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DEVELOPMENT OF A MANDATORY CODE FOR SHIPS OPERATING IN POLAR WATERS

Inclusion of a black carbon regulation as part of the mandatory Code for ships operating in polar waters

Submitted by the Clean Shipping Coalition (CSC), Friends of the Earth International (FOEI), the Word Wide Fund for Nature (WWF) and Pacific Environment

SUMMARY

Executive summary:	In this document, CSC, FOEI, WWF and Pacific Environment support the inclusion in the Polar Code, notwithstanding the outcomes of the discussions at BLG and MEPC, of provisions that recognize the importance of mitigating black carbon emissions from shipping in all polar waters to the maximum extent feasible
Strategic direction:	5.2
High-level action:	5.2.1
Planned output:	5.2.1.17
Action to be taken:	Paragraph 21
Related documents:	DE 57/11/9; BLG 17/INF.2, BLG 17/10, BLG 17/INF.4 and BLG 17/INF.7

Introduction

1 This document is submitted in accordance with the provisions of paragraph 6.12.5 of the Committees' *Guidelines on the organization and method of work of the Maritime Safety Committee and the Marine Environment Protection Committee and their subsidiary bodies* (MSC-MEPC.1/Circ.4/Rev.2) and comments on document DE 57/11/9 (Denmark et al.).

2 The co-sponsors[1] of this submission acknowledge the efforts of those countries endeavouring to develop the environmental chapter of the Polar Code and would like to support the inclusion of provisions in the Polar Code to recognize the particular importance of short-lived climate pollutants such as black carbon (BC) in polar ecosystems.

[1] 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 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).

The importance of black carbon as a potent short-lived climate forcing pollutant

3 A number of important studies into black carbon emissions and their impact on the environment have been published in the past years. The most recent one, published in January 2013, is an assessment by 31 internationally recognized scientists. It concluded that "black carbon, with a total climate forcing of +1.1 W m^{-2}, is the second most important human emission in terms of its climate-forcing in the present-day atmosphere; only carbon dioxide is estimated to have a greater forcing." (Bond et al. 2013, "Bounding the role of black carbon in the climate system: A scientific assessment", in Journal of Geophysical Research Atmospheres, Article in press (published online 15 January 2013)). This study estimates black carbon's global warming potential to be 3200 times greater than that of CO_2 over a period of 20 years, and 910 times greater over 100 years.

4 The warming induced by black carbon emissions is magnified in cryospheric (ice-covered) regions, where BC is deposited on pristine snow and ice surfaces, decreasing their albedo and thus accelerating the melting of these surfaces. In fact, at least one study indicates that black carbon may account for up to half of all Arctic warming. (Shindell and Faluvegi (2009): "Climate response to regional radiative forcing during the twentieth century", in Nature Geoscience, Vol 2, April 2009, pp 294-300). Also, black carbon particles suspended in the atmosphere absorb solar radiation, thereby increasing the ambient air temperature, further contributing to changes in the polar cryosphere.

Black carbon emissions from shipping

5 International shipping currently contributes to about 2 per cent of global black carbon emissions. In comparison, shipping contributes some 2.7 per cent of global CO_2 emissions.

6 However, black carbon emitted by ships often occurs in regions which otherwise would have low emissions and atmospheric black carbon concentrations. Shipping black carbon emissions constitute, therefore, a significant source of black carbon deposition in polar regions. These emissions are released at relatively low elevations, and in close proximity to snow/ice-covered surfaces, which facilitates their deposition.

7 The maritime sector constitutes an important source of emissions especially in remote regions such as polar waters, and this situation will intensify with the opening of new polar sea routes. (Bond et al. 2013, op.cit.)

The importance of controlling both distant and local sources of black carbon

8 Black carbon is deposited onto polar snow/ice-covered surfaces from both local sources and those sources of black carbon located more distantly in lower latitudes.

9 While black carbon emissions from lower latitudes are much greater than in polar regions, those emitted from local sources are more efficiently transported through the atmosphere and deposited on the ice. Shorter transport distances, the relative low level of emission sources, atmospheric conditions that trap emissions close to the ground, and potentially nearby elevated terrain (especially in the Antarctic) are all conducive to the very efficient deposition of local black carbon in polar regions.

10 It is therefore important to address black carbon deposition in polar regions by simultaneously reducing such emissions from local sources, as well as those from the more distant lower latitude sources that contribute significantly to black carbon deposition in the polar regions. These latter emissions are particularly relevant for the Arctic.

Black carbon emissions in the Arctic

11 The opening of new sea routes is becoming especially apparent in the Arctic. In 2012, the North West Passage was only partially open due to weather conditions in August, which slowed down the path of melting occurring in the Parry Channel – August storms brought important quantities of multi-year ice from the North, which explains why the Parry Channel remained partially blocked in September. However, the NSDIC satellite record from September 2012 showed the opening of the Amundsen Route.

12 At the same time, shipping activities on the Northern Sea Route have increased dramatically. In 2012, 46 vessels transited this route, a ten-fold increase compared to 2010. In terms of cargo, around 1.26 million tonnes were transported on the Northern Sea Route, a 53 per cent increase over 2011.

13 In a submission to BLG 17, IMarEST explains the relationship between Arctic melting, the opening of Arctic sea routes and the likely increase in black carbon emissions and deposition in the Arctic. It states: "[…] the decline of Arctic sea ice would make possible longer navigation seasons and new trade routes that facilitate increased shipping activity. More BC emissions along increasingly viable trans-Arctic shipping routes could, in turn, increase deposition on fragile ice and snow surfaces that would melt at an accelerated pace. The Arctic already experiences twice the global rate of temperature increase, so these BC emissions would exacerbate harm to an already fragile region." (BLG 17/INF.2).

Black carbon emissions in the Antarctic

14 While the level of ship traffic is expected to increase more slowly in the Antarctic than in the Arctic, shipping already constitutes the major source of black carbon deposition throughout the Antarctic coastal regions. At the moment, tourist ships visiting Antarctic waters comprise the bulk of the Antarctic shipping fleet. Antarctic coastal regions are uninhabited except for research stations. Ships are thus the predominant source of local black carbon. Moreover, the long-distance atmospheric transport of black carbon from lower latitudes to the Antarctic continent is less efficient than in the Arctic. This means that Antarctic local sources are much more important for this region than are more distant lower latitude sources.

15 In 2010, a study on the Antarctic deposition of sulphur and black carbon from anthropogenic and volcanic sources found that "ship emissions, both sulphurous and black carbon, dominate anthropogenic pollution near the ground. Their prevalence is likely to rise dramatically if recent trends in tourism continue." (Graf et al. 2010, "Continental scale Antarctic deposition of sulphur and black carbon from anthropogenic and volcanic sources", in Atmospheric Chemistry and Physics, 10, 2457–2465).

16 The close passage of ships to elevated snow/ice covered complex terrain along the Antarctic coastlines is ideal to efficiently capture their emissions, as are the prevailing atmospheric conditions during the summer ship tourist season when these surfaces are sunlit for much of the diurnal day.

Consideration by MEPC and BLG of the impact on the Arctic of emissions of Black Carbon from international shipping

17 MEPC 62 agreed a work plan for the BLG Sub-Committee to consider the impact on the Arctic of emissions of black carbon from international shipping. This plan contained the following elements:

.1 develop a definition for black carbon emissions from international shipping;

.2 consider measurement methods for black carbon and identify the most appropriate method for measuring black carbon emissions from international shipping;

.3 investigate appropriate control measures to reduce the impact of black carbon emissions from international shipping; and

.4 submit a final report to MEPC 65, where the Committee should agree on the appropriate action(s).

18 The BLG Sub-Committee established a correspondence group to address these issues and some progress was made in the consideration of these questions. The report of the correspondence has been published during BLG 17 (BLG 17/10 and BLG 17/INF.4) as well as a study undertaken by the Secretariat to assess different black carbon abatement technologies (BLG 17/INF.7).

19 The co-sponsors of document DE 57/11/9 are of the opinion that, regarding the provisions linked with MARPOL Annex VI, "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."

20 However the co-sponsors of this submission assert that, notwithstanding to the outcomes of the discussions at BLG and MEPC, it is essential that the Polar Code includes provisions recognizing the importance of mitigating black carbon emissions in all polar waters to the maximum extent feasible; it is clear that such emissions from shipping constitute a significant environmental threat which needs to be explicitly recognized in the Polar Code and addressed by appropriate IMO regulations. Moreover, BLG has presently no specific remit to consider the issue of black carbon emissions in relation to the Antarctic. Therefore, it is essential that a specific provision on black carbon is included in the environmental chapter to ensure IMO action on shipping black carbon is not limited solely to its impact on the Arctic but includes provisions for shipping in all polar waters.

Action requested of the Sub-Committee

21 The Sub-Committee is invited to note the information provided and, notwithstanding the outcomes of the discussions at BLG and MEPC, and to agree to incorporate in the Polar Code provisions recognizing the importance of IMO action to mitigate black carbon emissions from vessels operating in all polar waters. The Sub-Committee is further invited to request MEPC 65 to endorse this decision and to clarify the intended scope and nature of potential future IMO regulations on black carbon emissions, in the light of the discussions in BLG, which are restricted to the impact on the Arctic, and in other bodies including DE.