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HARMFUL AQUATIC ORGANISMS IN BALLAST WATER

Challenges to effective implementation of the BWM Convention

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CLIA, INTERCARGO, InterManager, IPTA, NACE and WSC**

SUMMARY

<i>Executive summary:</i>	This document has been submitted to explain the challenges being faced for effective implementation of the BWM Convention and to provide proposals to address those challenges
<i>Strategic direction:</i>	2
<i>High-level action:</i>	2.0.1
<i>Planned output:</i>	2.0.1.8
<i>Action to be taken:</i>	Paragraph 24
<i>Related documents:</i>	MEPC 63/2/17, MEPC 63/2/19, MEPC 63/2/20, MEPC 63/INF.9, MEPC 63/23 and BLG 16/16

1 The co-sponsors of this document fully support the implementation of international requirements for ballast water management and are of the view that the International Convention for the Control and Management of Ships' Ballast Water and Sediments, 2004 (BWM Convention) is the most appropriate vehicle to achieving this objective.

2 However, as has been raised at previous MEPC meetings, there are a number of issues that are affecting ratification and implementation of the BWM Convention that need to be addressed by the MEPC and the IMO Member States to ensure proper and effective implementation of the Convention. The purpose of this document is to provide an overview of the major challenges that the co-sponsors believe are working against the ratification and effective implementation of the BWM Convention and to provide proposed ways forward to address these challenges.

Discussion

3 The major concerns of the co-sponsors that are affecting ratification and effective implementation of the BWM Convention are the following:

- .1 need for revision of the *Guidelines for approval of ballast water management systems (G8)* to improve transparency and ensure appropriate robustness of Ballast water management systems (BWMS);
- .2 availability of BWMS and sufficient facilities to install BWMS;
- .3 survey and certification requirements for ships constructed prior to entry into force of the BWM Convention; and,
- .4 sampling and analysis procedures for port State control purposes.

4 The following is a discussion of each of these concerns and proposals to address these concerns:

"Guidelines (G8)"

5 In June 2012 there were 23 Type Approved BWMS on the market; 25 BWMS have been approved in total with two BWMS having been withdrawn from the market by their manufacturers. All the Type Approved systems have been approved using the "Guidelines (G8)" and have been released onto the market with the intention of installation on board specific ship types and sizes and which will trade on a global basis in a range of physical and biological environments. As requested in paragraph 2.41.6 of MEPC 63/23, the co-sponsors provide the following comments on the "Guidelines (G8)".

6 In many cases it is apparent that the Type Approval Certificate and its enclosures are insufficient in detail to provide a clear picture of whether a system may be adequate to meet the needs of the vessel being considered and its particular trade routes. The problem stems from the lack of limits provided in the Type Approval Certificate and its enclosures even though this is an aspect specified within the "Guidelines (G8)". In some examples the approval documentation may imply that the BWMS has no practical and operational limitations. However, the fact that no limitations are provided does not mean limitations do not exist.

7 By way of an example, several Type Approval Certificates have been provided based on theoretical extrapolation of the system's maximum treatment rated capacity (TRC) as opposed to actual physical tests. The co-sponsors believe approval should be based on actual tests. The certification documentation frequently fails to include the capacity of ship board testing that was used when the D-2 standards were attained. In one such example, the Type Approval Certification was supplemented by a four page analysis of the ship board test in terms of the discharge standard but failed to include the treatment volumes for the test system. The accompanying certification has a range of treatment from 60-6,000 m³/hr. An owner may well express some scepticism at a system that has undertaken shipboard testing at 60 m³/hr yet has a maximum TRC of 6,000 m³/h. Approval should be given based on system tests at maximum capacity.

8 TRC is one example, but additional questions arise as to limitations of a BWMS to meet the D-2 discharge standard under many other operational conditions. For example, problems have already been experienced in relation to the operability of certain system types in brackish or freshwater, e.g. electro-chlorination and electrolysis; in turbid or

high-sediment-load waters in the case of UV systems, and; systems using filtration in sediment-rich, muddy waters that may reduce the efficiency (treatment volume and rate) or increase maintenance requirements of the filters.

9 It is clear that an owner is not able to make a decision based purely on the Type Approval Certification and its enclosures. However, resolution MEPC.174(58) states that the Type Approval Certificate should specify any limiting conditions of the BWMS usage necessary to ensure its proper performance. The co-sponsors propose that the form of the Type Approval Certificate as well as its enclosures should be revised and standardized with the aim of improving the transparency and detail of information being provided to ensure the overall veracity of the certification and the certification process.

10 The "Guidelines (G8)" stress the importance of the equipment to be constructed with due regard for its purpose as well as the working and environmental conditions in which it is intended to operate. A number of issues are now coming to light which demonstrate that the approval process and the manner in which it is being interpreted does not always ensure that the equipment is fit for purpose, i.e. is robust enough for ship board installation and operation. The following examples indicate additional areas in which the "Guidelines (G8)" need to be strengthened:

- .1 **Coatings.** Resolution MSC.215(82) provides details on the Performance Standard for Protective Coatings (PSPC). While proposals for standard tests on the impacts of BWMS on corrosion and coatings have been put forward by GESAMP-BWWG, the current corrosion and coating impact tests undertaken by BWMS manufacturers frequently fall well short of the standards established in the PSPC.
- .2 This is of concern for particular types of BWMS. For example, coating industry specialists have observed that in situations where oxidizing species are used in the BWMS there is an increased risk of corrosion within the ballast water tank and piping system. Other observations have been made with regard to the impact on epoxy coatings from the Active Substances used in the BWMS. Tests undertaken thus far have been limited in their scope. This limitation includes the doses that the coatings are subjected to, i.e. it does not take into account the probability of increases in doses due to more nutrient rich conditions, user error or dosage equipment failure. Another limitation is that of the time periods that the coatings are subjected to. Some coatings have only been subjected to the Active Substance doses over short (6 to 8 weeks) periods as opposed to a more thorough period of more than 6 months.
- .3 The coating industry representatives, IPPIC, in their submission MEPC 63/INF.9 also commented that the BWMS manufacturers should perform appropriate testing during the development phase of their equipment. IPPIC points out that the MEPC has only given general guidelines to the BWMS manufacturers for compatibility tests with coatings. The co-sponsors fully concur with IPPIC's view that, in order to give more clarity on potential effects, it is imperative that test protocols are standardized, described and thoroughly verified.
- .4 **Filters.** As a pre-treatment measure some BWMS use filters to remove larger organisms and particles. Some of the key challenges presented by the use of filters include but are not limited to:

- .1 Suboptimal operation at either end of the pressure range. Some Type Approval Certificates specify a minimum and maximum pressure. This indicates that at certain pressures the filters may not operate effectively. This is especially so at low pressures, such as during the last period of de-ballasting (tank stripping) when minimal volumes of ballast water will be pumped through the BWMS or simply when topping up the ballast tanks.
- .2 Back flush times may be extended in high sediment ballast uptake areas. This will result in increased back flushing being required and a consequential decrease in the capacity of the system overall. Such a variation in sediment or particle loading is rarely assessed during the type approval stage and as such actual treatment volumes in real-life situations may be greatly reduced. This will result in delaying vessels at certain ports with high sediment waters.
- .3 The physical nature of certain organisms also presents problems for filters. In areas of rich phytoplankton experience shows that plankton grasses can easily disrupt and quickly limit the flow of water through filters. Such limitations are difficult to overcome as the backflushing is not always effective in removing the flora in their entirety, unlike say sediment or mud which is particulate in nature.
- .5 The co-sponsors would propose that any review of the "Guidelines (G8)" assesses the need to ensure that the BWMS which rely on filters are tested in situations where ballast water flow may not be linear nor consistent. The results of the testing should then be provided on the Type Approval Certificates to indicate within which ranges the filters will operate effectively, which pumping rates the tests were undertaken and under what circumstances limitations in the filter's effectiveness may occur.
- .6 **HAZID assessment.** At least two Type Approved systems create hydrogen gas during the treatment phase, both of which have built in systems to keep the hydrogen levels below the 4% lower explosive limit. However, there is concern that the introduction of such systems counters the ongoing efforts of the shipping industry to eliminate all such safety and environmental risks. Due to space limitations on tankers with deep-well pumps, retrofitting BWMS requires the installation of the equipment on deck. SOLAS allows equipment to be installed on tanker decks only after a safety assessment has been undertaken and is approved by the Administration. Noting the above examples of increasing safety risks aboard, the co-sponsors propose that the "Guidelines (G8)" should require the BWMS manufacturers to include the submission of HAZID assessments and mitigation measures.

11 Resolution MEPC.174(58) notes that the approval of a system is intended to screen out BWMS that would fail to meet the D-2 standards. Approval, however, does not ensure that a given system will work in compliance with the discharge standard once installed on board and operated in the actual maritime environment. The proposals provided above are seen as a first step in assessing BWMS in a more credible and effective manner. If the MEPC should decide that there is a need to revise the "Guidelines (G8)", which

the co-sponsors believe is the case, then the Committee would also need to discuss what to do about systems that have already been approved under the current "Guidelines (G8)".

Availability of BWMS and facilities to install them

12 As the BWM Convention dates are progressively surpassed the number of ships to which the requirements apply 12 months after full ratification continually increases. This adds an additional pressure on facilities in terms of retrofitting capacity. Not only are the facilities under pressure to install systems, but BWMS manufacturers will be put under pressure to manufacture the systems and deliver these where and when required.

13 This issue was raised at MEPC 61 and 62, and further highlighted by Japan at MEPC 63 in their submission MEPC 63/2/17. Based on yard capacity and manufacturing capacity it is likely that the ship installation figures provided in MEPC 63/2/17 by Japan will become further accentuated and more difficult to practically achieve. MEPC 63 noted that there was consensus regarding the need for additional information on the implementation pace, availability of technologies and shipyard facilities and invited Member States to provide updated information regarding the status in their respective countries.

14 The co-sponsors fully support the need for additional information. However, based on the concerns presented thus far at the last three MEPC meetings, being of the view that those concerns remain valid, and most importantly, noting that regulation B-3 already requires BWMS installations to occur on a compressed schedule because the compliance date is based on the date when the BWM Convention survey, completed just before or after entry into force, is up for intermediate review or renewal, the co-sponsors are of the view that the MEPC should initiate contingency action at this meeting.

15 In this regard, the Committee will recall that at MEPC 56, it noted that the installation of Type Approved BWMS in accordance with regulation B-3 of the BWM Convention on ships already contracted to be constructed in or after 2009 may not be feasible or only possible at excessive cost and/or delay in delivery. In view of this concern, MEPC 56 agreed to consider 1 January 2011 as the new possible D-2 application date, but recognized that there were legal implications in doing so. To assist in this matter, the Secretary-General submitted a draft resolution to the twenty-fifth Assembly which, among other things,

"2 RECOMMENDS that States henceforth ratifying, accepting, approving or acceding to the Convention should accompany their instrument of ratification, acceptance, approval or accession, as appropriate, with a declaration or otherwise communicate to the Secretary-General their intention to apply the Convention on the basis of the following understanding, also taking into account paragraph 3:

"A ship subject to regulation B-3.3 constructed in 2009 will not be required to comply with regulation D-2 until its second annual survey, but no later than 31 December 2011."

3 RECOMMENDS ALSO that, following the entry into force of the Convention, Parties to the Convention should ensure that ships affected by the understanding described in paragraph 2 comply with either regulation D-1 or D-2 until such time as regulation D-2 is enforced;"

16 The twenty-fifth IMO Assembly agreed with this solution and adopted resolution A.1005(25) on 29 November 2007 which included the above-mentioned operative paragraphs.

17 The co-sponsors recommend that a similar approach be initiated by the MEPC at this meeting for further consideration at MEPC 65, so that if necessary a draft Assembly resolution can be submitted by the MEPC to the twenty-eighth Assembly for its consideration when it meets at the end of 2013. Rather than proposing specific dates in this document, the co-sponsors recommend that specific "new" installation dates should be discussed in detail in the Ballast water review group (BWRG). However, in further considering this matter, the co-sponsors strongly recommend that its concerns expressed above regarding revision of the "Guidelines (G8)" must be taken into account before deciding on any "new" installation dates.

Survey and certification requirements for ships constructed prior to entry into force of the BWM Convention

18 This issue was raised by IACS and a number of other co-sponsors in MEPC 63/2/20. The main concern is that the BWM Convention allows no phase-in period for ships constructed prior to the entry into force of the Convention to comply with the provisions relating to survey and certification for ships, resulting in all ships of 400 gross tonnage and above to have on board an approved BWM Plan and be surveyed and certificated immediately on the entry into force of the BWM Convention.

19 MEPC 63 agreed that it would be impracticable to prepare, review and approve BWM Plans and survey and certify all ships of 400 gross tonnage and above within the 12-month period between when the conditions for entry into force have been satisfied and the actual entry into force of the Convention. To address this, MEPC 63 endorsed the conclusion of the BWRG that the solution was to allow the issuance of Ballast Water Management Certificates prior to entry into force of the BWM Convention, endorsed to state that validity begins from entry-into-force date, combined with a statement issued to the Company when the BWM Plan was received thereby allowing the vessel to trade for three months with an unapproved BWM Plan on board. The MEPC also requested to be kept advised on the progress made after the conditions for entry into force of the BWM Convention have been met and prior to the actual entry into force of the Convention.

20 The co-sponsors fully support this approach. However, to ensure that this solution is properly implemented from a practical standpoint, the co-sponsors propose that the Bulk Liquids and Gases (BLG) or Flag State Implementation (FSI) Sub-Committee be instructed to develop an MEPC circular for the Committee's consideration at MEPC 65 that brings this solution to the attention of flag State and port State authorities to ensure that all are aware of this agreed solution and ship operators that comply with this solution are not improperly penalized. Or alternatively, if the MEPC agrees, the Secretariat could be requested to draft an MEPC circular for consideration at this meeting.

Sampling and analysis procedures for port State control purposes

21 BLG 16 considered a draft circular on a harmonized standard operating procedure for ballast water sampling and analysis. During the BLG's consideration of the draft circular a number of delegations expressed concerns regarding the relationship between the draft circular and the Type Approval testing of ballast water management systems according to the "Guidelines (G8)". In particular that there was the potential for properly used and maintained Type Approved systems being found non-compliant when assessed in accordance with the circular. Other concerns included the representativeness of samples, the lack of standardized procedures for conducting the sampling and analysis, and the limited level of confidence of the sampling process.

22 The manner in which the sampling and port State control procedures are being interpreted at present would suggest that there is also a lack of confidence by some administrations in the original approval process. This would indicate uncertainty in the ability of the approval process using "Guidelines (G8)" to fulfil its obligations in ensuring compliant systems are installed and operated on board ships.

23 The co-sponsors believe that this uncertainty in regards to compliance and enforcement remains a considerable barrier to implementation. It therefore stands to reason that the work of BLG on the sampling and port State control guidelines should give due regard for the approval process and the "Guidelines (G8)". Additional measures deemed necessary to ensure enforcement should obviously be reflected in a more rigorous Type Approval procedure and not in enforcement measures which go beyond the original testing parameters of the equipment. The co-sponsors wish to make it clear that they are not suggesting that there should be no port State control sampling or compliance monitoring.

Action requested of the Committee

24 The Committee is invited to consider the above and, in particular, the proposed ways forward to address the co-sponsors' concerns, and decide as appropriate.
