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REVIEW OF THE 2011 GUIDELINES FOR THE CONTROL AND MANAGEMENT OF SHIPS' BIOFOULING TO MINIMIZE THE TRANSFER OF INVASIVE AQUATIC SPECIES (RESOLUTION MEPC.207(62))

Survey on biofouling and update on in-water cleaning implementation project

Submitted by ICS, BIMCO and INTERTANKO

SUMMARY

Executive summary: The document reports on the results of a survey asking shipowners and other stakeholders about their biofouling management and how the results may be used to support the review of the Biofouling Guidelines. It also gives a brief update on an industry in-water cleaning implementation project.

Strategic direction, if applicable: 1

Output: 1.19

Action to be taken: Paragraph 26

Related documents: MEPC 76/13/2; PPR 7/7/1; PPR 9/7, PPR 9/INF.19 and resolution MEPC.207(62)

Introduction

1 MEPC 73 decided on the new output titled "Review of the 2011 Guidelines for the control and management of ships' biofouling to minimize the transfer of invasive aquatic species (resolution MEPC.207(62))".

2 Biofouling management is an important issue for shipowners because biofouling has the potential to transfer invasive aquatic species (IAS) and to increase the ship's drag in the water. An increased drag significantly reduces the hydrodynamic performance and increases fuel consumption, thereby impacting the ship's greenhouse gas (GHG) emissions.

3 In September 2021, BIMCO conducted a biofouling survey to gain insights into how shipowners are managing biofouling, in-water cleaning and particularly to learn about their experiences of the anti-fouling systems in use.

4 This document discusses the main results of the survey in relation to the work of the Sub-Committee. The complete results of the survey can be found in document PPR 9/INF.19.

Survey participants

5 The survey was conducted over a four-week period starting in September 2021. The survey aimed to collect information on biofouling management directly from entities that had a direct link to ships and anti-fouling systems (AFS).

6 Responses from 53 companies representing 5,668 ships were analysed. This sample size represents companies operating approximately 8% of the world merchant fleet.¹ Of the 53 companies, 43 identified themselves as being a shipowner or operator, 9 as a ship manager, and one as a trading company.

Insights from the survey

7 From the survey results detailed in document PPR 9/INF.19, it can be concluded that commercial entities such as shipowners, operators and managers involved with a ship have a keen interest in managing biofouling. This is done through several steps, such as choosing the most appropriate AFS, managing and assessing the growth of biofouling continually and frequently as an integrated part of the planned maintenance system (PMS), and cleaning the ships as soon as the need arises and, at times, well before the need arises.

8 Shipowners and operators report that the quality and effectiveness of AFS have improved over the years resulting in lesser cleaning requirements. AFS manufacturers are continuously improving their offerings to cater for the demand and to get ahead of the competition. AFS have come a long way and now there are improved products in the market that last their lifetime and work effectively.

Consideration of the survey results in the review of the Biofouling Guidelines

9 The survey shows that there is commitment from the shipping industry to apply the existing Guidelines and a desire to manage biofouling to a high level. The survey received responses from companies representing 8% of the world fleet and if applied more widely it could be inferred that uptake of the Guidelines across the industry is reasonably high. It is clear that biofouling can be managed if owners apply anti-fouling coatings that suit their ship's operational profile and perform regular maintenance. As owners and operators become more familiar with improving technical guidance and how their operations influence biofouling this is likely to be even higher.

10 The survey highlights that the lack of uptake of the Guidelines can be attributed to issues such as availability of good quality in-water inspection and cleaning services across a wide range of ports. Together with improved practicability this should be considered when undertaking amendments to the Guidelines to further encourage uptake rather than to deter shipowners. A pragmatic approach to assessing risk and how that relates to existing monitoring and measurement undertaken by ships is likely to provide more encouragement than an intensive inspection regime.

11 The results of the survey demonstrate that ships are already undertaking monitoring of their biofouling by several different means, including physical inspections and data monitoring. The "Industry standard on in-water cleaning with capture", which was published in

¹ BIMCO ICS Seafarer Workforce Report 2021 calculated the world merchant fleet at 74,505 ships in international trade. The number does not include ships operating on domestic voyages and tugs less than 300 GT.

January 2021 and reported in document MEPC 76/13/2, provides practical and detailed guidance on when in-water inspections of the hull and niche areas might be carried out.²

12 Apart from in-water inspections, which was the focus area of the survey, it should be mentioned that control of biofouling growth is also part of the normal operation of the ship. When the ship is in a low draught condition, the crew checks the unsubmerged part of the hull above the water for biofouling growth, e.g. when the mooring lines are checked from the quayside.

13 The draft revised Guidelines presented in document PPR 9/7 recommend frequent use of in-water inspections based on a ship-specific risk assessment. The problem with this approach is that it seems to disregard that ships already use several ways to quantify biofouling growth. The results of the survey showed that 90% of the AFS work as intended for long periods after application. Therefore, it is suggested that inspection intervals should depend on the data the ship has obtained as part of its biofouling risk assessment. In the 20% of cases in the survey where the AFS was effective throughout the entire lifetime fixed inspections would be unnecessary. On the other hand in case of failure of the AFS fixed intervals of biofouling growth should be applied.

14 Quantified data can be provided by most ships on the state of their biofouling and existing monitoring and measurement should be used to negate the requirements for fixed intervals of inspections where the measured data demonstrates risk is low. This will reduce the burden on both the ship and the Administration that will arise due to complexities in biofouling inspections.

15 Biofouling growth of embedded niche areas is harder to quantify and fixed intervals of inspections should be considered for these areas. The inspection intervals should be dependent on whether the ship has installed marine growth prevention systems and how effective they are. The effectiveness of such systems was not part of the survey and more investigation may be needed in order to determine appropriate inspection frequencies.

16 The Guidelines should be designed to prevent, minimize and ultimately eliminate the risks of negative impacts while avoiding unwanted side-effects from controlling and managing biofouling. The risks of increased inspection have not, as yet, been included. The ship-specific risk assessment provides only one element of whether an inspection should be carried out and more work needs to be done to ensure the inspection regime is based on complete information. This includes factoring in:

- **Cost** both arising from delays to the operation, movement or departure of ships, which may interfere with the ship's operations, and the cost of undertaking inspections. The Australian Government Department of Agriculture and Water Resources reported in 2019 that specific in-water biofouling inspections are estimated to cost AUD \$7,000 per ship.³ Using a figure of 74,505 ships, if an inspection is required at a minimum of once per year (as proposed) a low estimate cost of such an inspection regime would be in the order of USD \$380 million per year.
- **Reliance on suitable oceanographic conditions** whereby unfavourable conditions such as high turbidity water, poor visibility, strong currents, etc. will make in-water inspections for biofouling unreliable and very difficult to carry out safely.

² <https://www.bimco.org/about-us-and-our-members/publications/industry-standard-on-in-water-cleaning-with-capture>

³ <https://www.frontiersin.org/articles/10.3389/fmars.2019.00489/full#B10>

- **Occupational health concerns** whereby there is a risk of fatalities and serious injuries suffered by divers conducting ship inspections and other underwater ship husbandry work. This is particularly relevant for niche areas which can be particularly hazardous to access.
- **Access to divers and remotely operated vehicles (ROVs)** whereby only some ports will be able to undertake inspections. With the frequency of required inspections (even for low-risk ships) this will likely be a limiting factor.
- **Access to suitably qualified inspectors** who will be needed to determine the level of biofouling. There will need to be suitably qualified inspectors to perform assessments in a manner that does not delay ships unduly.
- **Access to in-water cleaning** whereby it is essential that infrastructure is developed for more ports to give access to in-water cleaning facilities. It is doubtful that the revised Guidelines can be implemented without giving increased access to in-water cleaning.

In-water cleaning implementation project

17 In document MEPC 76/13/2 BIMCO and ICS informed about the upstart of a small-scale implementation project that aims to implement the "Industry standard on in-water cleaning with capture" (Industry Standard) and the corresponding "Approval Procedure for in-water cleaning companies" (Approval Procedure) and test its practicability.

18 The industry working group consists of BIMCO, ICS, INTERTANKO, three classification societies, two ports, eight in-water cleaning companies, three paint manufacturers, and seven shipowners.

19 Based on knowledge gained about biofouling management and testing of in-water cleaning companies the working group will improve the Industry Standard and the Approval Procedure. The focus of this work will be on safety and protection of the marine environment.

20 Each in-water cleaning system will have to be tested on minimum three different ships to obtain a certificate issued by an independent approval body. Before testing, the in-water cleaner will be audited based on a substantial review of documentation procedures covering the safety and environmental standard operational procedure as well as training records.

21 When in-water cleaners are approved in accordance with the Approval Procedure after undergoing rigorous auditing process and testing of their systems including the capture capability, it is verified that they can conduct a quality, safe and environmentally friendly cleaning operation. Hopefully, this will encourage more ports to allow in-water cleaning in their territory.

22 The small-scale implementation project has been delayed due to COVID-19, and the status is that documentation in accordance with the Approval Procedure has been submitted to the classification societies that are acting as approval bodies. As soon as the documentation has been reviewed by the approval body, an audit will be initiated. It is expected that the first on-site series of tests will take place during the second quarter of 2022.

Points for consideration

23 It is proposed that risk-based categorization, which includes ship-based risk assessment of biofouling and a full risk assessment related to inspections, should be carefully planned and needs further development by the Correspondence Group taking into consideration the points raised in paragraph 16.

24 Risk-based categorization of ships should consider the measures established by ships in accordance with the Biofouling Management Plan and/or the PMS as well as consider existing inspection practices carried out by ships such as when undertaking propeller polishing.

25 Inspections for the sake of inspections are not helpful when trying to encourage the uptake of the Guidelines particularly when there is a robust practice already. In the absence of a global mandatory biofouling regime, excessive inspections, which come at a cost to shipowners, may not find the necessary uptake.

Action requested of the Sub-Committee

26 The Sub-Committee is requested to note the information and consider the points set forward in paragraphs 23 to 25.
