



Document title	Concept for a Regional Baltic Biofouling Management Roadmap
Code	4-2
Category	DEC
Agenda Item	4 – Ballast water and biofouling
Submission date	26.08.2019
Submitted by	Germany, Finland and Poland
Reference	

Background

The COMPLETE Project (Completing management options in the Baltic Sea Region to reduce risk of invasive species introduction by shipping, 2017-2020), funded by the EU Interreg Baltic Sea Region Programme, includes partner institutions from Estonia, Finland, Germany, Latvia, Lithuania, Poland, and Sweden, as well as HELCOM.

This document provides an overview of the COMPLETE project outputs and deliverables related to biofouling management in the Baltic Sea Region, contributing to the implementation of the IMO *Guidelines for the control and management of ships' biofouling to minimize the transfer of invasive aquatic species* (resolution MEPC.207(62)) which are currently under review (MEPC.1/Circ.811), and the *Guidance for minimizing the transfer of invasive aquatic species as biofouling (hull fouling) for recreational craft* (MEPC.1/Circ.792) in the Baltic Sea Region.

Action required

The Meeting is invited to:

- consider the concept for a Regional Baltic Biofouling Management Roadmap and to provide comments to develop the Roadmap further;
- discuss and agree on the process to share the further developed Regional Baltic Biofouling Management Roadmap with HELCOM for consideration with the understanding that the COMPLETE project will conclude its activities in 2020.

The intention is to eventually submit the final roadmap to HELCOM HOD for approval and adoption.

Concept for a REGIONAL BALTIC BIOFOULING MANAGEMENT ROADMAP

Preamble

There is a clear international commitment to minimizing the risk of transfer and spread of invasive aquatic species and harmful aquatic organisms and pathogens by maritime traffic which has been demonstrated e.g. in adopting the *International Convention for the Control and Management of Ships' Ballast Water and Sediments* (IMO BWMC) in 2004. The Convention entered into force in September 2017. Nevertheless, the other main shipping-related vector, biofouling, responsible for between 56-69 % of the established coastal and estuarine non-indigenous species globally¹ is only addressed by the voluntary IMO *Guidelines for the control and management of ships' biofouling to minimize the transfer of invasive aquatic species* (Resolution MEPC.207(62)), or in case of leisure boats less than 24 meters in length, *Guidance for minimizing the transfer of invasive aquatic species as biofouling (hull fouling) for recreational craft* (MEPC.1/Circ.792). The IMO Guidelines are currently under review (MEPC.1/Circ.811) and will be considered by the IMO-Sub-Committee on Pollution Prevention and Response (PPR) in 2020 and 2021.

IMO requested its Member States "to take urgent action in applying these Guidelines, including the dissemination thereof to the shipping industry and other interested parties, taking these Guidelines into account when adopting measures to minimize the risk of introducing invasive aquatic species via biofouling, and reporting to the MEPC on any experience gained in their implementation" and to bring the Guidance to the attention of all parties concerned.

In addition to the IMO Guidelines and Guidance, which focus on preventing the transfer of invasive aquatic species, the *International Convention on the Control of Harmful Anti-fouling Systems on Ships* (IMO AFS Convention) needs to be considered in biofouling management. The Convention, which prohibits the use of harmful organotin compounds in antifouling paints used on ships and establishes a mechanism to prevent the potential future use of other harmful substances in antifouling systems, was adopted in 2001 and entered into force in 2008. The Convention is currently undergoing an amendment procedure within IMO to also prohibit the use of cybutryne compounds.

From the environmental point of view, there is an imbalance between the strictly controlled ballast water management and the varying interpretation of the regulatory framework for the biofouling management since the introductions of invasive aquatic species are equally harmful, irrespectively of the introduction pathway.

Goal

The aim of the COMPLETE project is to deliver the pertinent information and concept for the development of a regionally harmonized biofouling management roadmap for the Baltic Sea Region. There is an urgent need to develop a management framework that is consistent throughout the region and based on a holistic assessment of invasive species, use of biocides, climate impact of biofouling due to increased vessel fuel consumption, waste management of hull cleaning as well as economic aspects.

Biofouling is a concern worldwide demanding a globally consistent approach to its management. The draft Biofouling Management Roadmap will be aligned with and based on the IMO Guidelines and Guidance but explicitly addressing the specific conditions of the Baltic Sea Region and aspects relevant for its implementation in the region. Therefore, the draft roadmap could also be taken as input for the review process of the IMO Guidelines from a Baltic Sea perspective.

¹ Galil, B.S., McKenzie, C., Bailey, S., Campbell M., Davidson, I., Drake, L., Hewitt, C., Occhipinti-Ambrogi, A., and Piola, R. 2019. ICES Viewpoint background document: Evaluating and mitigating introduction of marine non-native species via vessel bio-fouling. [ICES Ad Hoc Report 2019](#). 17 pp.

In the draft roadmap, special attention will be given to further formalizing and concretizing the issues of the IMO Guidelines which are only mentioned but without any information for their implementation (e.g. “in-water cleaning”).

Biofouling management issues

The COMPLETE project proposes the following management issues to be addressed at a regional level:

1. Vessel-specific Biofouling Management Data

The IMO Guidelines recommend that the biofouling management measures to be undertaken on a ship should be outlined in a Biofouling Management Plan, and records of biofouling management practices kept in a Biofouling Record Book. The IMO Guidelines list the information that should be addressed in the Biofouling Management Plan and recorded in a Biofouling Record Book.

Similarly, the IMO Guidance recommends retaining the craft's biofouling management information in one place, such as the craft's logbook.

Results from the COMPLETE project clearly show that this vessel-specific information is a central prerequisite for effective management of biofouling and the risk of introductions of invasive aquatic species. This information is especially necessary for cost-effective maintenance of vessels and for conducting adequate risk assessments related to in-water cleaning activities. This information should be made available to ports, marinas and yards/docks as well as authorities responsible for monitoring the compliance of vessels regarding biofouling management schemes. The documentation should be kept on board and be handed out at the end of the service time of the vessel to give information for the decommissioning and recycling.

The COMPLETE project will produce a guidance on which information should be included in the documentation of ships and leisure boats operating in the Baltic Sea Region.

2. Antifouling system installation and maintenance

2.1 Choosing the antifouling system

The IMO Guidelines provide a list of factors that should be considered when choosing an antifouling system, and instruct to give consideration also to the need for tailored, differential installation of antifouling coating systems for different areas of the ship to match the required performance and longevity of the coating with the expected wear, abrasion and water flow rates in specific areas, such as the bow, rudder, or internal seawater cooling systems and sea chest interiors.

Similarly, the IMO Guidance provides a list of factors that should be considered when choosing an antifouling coating system.

The COMPLETE project will produce guidance on which factors should be considered for ships and leisure boats operating in the Baltic Sea Region. The guidance will take into account the cost-efficiency of the different systems, current best practices, impact on vessel fuel consumption and emissions, and the applicable legal requirements. The guidance will also address the niche areas of vessels. Moreover, the COMPLETE project will provide a prototype of a decision support tool enabling shipowners to plan case-specific cost-effective biofouling management strategies for their vessels, including both the choice of the antifouling system and the cleaning practices.

2.2 Maintaining the antifouling system

According to the IMO Guidelines, care should be taken in the craft's surface preparation to ensure all biofouling residues, flaking paint, or other surface contamination is completely removed, particularly in niche areas, to facilitate good adhesion and durability of the anti-fouling system. The IMO Guidelines and Guidance also outline management measures for niche areas. In addition, the IMO Guidelines provide a list of measures that should be adopted to ensure that viable biofouling organisms or chemical and physical pollutants are not released into the local aquatic environment.

The COMPLETE project will provide guidance concerning the waste management and capture of residues in maintenance of the antifouling system, based on current best practices and existing regulations in the Baltic Sea Region. This will also include the aspect of utilizing microplastic particles and copper slag as abrasives.

3. In-water inspections, cleaning and maintenance

The IMO Guidelines recommend in-water inspections to be undertaken periodically to inspect the condition of antifouling systems and the biofouling status of a ship, augmented by specific inspections as necessary to address any situations of elevated risk. Moreover, it is recommended that ship operators identify niche areas that may accumulate biofouling to enable these areas to be effectively targeted during inspections.

Similarly, the IMO Guidance advises boat owners to regularly assess the need for cleaning and the condition of the antifouling coating system, and conduct in-water inspections of the craft at the beginning and end of a planned period of inactivity, before and after a significant change to the craft's operating profile, or following damage to, or failure of, the antifouling system.

Both the IMO Guidelines and Guidance suggest in-water cleaning as an important part of biofouling management. However, it is recognized that in-water cleaning can also introduce different degrees of environmental risk, depending on the nature of biofouling (i.e. microfouling versus macrofouling), the amount of antifouling coating residue released and the biocidal content of the antifouling coating system. Therefore, the IMO Guidelines encourage States to conduct a risk assessment to evaluate the risk of in-water cleaning activities and minimize potential threats to the environment, property and resources, and list factors that could be included in the assessment.

To avoid the spread of species and to maintain the vessel as free of biofouling as possible, the biofouling level should be monitored by in-water inspections, followed by cleaning and maintenance whenever necessary and feasible. The COMPLETE project will produce an overview of current regulations and a proposal for harmonizing the currently extremely variable regulation concerning in-water inspections and cleaning activities of ships and leisure boats operating in the Baltic Sea. The proposal will consider the necessary factors to be included in the risk assessment, the different environmental and operational conditions (e.g. ice coverage) as well as the biofouling potential of vessels arriving in different parts of the region, applicable technical options including waste collection and management, needs and requirements for accreditation, and schemes for evaluating biofouling intensity, addressing also the niche areas. Moreover, the COMPLETE project will produce a prototype of a decision support tool enabling shipowners to plan case-specific cost-effective biofouling management strategies for their vessels, including both the choice of the antifouling system and the cleaning practices, a biofouling assessment protocol for leisure boats and marinas, guidance on best practices for biofouling management in the leisure boating sector, a practical guidance on cleaning practices, a tool to optimize hull cleaning for the commercial shipping sector and an interactive map of hull cleaning service providers in the Baltic Sea Region.

4. Dissemination of information

The IMO Guidelines advise State authorities to provide ships with timely, clear and concise information on biofouling management measures and treatment requirements that are being applied to shipping and ensure these are widely distributed. On the other hand, shipowners and operators should endeavor to become familiar with all requirements related to biofouling by requesting such information from their port or shipping agents or competent authorities (i.e. State authorities). Similarly, IMO requests its Member States to bring the IMO Guidance to the attention of all parties concerned.

To monitor the effectiveness of the IMO Guidelines, States, as part of the evaluation process, are encouraged to provide to the IMO details of records describing reasons why ships could not apply the Guidelines, e.g., design, construction or operation of a ship, particularly from the view point of ships' safety, limitation by regional regulation (such as restrictive in-water cleaning approvals), or lack of information concerning the Guidelines.

The COMPLETE project will produce an overview of the level of knowledge of and compliance with the IMO Guidelines and Guidance among shipowners and boat owners, respectively, and recommendations on how the harmonized biofouling management schemes proposed in the draft Biofouling Management Roadmap could be implemented in co-operation with the relevant stakeholders of both the commercial shipping and leisure boating sectors in the Baltic Sea Region. This is foreseen to be conducted as part of the extension of the COMPLETE project which will be applied for.

In the process of producing the outputs for the draft roadmap, the COMPLETE project is actively involving and engaging stakeholders to be able to identify management options which are operationally, technically and economically viable and thus supported by the stakeholders. A similar approach is advised to be utilized also in the future development and, finally, implementation of the proposed Biofouling Management Roadmap for the Baltic Sea Region.

Evaluation and follow-up

The COMPLETE project welcomes all feedback from the HELCOM Contracting Parties and Observers to the proposed concept of a Regional Baltic Biofouling Management Roadmap. If the response for the further development of the draft roadmap is positive and if invited to do so, the COMPLETE project will submit a revised draft roadmap for consideration by the HELCOM Maritime 20-2020.

In addition, the COMPLETE project invites countries to consider arranging a joint workshop between HELCOM and OSPAR Contracting Parties and Observers to discuss the potential for harmonizing the biofouling management issues proposed in the roadmap between the two regional seas, the Baltic and the North-East Atlantic.

The roadmap could also be utilized to provide input from a Baltic Sea perspective to the evaluation of the IMO Guidelines by the IMO Sub-Committee on Pollution Prevention and Response (PPR) in 2021.

Summary

The contributions of the outputs of the COMPLETE project to the draft roadmap by the end of the project in autumn 2020 are presented in Table 1.

Table 1. Contributions of the outputs of the COMPLETE project to the draft roadmap.

Biofouling management issue	COMPLETE contribution
1. Biofouling Management Plan and Biofouling Record Book	Guidance on information to be included in the documentation
2. Antifouling system installation and maintenance	Guidance on choosing AFS
	Decision support tool prototype for cost-effective biofouling management strategies
	Best practice for waste management and capture of residues
3. In-water inspections, cleaning and maintenance	Proposal for harmonizing regulation
	Biofouling assessment protocol for leisure boats and marinas
	Best practice for biofouling management in the leisure boating sector
	Best practice on cleaning practices
4. Dissemination of information	Interactive map of hull cleaning service providers
	Proposal for implementing regionally harmonized biofouling management on the basis of the IMO Guidelines