSC) is currently working on the revision of the guidelines for packing of cargo transport units hence no additional provisions are proposed. It is however recommended that DSC consider the adequacy of current lashing requirements in polar waters, the low temperature performance of container securing cables/straps, and other measures for additional container securing.

#### **MARPOL Annex IV**

10 In the opinion of the co-sponsors, additional requirements regarding the treatment and discharge of sewage should be included in the Polar Code. In particular, discharges that occur close to ice (such as from Category A and B vessels) should be addressed as these outflows can adhere to ice, decreasing the potential for dilution. Discharges from passenger vessels are also of concern as these ships are the largest potential source of sewage.

#### **MARPOL Annex V**

11 In the opinion of the co-sponsors additional requirements regarding the treatment and discharge of food waste and animal carcasses should be included in the Polar Code.

12 Cargo residues that cannot be recovered using commonly available methods for unloading, cleaning agents or additives contained in cargo hold, and deck and external surfaces washwater may be discharged when classified not harmful to the marine

environment (MARPOL V/4). The co-sponsors are of the opinion that further consideration should be given to mitigating measures to address the negative environmental impacts of these discharges such as distance to land and ice, ice cover, and total amount discharged en route.

### **MARPOL Annex VI**

13 Due consideration should be given to the unique nature of Polar operations in the ongoing discussions at the Sub-Committee on Bulk Liquids and Gases (BLG) and MEPC. No additional provisions proposed pending the outcomes of BLG and MEPC.

### **Grey water**

14 The co-sponsors note that there are currently no provisions in MARPOL related to discharge of grey water. The co-sponsors are of the opinion that such provisions, if any, should first be considered globally in MARPOL by MEPC, with due consideration for Polar waters.

### **Ballast Water Management**

15 Until the BWM Convention enters into force it is proposed that a reference be made to the provisions of the D-1 Ballast Water Exchange Standard and D-2 Ballast Water Performance Standard of the Convention in the non-mandatory section of the Polar Code.

16 In the opinion of the co-sponsors, in the selection of ballast water treatment systems the relevant operating conditions including water temperature should be considered. This should be addressed in the non-mandatory section of the Polar Code.

### **Anti-fouling systems**

17 The co-sponsors recognize that the AFS Convention does not address the mechanical strength of anti-fouling coating. Operation in ice may lead to degradation of the anti-fouling coating. It is proposed to include a reference to resolution MEPC.207(62), *2011 Guidelines for the Control and Management of Ships' Biofouling to Minimize the Transfer of Invasive Aquatic Species* in the non-mandatory part of the Polar Code.

### **Location, protection, and capacity of tanks for environmental protection purposes**

18 The co-sponsors are of the opinion that the provisions in 15.5 of document DE 56/WP.4, annex 1, should be applicable to new category A and B ships.

### **Proposals**

19 Based on the discussions above, an amended environmental chapter of the Polar Code is annexed to this document for consideration by the Sub-Committee. The co-sponsors further note that the development of additional measures for this chapter should be considered based on the views expressed in this submission.

### **Action requested of the Sub-Committee**

20 The Sub-Committee is invited to consider the proposals in the discussion above and the attached annex and take action as deemed appropriate.

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## ANNEX

### PROPOSAL FOR A REVISED CHAPTER 15

#### 15 Environmental protection

The following terms are referenced in this annex and definitions should be developed; these terms are included here as placeholders: Biodegradable, Resilience capabilities, Non-toxic.

##### 15.1 Goal

15.1.1 The goal of this chapter is to provide for means to reduce and to the extent practicable prevent harmful environmental impacts from ships taking into account the particular environmental conditions and resilience capabilities in polar waters.

##### 15.2 General

15.2.1 All plans and records required by MARPOL and the AFS Convention shall incorporate provisions for operation in Polar waters. Similarly all plans and records to be required by the BWM Convention should incorporate provisions for operation in Polar waters and shall do so when this convention comes into force.

##### 15.3 Functional requirements

15.3.1 In order to achieve the goal set out in 15.1.1 above, the functional requirement of reducing discharges of harmful substances to a minimum level is reflected in each of the regulations of this chapter, as appropriate.

##### 15.4 Regulations/requirements

###### 15.4.1 Additional requirements to those of MARPOL Annex I

*(Please refer to paragraph 6 of this document for discussion on the issues under this item; text to be developed.)*

###### 15.4.2 Additional requirements to those of MARPOL Annex II

15.4.2.1 Discharge of noxious liquid substances or mixtures containing such substances is prohibited in Polar waters.

###### 15.4.3 Additional requirements to those of MARPOL Annex IV

15.4.3.1 Subject to the provisions of MARPOL IV/3, discharges of sewage within Polar waters are subject to the following additional requirements in accordance with standards approved by the Administration based upon guidelines developed by the Organization<sup>1</sup>.

- .1 Discharges of sewage that is comminuted and disinfected and permitted under MARPOL IV/11.1.1 shall be at a distance of more than 3 nautical miles from any ice shelf or land fast ice and shall be as far as practicable from areas of ice concentration exceeding 1/10.

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<sup>1</sup> Refer to resolution MEPC.2(VI), resolution MEPC.159(55) or resolution MEPC.227(64) as applicable.

- .2 Discharges of sewage that is not comminuted and disinfected and permitted under MARPOL IV/11.1.1 of this regulation shall be at a distance of more than 12 nautical miles from any ice shelf or land fast ice and shall be as far as practicable from areas of ice concentration exceeding 1/10.
- .3 Discharges of sewage permitted under MARPOL IV/11.1.2 or MARPOL IV/11.3 shall be as far as practicable from the nearest land, ice shelf, land fast ice or areas of ice concentration exceeding 1/10.

15.4.3.2 Discharge of sewage into the sea is prohibited from new category A and B ships and new passenger ships except when such discharges are in accordance with the provisions of 15.4.3.1.3 and have been treated by means of a type-approved sewage treatment plant based upon guidelines developed by the Organization\*.

15.4.3.3 Ships that operate in ice during extended periods of time are exempt from the requirements of 15.4.3.1, subject to the approval of the Administration, and may discharge sewage that has been treated by means of a type-approved sewage treatment plant based upon guidelines developed by the Organization\*. Such approval to discharge sewage shall take into account guidelines developed by the Organization and shall be noted in the Polar Ship Certificate with supplemental operational information in the Polar Water Operations Manual.

#### **15.4.4 Additional requirements to those of MARPOL Annex V**

15.4.4.1 Discharge of food waste is only permitted when the ship is en route and as far as practicable from the nearest land, but in any case not less than 12 nm from the nearest land, nearest ice shelf, or nearest land fast ice.

15.4.4.2 Food waste shall be comminuted or ground and shall be capable of passing through a screen with openings no greater than 25 mm. Food wastes shall not be contaminated by any other garbage type.

15.4.4.3 Food waste shall not be discharged onto the ice.

15.4.4.4 Discharge of animal carcasses within Arctic waters is prohibited.

#### **Proposals for inclusion in part B of the Polar Code:**

X.1 Measures should be taken to minimize the risk of more rapid degradation of anti-fouling coatings and the risk of transfer of invasive aquatic species to Polar waters. Reference is made in particular to resolution MEPC.207(62), *2011 Guidelines for the Control and Management of Ships' Biofouling to Minimize the Transfer of Invasive Aquatic Species*.

X.2 Until the BWM Convention comes into force, the ballast water management provisions of the D-1 Ballast Water Exchange Standard and D-2 Ballast Water Performance Standard of the Convention should be considered.

X.3 In selecting the ballast water treatment system, attention should be paid to the temperature under which the system has been tested in order to ensure its effect in Polar waters.

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\* Refer to resolution MEPC.2(VI), resolution MEPC.159(55) or resolution MEPC.227(64) as applicable.

X.4 Non-toxic biodegradable lubricants or water-based systems should be considered for stern tube bearings, stern seals, and other lubricated components located outside the underwater hull.

X.5 To achieve the additional discharge requirements to those of MARPOL Annex V, due consideration should be given to resolution MEPC.219(63) *2012 Guidelines for the Implementation of MARPOL Annex V* and resolution MEPC.220(63) *2012 Guidelines for the Development of Garbage Management Plans*. Given that the discharge of animal carcasses is prohibited, consideration should be given to the management, treatment, and storage of animal carcasses and, as appropriate, any future guidelines developed by the Organization.

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