INTERNATIONAL MARITIME ORGANIZATION

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MARINE ENVIRONMENT PROTECTION COMMITTEE
80th session
Agenda item 9

MEPC 80/9/2
12 May 2023
Original: ENGLISH
Pre-session public release: ☒

POLLUTION PREVENTION AND RESPONSE

Geographic scope of Black Carbon emissions in the Arctic

Submitted by FOEI, WWF, Pacific Environment and CSC

SUMMARY

Executive summary:	This document responds to discussions on the geographic scope of effective Black Carbon emission reduction measures aimed at protecting the Arctic. It provides information to aid discussion and facilitate an informed determination on the geographic scope, and recommends that measures must apply to ships operating throughout the wider Arctic area.
Strategic direction, if applicable:	3
Output:	3.3
Action to be taken:	Paragraph 15
Related documents:	MEPC 62/24; MEPC 79/5/5; MEPC 80/9; PPR 10/6, PPR 10/INF.10 and PPR 10/6/6

Introduction

1 This document is submitted in accordance with the provisions of paragraph 6.12.5 of 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.5/Rev.4) and comments on paragraph 2.16 of document MEPC 80/9 (Secretariat) reporting on the outcome of PPR 10 with regard to the reduction of the impact on the Arctic of Black Carbon (BC) emissions from international shipping.

2 In 2011, IMO agreed to a work plan "for consideration of the impact on the Arctic" of emissions of BC from international shipping (MEPC 62/24, paragraph 4.20). In 2022, following over a decade of consideration of the definition of BC, measurement methods and a long list of possible control measures, document MEPC 79/5/5 (FOEI et al.), in outlining a possible approach to reduce BC emissions by amending MARPOL Annex VI, acknowledged that the definition of Arctic waters in SOLAS and MARPOL Annexes I, II, IV and V is too limited for the purposes of controlling emissions of BC from ships operating in and near the Arctic. The development of a definition of "Arctic" for MARPOL Annex VI was proposed that is consistent with widely used geographic definitions of Arctic scope and broad enough to encompass the area in which BC emissions from ships have the greatest negative impact

on the Arctic. During MEPC 79 several delegations supported the development of mandatory measures to control BC emissions as soon as possible and urged MEPC to expedite such considerations.

3 An Air Pollution Correspondence Group established to work between PPR 9 and PPR 10 noted that additional work on potential BC emission threshold(s) should take into account the impact of transboundary BC emission sources related to shipping at a global level (see paragraph 22 of document PPR 10/6 (Denmark)) and that next steps should include work on potential measures impacting new builds and retrofits, while noting that the geographic area of application or scope of any measures has yet to be defined (PPR 10/6, paragraphs 25 and 26).

4 This document provides additional information on BC emissions from ships operating within the Arctic based on 2021 data to facilitate an informed determination on the issue of geographic scope.

Geographic scope of measures to reduce impact on the Arctic

5 Output 3.3 tasks MEPC with reducing the impact on the Arctic of emissions of BC from international shipping. As the IMO work plan agreed in 2011 called "for consideration of the impact on the Arctic" of international shipping BC emissions (MEPC 62/24, paragraph 4.20), it is necessary to identify and define the sea areas in which ships operate and contribute BC significantly enough to have an impact "on" the Arctic. This area should take account of the airborne transportation of BC as well as areas within "the Arctic" where ships operate and emit directly into the Arctic atmosphere.

6 Document PPR 10/WP1/Rev.1 (paragraphs 6.24 and 6.25) records that some delegations supported further consideration of the geographical scope of measures covering at a minimum the waters of the Arctic Human Development Report (AHDR) or the Arctic Monitoring and Assessment Programme (AMAP) or alternatively all waters north of 60 degrees North. Other delegations referred to the definition of Arctic waters in MARPOL Annexes I, II, IV and V. The Sub-Committee acknowledged that the geographical scope of BC measures was an issue that should be addressed by MEPC.

7 Since MARPOL Annex VI addresses the prevention of air pollution from ships, including transboundary impacts of air pollution from ships, it is appropriate that regulation of BC emissions should be introduced via amendment of MARPOL Annex VI. The regulations contained in Annex VI generally apply to all ships; however the concept of geographically focused regulations has already been included in Annex VI. Emission control areas have been designated and implemented on a geographic basis to reduce the impact of NO_x (regulation 13) and SO_x (regulation 14) emissions, including transboundary impacts. There are currently however no regulations in Annex VI which specifically address the impact of shipping's atmospheric emissions on the Arctic. In introducing any measures to reduce the impact of atmospheric emissions including BC on the Arctic, it is imperative that an appropriate geographic scope is agreed. A scope that will effectively reduce the impact of emissions on the Arctic.

8 As noted in document PPR 10/WP1/Rev.1 (paragraph 6.25), some support was expressed to simply apply measures to "Arctic waters" as defined in SOLAS chapter XIV and in MARPOL Annexes I, II, IV and V. It is important to note however that the term "Arctic waters" was defined for the purposes of IMO's International Code for ships operating in polar waters (or Polar Code). This definition is limited in terms of the geographic area in order to address the risks and ensure the safe operation of ships operating in ice-covered waters or waters where ice is likely to be encountered (see blue boundary shown in figure 1). The Polar Code

does not apply to ships operating in those parts of the Arctic which are influenced by the Gulf Stream and largely sea ice free throughout the year. These waters are, however, used extensively by ships which emit significant amounts of BC into the atmosphere (see figure 1) and are encompassed within the principal AHDR and AMAP geographic boundaries recognized by the Arctic Council Member States and observers. Seventy-eight per cent of ships operating north of 78.95ºN (excluding the Baltic Sea area) operate outside of the area defined as "Arctic waters" for the purposes of the Polar Code (see paragraphs 14 and 15 below). This area also excludes some regions of Inuit Nunaat, the Arctic homeland for Inuit, where Indigenous communities exercise their rights to self-determination and rely on marine resources for subsistence and culture. Furthermore, it does not take into consideration transboundary transport of BC emissions from ships.

9 Document PPR 10/WP.1/Rev.1 (paragraph 6.24) also records that several delegations supported further consideration of the geographical scope of measures and considered that it should at a minimum cover the maritime waters of the AHDR or the AMAP or alternatively all waters north of 60º North.

Latest analysis of BC emissions from ships operating in the Arctic

10 The International Council on Clean Transportation (ICCT) has undertaken studies of BC emissions from ships in the Arctic region in 2015, 2017, 2019 and 2021. The latest analysis of 2021 data has been assessed both for the Arctic waters area (as defined in SOLAS and MARPOL Annex I, II, IV and V, and termed IMO Arctic waters in figure 1) and for the wider Arctic geographic area covering all waters north of 78.95ºN (excluding the Baltic Sea).* Several findings bear directly on the question of geographic scope of BC emission control measures. A comparison of 2021 BC emission data with 2015 data shows that in six years BC emissions from ships operating within IMO Arctic waters have doubled from 193t to 413t.

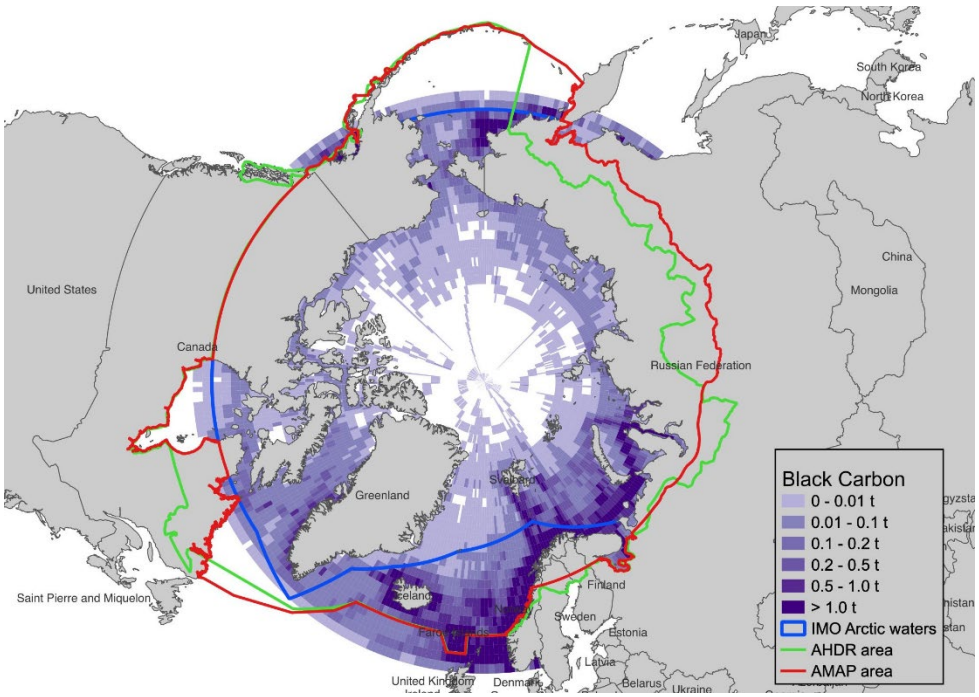

Figure 1: Intensity of ship BC emissions in the Arctic (north of 78.95ºN) based on 2021 data. The blue boundary marks the delineation of Arctic waters as used for purposes of the IMO's Polar Code, the green boundary the delineation of the Arctic Human Development Report and the red boundary the Arctic Monitoring and Assessment Programme boundary (ICCT, 2023).

* https://cleanarctic.org/wp-content/uploads/2023/04/BC_in_Arctic_prePPR10.pdf

11 The analysis of BC emission data also compared the numbers of ships operating in the IMO Arctic waters area with the number of ships operating north of 78.95°N (excluding the Baltic Sea) in 2021. This analysis shows that 8,577 vessels operated in Arctic sea areas north of 78.95°N and were responsible for emitting 1,500 tonnes of BC in 2021, while only 1,866 vessels operated in the IMO Arctic waters area emitting 413 tonnes of BC. The numbers of ships operating in the IMO Arctic waters represented 22% of ships operating throughout the wider Arctic and they were responsible for only 27% of the total of BC emitted in the Arctic. The analysis also shows that the volume of residual fuel used throughout the wider Arctic area is less than a quarter of that needing to be replaced to comply with the recently adopted Mediterranean Sea SO_x ECA.

Reducing BC emissions from international shipping impacting the Arctic

12 Taking the above factors into account, a more comprehensive geographic scope is needed which accounts for and mitigates BC emissions and also supports Arctic Indigenous communities' rights and survival. In this context it is noted that every fraction of summer sea ice preserved can help the region from reaching a catastrophic tipping point in terms of loss and damage to the Arctic marine environment, as well as global impacts from sea-level rise and permafrost thaw.

13 In summary, measures to reduce BC emissions must apply to all ships emitting BC with the potential to have an impact on the Arctic as required by output 3.3. MARPOL Annex VI does not contain a definition of "the Arctic". BC is an airborne pollutant and, as has been recognized when developing ECA regulations, it is essential to take full account of the transboundary effects of airborne emissions. Consequently, the co-sponsors urge that the geographic scope of measures developed to reduce the impact of ships' BC emissions on the Arctic should at a minimum cover the maritime waters of the AHDR area or alternatively the AMAP area (see figure 1). Alternatively, all waters, for example, north of 60° North (excluding the Baltic Sea which is not included within any Arctic Council Arctic boundaries), may be both a simpler and more workable definition of the Arctic for navigational purposes.

14 PPR 10 agreed to invite interested Member States and international organizations to work intersessionally to further develop BC control measures and to submit proposals to PPR 11. The co-sponsors urge that any such proposals should now address a wider and more appropriate definition of the Arctic sea area to account for ship BC emissions throughout the whole Arctic region and also ensure that such measures also address the transboundary impacts of BC on the Arctic from ships operating in close proximity or "near" the Arctic.

Action requested of the Committee

15 The Committee is invited to consider the information provided in paragraphs 5 to 14 and to take necessary steps that will lead to an informed determination on an appropriate geographic scope for any measures developed with the intention of reducing the impacts on the Arctic of BC emissions from international shipping.