



SUB-COMMITTEE ON SHIP DESIGN AND  
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Agenda item 13

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

### **Wider environmental provisions for the Polar Code**

**Submitted by FOEI, IFAW, WWF, Pacific Environment and CSC**

#### **SUMMARY**

*Executive summary:* In this document FOEI, IFAW, WWF, Pacific Environment and CSC elaborate proposals for environmental provisions for application in polar regions which should be included in a mandatory Polar Code

*Strategic direction:* 5.2

*High-level action:* 5.2.1

*Planned output:* 5.2.1.19

*Action to be taken:* Paragraph 16

*Related documents:* DE 53/18/3; DE 54/13/3 and MEPC 60/21/1

#### **Introduction**

1 Document DE 54/13/8 introduces a range of proposed MARPOL-type measures which would provide greater and proportionate protection for polar waters and which therefore should be included in a mandatory Polar Code. This document<sup>1</sup> complements document DE 54/13/8 and outlines further measures which relate to other IMO instruments or to shipping more generally which would complement MARPOL-type measures and provide essential protection for polar waters and which therefore should also be included in a mandatory Polar Code.

#### **Indigenous communities**

2 It is important that the Polar Code reflects an issue of particular significance in the Arctic region – the unique vulnerability of indigenous and other local communities to the risks of shipping. Indigenous and other local communities live amidst and depend upon these

<sup>1</sup> The preparation of this document for the IMO's DE Sub-Committee was assisted by the Antarctic and Southern Ocean Coalition (ASOC), an umbrella NGO (whose members include FOEI, IFAW and WWF) with expert observer status at the Antarctic Treaty Consultative meetings (ATCM) and meetings of the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR).

marine environments for livelihood, health and culture<sup>2</sup>. These marine resource dependent cultures have sustained in some communities for three millennia. Indigenous and other local communities' culture, health, livelihood and environment will be most acutely affected by increased shipping in the Arctic and thus provisions which meet their needs must be an integral part of protections contained in the Code<sup>3</sup>.

3 Given that the draft Polar Code appears to be adopting a risk-based approach, and given unique risks posed by Arctic shipping to vulnerable indigenous and other local communities, measures that respect indigenous rights and that prevent and minimize specific impacts to culture, livelihood, health and environment must occur, through consultation with indigenous and local communities, in the drafting and in the application of the Polar Code<sup>4</sup>.

## Wider environmental provisions

### Grey water

4 Discharges of grey water, the wastewater from galleys, showers, laundries, as well as food pulp, represent an environmental concern for polar waters<sup>5</sup>. The US Commission on Ocean Policy<sup>6</sup>, in 2004, reported that an average cruise ship produces 3.8 million litres of grey water each week<sup>7</sup>. Substances found in grey water include faecal coliform bacteria, oil and grease, detergents, nutrients, metals, food waste, and medical waste<sup>8</sup>. Analyses by the US EPA and the Alaska Department of Environmental Conservation indicated faecal coliform levels of 36,000,000 CFU/100 mL and 2,950,000 MPN/100 mL, respectively, for untreated cruise ship grey water, which is higher than, by orders of magnitude, bacteria levels identified in untreated domestic wastewater<sup>9</sup>. Grey water also has potential to cause harmful environmental effects due to concentrations of nutrients and other oxygen-demanding materials<sup>10</sup>.

<sup>2</sup> Arctic Council, *Arctic Marine Shipping Assessment 2009 Report 5* (April 2009) ("Importantly, many local Arctic residents today depend heavily on marine resources for subsistence and the local economy; over-the-ice travel and boat transport allow the use of large marine areas during much of the year."), available at <http://pame.is/amsa/amsa-2009-report> [hereinafter AMSA].

<sup>3</sup> *Id.* ("Arctic residents express concern for the social, cultural and environmental effects of [Arctic development] expansion. The possibility of oil spills is a major concern and hunters are especially concerned about the disruption of marine species and their hunting practices. The costs and benefit of Arctic shipping will likely be unevenly distributed among and within communities and regions. Constructive and early engagement of local residents in planned Arctic marine development projects can help to reduce negative impacts and to increase positive benefits.").

<sup>4</sup> The right of indigenous peoples to be consulted on matters of importance to them has been established by, *inter alia*, international conventions, UN declarations and resolutions. Examples include: Articles 18-19 of the UN General Assembly, *United Nations Declaration on the Rights of Indigenous Peoples: resolution/adopted by the General Assembly, 2 October 2007, A/RES/61/295*; Article 27 of the UN General Assembly, *International Covenant on Civil and Political Rights*, 16 December 1966, United Nations, Treaty Series, vol. 999, p. 171; Article 7 of the International Labour Organization (ILO), *ILO Declaration on Fundamental Principles and Rights at Work*, June 1988.

<sup>5</sup> See US EPA, National Pollutant Discharge Elimination System (NPDES) Vessel General Permit (VGP) for Discharge Incidental to the Normal Operation of Vessels, Fact Sheet, 26 (2008), available at [http://www.epa.gov/npdes/pubs/vessel\\_vgp\\_factsheet.pdf](http://www.epa.gov/npdes/pubs/vessel_vgp_factsheet.pdf).

<sup>6</sup> US Commission on Ocean Policy. *An Ocean Blueprint for the 21<sup>st</sup> Century*, Final Report, at 242.

<sup>7</sup> Washington, DC, 2004 available at [http://oceancommission.gov/documents/full\\_colour\\_rpt/welcome.html](http://oceancommission.gov/documents/full_colour_rpt/welcome.html).

<sup>8</sup> AMSA, at 137.

<sup>9</sup> Claudia Copeland, Congressional Research Service, *Cruise Ship Pollution: Background, Laws and Regulations, and Key Issues 4* (last updated July 1, 2008) [hereinafter CRS Cruise Ship].

<sup>10</sup> US EPA, *Cruise Ship Discharge Assessment Report* (2008), at 3-6 [hereinafter EPA 2008 Cruise Ship Assessment].

<sup>10</sup> CRS Cruise Ship, at 4. See also EPA 2008 Cruise Ship Assessment, at 3-10, 3-18.

5 Monitoring, recordkeeping, reporting, and enforcement requirements for grey water (as well as sewage) treatment and discharge should be established in the Code to ensure that the marine environment and public health and welfare are properly safeguarded.

### **Underwater noise**

6 Noise pollution, including that from ships, can have profound effects on marine wildlife by interfering with the ability to communicate, navigate, and detect prey and predators<sup>11</sup>. Other adverse impacts on marine animals from noise can include temporary and permanent hearing loss, displacement from preferred habitat, and even death<sup>12</sup>. The seriousness of the issue has attracted the attention of IMO, which, through an MEPC Correspondence Group, has undertaken considerable work on the issue of incidental ship noise, particularly from propeller cavitation, and has recently submitted a status report on the subject to MEPC 61 (see MEPC 61/19).

7 However, the work so far has not focused on polar regions specifically, where major populations of marine mammals are located. Based on the anticipated growth in Arctic shipping activity, a significant amount of ocean background noise from commercial shipping will likely occur in the region. Strong measures are needed to protect polar marine wildlife, especially cetaceans, for the following reasons:

- .1 in the Arctic "the ambient noise environment ... is more complex and variable than in many other ocean areas due to the seasonal variability in ice cover"<sup>13</sup>;
- .2 many areas of the Arctic have not yet been subject to high levels of shipping noise. Incidental ship noise could harm or displace marine mammal populations from their preferred habitat or feeding grounds. Concurrently, marine mammals are also increasingly threatened as a result of other activities such as oil and gas exploitation made possible by retreating sea ice and climate change;
- .3 ice-breakers generate intense sounds when moving through ice, but often produce louder and more variable sound in the open sea than most large commercial vessels. This is due to the propulsion systems required for their intended function (repeated ramming of ice, backing up, and ramming). Analysis has shown that the more homogenous the wake field surrounding propeller blades, the quieter the propeller will be<sup>14</sup>. In contrast, the forward and backward thrust of ice-breakers creates a more turbulent and less homogenous wake field. Research indicates varying responses by whales to ice-breakers. In one study, avoidance behaviour was exhibited by beluga whales 35 to 50 kilometres away from an ice-breaker; and another predicted that bowhead whales would engage in avoidance behaviour when approximately 10 to 50 kilometres from an ice-breaker, with biologically significant implications, especially for mothers and calves.

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<sup>11</sup> Christopher W. Clark *et al.*, *Acoustic Masking in Marine Ecosystems: Intuitions, Analysis and Implication*, 395 Mar. Ecol. Prog. Ser. 201, 202 – 203 (2009).

<sup>12</sup> United States, *Shipping Noise and Marine Mammals* (Dec. 17, 2007) (submitted to IMO's Marine Environment Protection Committee and reviewed as MEPC 57/INF.4).

<sup>13</sup> United States, *Minimizing the Introduction of Incidental Noise from Commercial Shipping Operations into the Marine Environment to Reduce Potential Adverse Impacts on Marine Life 3* (June 25, 2008) (submitted to IMO's Marine Environment Protection Committee and reviewed as MEPC 58/19).

<sup>14</sup> Brandon L. Southall & Amy Scholik-Schlomer, Final Report of the NOAA International Conference: Potential Application of Vessel-Quieting Technology on Large Commercial Vessels, (1-2 May, 2007).

Special equipment such as bubbler systems that aid in breaking up ice can create still further negative impacts<sup>15</sup>; and

- .4 Noise-reducing features can be likely integrated into new ships built for polar conditions in a cost-effective and efficient manner<sup>16</sup>.

8 In light of the particular environmental features of polar regions, measures must be adopted which will lessen the risk of harm posed to marine life by incidental shipping noise. Certain unique aspects of the polar regions, including sea ice, the presence of icebreakers, special bathymetric features, endemic marine mammal underwater sound sensitivity, and relevant migratory corridors, should be taken into account when considering measures to reduce harmful impacts caused by ship noise pollution.

9 To this end, the Arctic Council's Arctic Marine Shipping Assessment 2009 report (AMSA) provides helpful guidance, suggesting that "[m]any environmental effects resulting from ship disturbances can be effectively mitigated through the use of best practices and the implementation of management measures. With regard to noise disturbances, such measures could include rerouting to avoid some areas in sensitive periods, lower speed, and alternative engine and hull designs to make ships more silent. There is a need to plan potential future shipping lanes in the polar regions so as to avoid large seabird colonies, marine mammal haul-outs and other areas where animals are aggregated."<sup>17</sup>

### **Ballast water discharges**

10 Recognizing the very great potential for major ecological consequences of introduced species in Antarctic waters, the Antarctic Treaty Parties (ATPs) and Members of the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR) have adopted resolutions adopting Practical Guidelines for ballast water exchange in the Antarctic Treaty Area<sup>18</sup> and Guidelines for ballast water exchange<sup>19</sup> in the CAMLR Convention Area north of 60°S, respectively, ahead of the BWM Convention coming into force globally. Article 13 of the BWM Convention encourages regional cooperation including the conclusion of regional agreements which are consistent with the BWM Convention.

11 It is recommended that the Polar Code should require that the provisions of the BWM Convention are applied for all vessels operating in polar waters. Furthermore, consideration should be given to the need for additional restrictions on ballast discharges due to the great potential for major ecological impacts from species introduced via ballast water as ice cover recedes and the seawater warms in pristine polar regions.

### **Anti-fouling systems**

12 The International Convention on the Control of Harmful Anti-fouling Systems (AFS) on Ships prohibits the use of harmful organotins in anti-fouling paints and it is the intention that

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<sup>15</sup> Hein Rune Skjoldal *et al.*, Arctic Marine Shipping Assessment: Background Research Report on Potential Environmental Impacts of Shipping in the Arctic 93 (2009) (Draft Version), *available at*: <http://arcticportal.org/uploads/IR/vt/IRvt-EnpP5nmlg36Xt-sVw/6-1-Environmental-Impacts-from-Current-and-Future.pdf>.

<sup>16</sup> United States, *Noise from Commercial Shipping and Its Adverse Impacts on Marine Life* (Apr. 9, 2009) (Report of the Correspondence Group, submitted to IMO's Marine Environment Protection Committee and reviewed as MEPC 59/19).

<sup>17</sup> AMSA, at 146.

<sup>18</sup> Antarctic Treaty Consultative Meeting, Resolution 3 (2006). Ballast Water Exchange in the Antarctic Treaty Area.

<sup>19</sup> CCAMLR Resolution 28/XXVII Ballast water exchange in the Convention Area.

it will, in the future, develop a mechanism to prevent the potential future use of other harmful chemicals in anti-fouling systems. The AFS Convention entered into force in September 2008, however, a significant number of Arctic and Antarctic States have yet to ratify the Convention. It is recommended that the Polar Code should require that the provisions of the AFS Convention are applied to all vessels operating in polar waters. Furthermore, consideration should be given to the need for further restrictions on alternative anti-fouling systems, particularly those which release biocides, due to the potential for major impacts on pristine polar waters.

### ***Ship strikes***

13 The threat posed by ship strikes to marine mammals, particularly cetaceans, is well documented, and a number of measures have been enacted to address this problem<sup>20</sup>. In addition, the IMO has recently issued voluntary guidelines on the subject of ship strikes<sup>21</sup>. Most species of large whale occur in polar waters including threatened or endangered bowhead whales (*Balaena mysticetus*), North Pacific right whales (*Eubalaena japonica*), and blue whales (*Balaenoptera musculus*).

14 The AMSA notes that "[a]s vessel traffic increases in the Arctic, modifications to customary vessel operation in key cetacean aggregation areas or vessel speed restrictions can be an effective measure to mitigate potential impacts on vulnerable species such as bowhead whales and, to a lesser extent, narwhals, beluga whales and other Arctic marine organisms. Where feasible, vessel routing measures may also be applied in order for ships to avoid known cetacean aggregation areas". The points raised in the AMSA also have some relevance in the Antarctic, and in order to ensure adequate levels of marine mammal protection in polar waters other measures or tools must be considered for inclusion in the Polar Code including participation in the voluntary reporting scheme on ship strikes developed by the International Whaling Commission, the use of areas to be avoided to bypass marine mammal aggregation areas, vessel monitoring and reporting schemes, and environmentally appropriate technologies.

### ***Other issues requiring detailed consideration***

15 It has not been possible to take a fully comprehensive approach to addressing wider environmental measures that should be addressed through a mandatory Polar Code and as the work to develop the Code continues the intention is to address further issues related to the protection of polar regions from the impacts of international shipping including biofouling, routing measures, adequacy of oil and chemical spill response, provision of waste reception facilities, traffic monitoring and information schemes (for environmental enforcement as well as safety).

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

16 The Sub-Committee is invited to note the information provided and consider these environmental proposals during its deliberations when considering environmental aspects of the Polar Code.

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<sup>20</sup> E.g., Canada's shifting of a Traffic Separation Scheme in the Bay of Fundy (MSC 76/23, paragraph 11.3 (16 Dec. 2002) and NAV 48/3/5 (5 Apr. 2002)); United States' North Atlantic right whale rule (63 Fed. Reg. 60173, Oct. 10. 2008).

<sup>21</sup> IMO Guidance Document for Minimizing the Risk of Ship Strikes with Cetaceans, MEPC.1/Circ.674, 31 July 2009.