



GUIDANCE NOTES ON

BIOFOULING MANAGEMENT PLANS

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Foreword

While the adoption of the International Convention for the Control and Management of Ships' Ballast Water & Sediments, 2004 (BWM Convention) represents a significant commitment by the IMO Member States to reducing the spread of harmful species and pathogens, studies have indicated that biofouling of ships can also contribute to the spread of potentially invasive organisms.

Noting the potential for invasive aquatic species to be transferred through biofouling, Administrations and the IMO, respectively, have established Regulations and Guidelines aimed at reducing the risk of the transfer of invasive aquatic species via biofouling.

In association with the various management practices contained within these Regulations and Guidelines, Administrations and the IMO have recommended the development, implementation, and periodic review of a Biofouling Management Plan.

IMO Resolution MEPC.207(62) contains Guidelines that recommend every ship have a Biofouling Management Plan and a Biofouling Record Book onboard. In and of themselves, these Guidelines are not mandatory. However, regular reference should be made to the latest requirements of individual States to determine the scope of implementation to ships entitled to fly the flag, and to ships operating in the jurisdictional waters, of that State.

To assist the marine industry, ABS is issuing these Guidance Notes and Template to provide practical assistance to ship masters, operators and owners, shipbuilders, ship cleaning and maintenance operators, and other interested parties in the development of a Biofouling Management Plan.

The text of these Guidance Notes and Template is intended to complement current maintenance practices carried out within the industry.

These Guidance Notes become effective on 15 January 2013.

Users are advised to check periodically on the ABS website www.eagle.org to verify that this version of these Guidance Notes is the most current.

We welcome your feedback. Comments or suggestions can be sent electronically by email to rsd@eagle.org.



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SECTION 1 Introduction

1 General

IMO Resolution MEPC.207(62) contains Guidelines that recommend every ship have a Biofouling Management Plan and a Biofouling Record Book onboard. In and of themselves, these Guidelines are not mandatory. However, regular reference should be made to the latest requirements of individual States to determine the scope of implementation to ships entitled to fly the flag, and to ships operating in the jurisdictional waters of that State.

A biofouling management plan and biofouling record book may be either a stand-alone document, or integrated, in part or fully, into the vessel's existing operational and procedural manuals and/or planned maintenance system. The biofouling management plan is to be vessel-specific and is to provide a description of the biofouling management strategy for a vessel with sufficient details to allow a vessel's Master, the designated ship's officer, or crew members to understand and implement the biofouling management strategy.

The contents of these Guidance Notes are based on IMO Resolution MEPC.207(62) "2011 Guidelines for the Control and Management of Ship's Biofouling to Minimize the Transfer of Invasive Aquatic Species".

This document has been provided to assist in the development of a vessel's Biofouling Management Plan.

1.1 Biofouling Management Plan

The Biofouling Management Plan should be specific to each vessel and included in the vessel's operational documentation. Such a plan should address, among other things, the following:

- i)* Relevant parts of IMO Resolution MEPC.207(62) "2011 Guidelines for the Control and Management of Ship's Biofouling to Minimize the Transfer of Invasive Aquatic Species"
- ii)* Details of the anti-fouling systems and operational practices or treatments used, including those for niche areas
- iii)* Hull locations susceptible to biofouling, schedule of planned inspections, repairs, maintenance, and renewal of anti-fouling systems
- iv)* Details of the recommended operating conditions suitable for the chosen anti-fouling systems and operational practices
- v)* Details relevant for the safety of the crew, including details on the anti-fouling system(s) used
- vi)* Details of the documentation required to verify any treatments recorded in the biofouling record book as outlined in Appendix 1, Chapter 2
- vii)* A copy of the two most recent drydockings detailing the out of water maintenance

The biofouling management plan should be updated as necessary.

1.3 Biofouling Record Book

A biofouling record book is to be maintained such that it could also assist interested State authorities to quickly and efficiently assess the potential biofouling risk of the vessel, and thus minimize delays to vessel operations.

The biofouling record book is to be retained on the vessel for the life of the vessel.

Information that should be recorded in a biofouling record book should include the following:

- i)* Details of the anti-fouling systems and operational practices used (where appropriate as recorded in the Anti-fouling System Certificate), where and when installed, areas of the ship coated, its maintenance and, where applicable, its operation
- ii)* Dates and location of drydockings/slippings, including the date the ship was re-floated, and any measures taken to remove biofouling or to renew or repair the anti-fouling system

1.5 Biofouling Management Plan Template

A template of a vessel's Biofouling Management Plan, which may be modified to suit a specific vessel, is found in Appendix 1.



SECTION 2 Regional Requirements

1 General

The regional requirements described in this section include particular requirements specified by the United States of America. If and when other Flag Administrations issue requirements additional to the IMO Resolution MEPC.207(62) “2011 Guidelines for the Control and Management of Ship’s Biofouling to Minimize the Transfer of Invasive Aquatic Species”, these will be included in future updates of these guidance notes.

3 United States of America

To support the ongoing objective of further reducing the potential risk of the spread of invasive aquatic species by shipping, the U.S. Coast Guard and the State of California have incorporated regulations specifying operational measures aimed at preventing the spread of invasive aquatic species via biofouling. The prevention of biofouling is an important component of the ballast water management plan.

3.1 U.S. Coast Guard

In accordance with 33 CFR 151.2050(e), every vessel equipped with ballast tanks operating in U.S. Waters is required to rinse anchors and anchor chains when the anchor is retrieved to remove organisms and sediments at their places of origin. In addition, these vessels are required by 33 CFR 151.2050(f) to remove fouling organisms from the vessel’s hull, piping, and tanks on a regular basis and dispose of any removed substance in accordance with local, State and Federal regulations.

To assist the Owners/operators and ship’s crew, as well as Coast Guard Inspecting Officers/Teams, in the management of biofouling, the U.S. Coast Guard regulations specify that the required Ballast Water Management Plan shall include detailed fouling maintenance procedures. While the regulations do not detail the items to be included within the fouling maintenance procedures, the Coast Guard has advised that IMO Resolution MEPC.207(62) and the latest draft of the California State Lands Commission (specifically Section 2298.4 entitled “Biofouling Management Plan”) provide a basis for developing a vessel-specific biofouling management plan. The Coast Guard has also advised that inclusion of such a biofouling management plan in the required Ballast Water Management Plan or a reference in the Ballast Water Management Plan to an independent vessel-specific Biofouling Management Plan would satisfy this regulation.

Coast Guard regulations do not currently require Ballast Water Management Plans to be approved. However, approval of the Ballast Water Management Plan will be required when the IMO Ballast Water Management Convention enters into force.

3.3 U.S. Environmental Protection Agency

As required by part 4.1.3 of the 2008 Vessel General Permit (VGP), a comprehensive vessel inspection must be conducted by qualified personnel at least once every 12 months. Qualified personnel include the Master or Owner/operator of the vessel, if appropriately trained, or appropriately trained marine or environmental engineers or technicians or an appropriately trained representative of a vessel’s class society acting on behalf of the Owner/operator (ABS Surveyor).

These comprehensive annual inspections must cover all areas of the vessel affected by the requirements in the VGP that can be inspected without forcing a vessel into drydock. Special attention should be paid to those areas most likely to result in a discharge, likely to cause or contribute to non-compliance of water quality standards, or violate effluent limits established in the VGP. Areas that inspectors must examine include, but are not limited to:

- i)* Vessel's hull for attached living organisms, flaking anti-fouling paint, exposed organotin (tin-based chemicals used in marine anti-fouling paints) surfaces such as TBT (tributyltin)
- ii)* Ballast water tanks, as applicable
- iii)* Bilges, pumps, and oily water separator (OWS) sensors, as applicable
- iv)* Oil discharge monitoring systems
- v)* Protective seals for lubrication and any hydraulic oil leaks
- vi)* Oil and chemical storage areas, cargo areas, and waste storage areas
- vii)* All visible pollution control measures to verify that they are functioning properly

The annual inspections must also include a review of monitoring data collected in accordance with Part 5 of the VGP, where applicable, and routine maintenance records to verify that required maintenance is being performed. Furthermore, the inspections must verify whether all monitoring, training, and inspections are logged and documented according to permit requirements.

If any inspection reveals deficiencies that would result in a violation of effluent limits, or indicates that a control measure is not functioning as anticipated or is in need of repair or upgrade, the Master or Owner/operator must take corrective action to resolve such deficiencies in accordance with Part 3 of the VGP. All results from the comprehensive annual inspection must be recorded in the vessel's record-keeping documentation or logbook.

Whenever possible, rigorous hull-cleaning activities should take place in drydock, or at other land-based facilities where the removal of fouling organisms or spent antifouling coatings paint can be contained. If water-pressure based systems are used to clean the hull and remove old paint, use facilities which treat the washwater prior to discharge to remove the antifouling compound(s) and fouling growth from the washwater.

Vessel owner/operators who remove fouling organisms from hulls while the vessel is waterborne must employ methods that minimize the discharge of fouling organisms and antifouling hull coatings. These shall include

- Selection of appropriate cleaning brush or sponge rigidity to minimize removal of antifouling coatings and biocide release into the water column
- Limiting use of hard brushes and surfaces to the removal of hard growth
- When available and feasible, use of vacuum control technologies to minimize the release or dispersion of antifouling hull coatings and fouling organisms into the water column.

Vessel owners/operators must minimize the release of copper based antifoulant paint into the water column when they clean their vessel. Cleaning of copper based antifoulant paints must not result in any visible cloud or plume of paint in the water: if a visible cloud or plume of paint develops, shift to a softer brush or less abrasive cleaning technique. A plume or cloud of paint can be noted by the presence of discoloration or other visible indication that is distinguishable from hull growth or sediment removal. Production of a plume or cloud of sediment or hull growth is normal in some cases during the hull cleaning, but this plume or cloud should be substantially paint free (e.g. paint should not be clearly identified in the plume or cloud).

Vessels that use copper based anti-fouling paint must not clean the hull in copper impaired waters within the first 365 days after paint application unless there is a significant visible indication of hull fouling.

For purposes of the VGP, tributyltin is a toxic organometallic compound which was previously registered for use as a biocide in anti-fouling paints applied to vessel hulls and other underwater parts of ships. Organotins are the larger family of organometallic compounds to which tributyltin belongs. When used in the text of the VGP, the EPA is referring to "organotins" as compounds in their capacity as biocides. In many IMO Member States, including the United States, the use of anti-fouling paints containing tributyltin has been phased out due to concerns about its environmental impacts.

The U.S. Environmental Protection Agency has prohibited the use of anti-fouling paints containing TBT or any other organotin compounds as a biocide. In cases where TBT anti-fouling coatings have been applied to a vessel, all residual TBT must be removed from immersed surfaces or a sealer-coat must be applied to prevent any residual TBT leaking in to the environment. The EPA is unaware of any non-biocidal use of TBT which would result in a residual presence in anti-fouling paints, hence, the EPA has reaffirmed that there must be zero discharge of TBT from vessel hulls.

Other less toxic organotins, such as dibutyltin, are used in very small quantities as catalysts in biocide-free coatings that can be applied to immersed areas of ships to control fouling. Biocidal-free coatings create a slick surface to which fouling organisms cannot firmly attach. To function properly, the coating surface must remain smooth and intact, and not leak into the surrounding water. Because these less toxic organotins are used as a catalyst in the production of biocide-free coatings, such production may result in trace amounts of organotin in anti-fouling coatings. The EPA has interpreted the provisions of Part 2.2.4 of the VGP which apply to TBT “or any other organotin compound” to authorize the use of non-biocidal coatings which contain these trace amounts of catalytic organotin (other than TBT) under the following conditions:

- i) The trace amounts of organotin are not used as biocides. On a practical level, when used as a catalyst, organotin compounds should not be present above 2500 mg total ton per kilogram of dry paint.
- ii) The coating is not designed to slough or otherwise peel from the vessel’s hull. Incidental amounts of coating may be released by abrasion during cleaning or after contact with other hard surfaces (e.g., moorings).

In addition and in accordance with Part 4.1.4 of the 2008 VGP, the vessel’s Owner/operator must make any drydock reports prepared by the class or their flag Administrations available to EPA or an authorized representative of EPA upon request. If a drydock report from either class or the flag Administrations is not available, the Owner/operator must prepare a drydock report that is to be made available to the EPA or an authorized representative of EPA upon request. The drydock report is to include the following:

- The chain locker has been cleaned for both sediments and living organisms.
- The vessel hull, propeller, rudder, thruster gratings, sea chests, and other surface areas of the vessel have been inspected for attached living organisms and those organisms have been removed or neutralized.
- Any anti-foulant hull coatings have been applied, maintained and removed consistent with the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA Label), if applicable. Any exposed existing coating or any new coating does not contain biocides or toxics that are banned for use in the United States.
- All cathodic protection, anodes or dielectric coatings have been cleaned and/or replaced to reduce flaking.
- All pollution equipment is properly functioning.

3.5 State of California

In addition to the above U.S. Federal requirements, the State of California will require the Master, Owner, operator, or person in charge of a vessel carrying or capable of carrying ballast water that operates in the waters of the State of California to maintain a Biofouling Management Plan that was prepared specifically for the vessel that shall, upon request, be made available to commission staff for inspection and review.

For vessels that intend to operate in California waters, it is recommended that the biofouling management plan be established as a standalone document referenced in the ballast water management plan so that amendments to the biofouling management plan can be made when California finalizes its regulations. Additional information on the California State Lands Commission (CSLC) draft regulations is available on the CSLC website.

Owners/operators, Masters, and crew are to note that the draft State of California Biofouling Regulations requires vessel’s to maintain and retain a vessel-specific Biofouling Record Book onboard the vessel.



APPENDIX 1 **Contents of a Biofouling Management Plan**

The biofouling management plan template is a separate document consisting of the following Chapters:

Biofouling Management Plan

- CHAPTER 1 Biofouling Management Plan
- CHAPTER 2 Biofouling Record Book
- CHAPTER 3 International Anti-Fouling System Certificate (Sample only)
- CHAPTER 4 Plans, Operating and Maintenance Procedures, Schematics