



GUIDANCE NOTES ON

BIOFOULING MANAGEMENT PLANS AUGUST 2019

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Foreword (1 August 2019)

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 trading in international waters can also contribute to the spread of potentially invasive organisms.

Noting the risks posed to the environment, communities and the economy by invasive aquatic species being transferred through vessel biofouling, Administrations and the IMO, respectively, have established Regulations and Guidelines intended to minimize the introduction of non-indigenous species via fouling of immersed surfaces including niche areas.

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 of that State, and to ships operating in their jurisdictional waters.

To assist the marine industry, ABS originally issued these Guidance Notes and Template in January 2013 to provide practical assistance to ship masters, operators, owners, shipbuilders, ship cleaning and maintenance operators, and other interested parties in the development of a Biofouling Management Plan. A revision was considered necessary to update existing and introduce new regional requirements (State of California and New Zealand).

These Guidance Notes and Template are intended to complement current maintenance practices carried out within the industry. These Guidance Notes become effective on the first day of the month of publication.

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 (1 August 2019)

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 **of that State**, and to ships operating in **their** jurisdictional waters.

A biofouling management plan and biofouling record book may be either a standalone 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 **the** vessel with sufficient details to allow **the** vessel's Master, the designated ship's officer, or crew members to understand and implement the biofouling management strategy.

The IMO MEPC agreed to keep the Guidelines of MEPC.207(62) under review in order to evaluate experience gained from their implementation including, their effectiveness on influencing biofouling management practices. Relevant guidance was issued by IMO MEPC.1/Circ.811 to assist Member States and observers in collecting the information needed to undertake future reviews in a consistent manner.

The contents of these Guidance Notes are **mainly** 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 (1 August 2019)

The Biofouling Management Plan should be specific to each vessel and **be** included in the vessel's operational documentation. Such a plan should address, **at a minimum**, 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

The biofouling management plan should be updated as necessary.

1.3 Biofouling Record Book (*1 August 2019*)

The biofouling record book is recommended to be maintained for each vessel to record details of all inspections and biofouling management measures undertaken on the vessel. This is to assist the shipowner and operator to evaluate the efficacy of the specific anti-fouling systems and operational practices on the vessel in particular, and of the biofouling management plan in general. The record book could also assist interested State authorities to quickly and efficiently assess the potential biofouling risk of the vessel, and thus minimize delays to ship operations.

The biofouling record book is recommended 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
- iii) Date and location of in-water inspections, the results of that inspection and any corrective action taken to deal with observed biofouling
- iv) Dates and details of inspection and maintenance of internal seawater cooling systems, the results of these inspections, and any corrective action taken to deal with observed biofouling and any reported blockages
- v) Details of when the ship has been operating outside its normal operating profile including any details of when the ship was laid-up or inactive for extended periods of time

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 (1 August 2019)

The regional requirements described in this section **at the time of publishing include specific requirements by the United States of America and New Zealand. Any future requirements by other Administrations in addition** 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”, will be included in future updates of these Guidance Notes.

3 United States of America (1 August 2019)

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 (USCG), U.S. Environmental Protection Agency (EPA) and the State of California have incorporated regulations specifying operational measures **to prevent** 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 (1 August 2019)

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 USCG regulations (33 CFR 151.2050(g)) 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 USCG has advised that IMO Resolution MEPC.207(62) and the California State Lands Commission (specifically Sections 2298.3 entitled “Biofouling Management Plan” and 2298.4 titled “Biofouling Record Book”) provide a basis for developing **and implementing** a vessel-specific biofouling management plan. The USCG 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.

The USCG does not require the approval of Ballast Water Management Plans (BWMP), except that a ship-specific BWMP is to be maintained on board the vessel following the requirements in 33 CFR 151.2050(g). However, approval of the Ballast Water Management Plan is required by the IMO Ballast Water Management Convention, since its entry into force on 8 September 2017.

3.3 U.S. Environmental Protection Agency (1 August 2019)

As required by part 4.1.3 of the 2013 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, including the niche areas, for fouling organisms, flaking anti-fouling paint, exposed TBT (tributyltin) or other organotin surfaces
- ii) Ballast water tanks, as applicable
- iii) Bilges, pumps, and oily water separator (OWS) sensors, as applicable
- iv) Oil discharge monitoring systems and electronic valve switching function, as applicable
- 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, facilities which treat the washwater prior to discharge to remove the antifouling compound(s) and fouling growth from the washwater should be used. If mechanical means (scraping, etc.) are used to clean the hull and remove old paint, the materials removed from the hull during that process should be collected and disposed of properly (e.g., onshore). The materials removed should not be allowed to contaminate nearby waters.

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

- Use 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 should minimize the release of copper based antifoulant paints during vessel cleaning operations. Cleaning of hull surfaces coated with 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). When feasible, attempts must be made to minimize the release of fouling organisms and antifouling systems (including copper-based coatings) into surrounding waters.

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 EPA 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 tin 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 2013 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 and/or flushed in accordance with the requirements of Part 2.2.8 of the 2013 VGP (to remove sediment, living organisms, and other constituents of concern as applicable).
- The vessel hull, propeller, rudder, thruster gratings, sea chests, and other surface and niche 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 under the Clean Hull Act of 2010 (33 U.S.C. §§ 3801 *et seq.*).
- 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 (*1 August 2019*)

In addition to the above U.S. Federal requirements, the State of California has enforced local requirements, effective as of 1 October 2017. More specifically, the California State Lands Commission (CSLC) has approved Article 4.8 of the California Code of Regulations with the intention to:

- Align with the 2011 IMO Guidelines by Resolution MEPC.207(62)
- Focus on efforts to prevent biofouling accumulation on a vessel's wetted surfaces
- Move the State expeditiously toward elimination of the discharge of nonindigenous species into the waters of the State, or into the waters that may impact the waters of the State, based on the best available technology economically achievable

The regulations apply to all vessels 300 Gross Registered Tons and greater, carrying or capable of carrying ballast water, that arrive at a California port, except those vessels listed in Public Resources Code section 71202 (i.e., vessels of the armed forces and vessels in innocent passage).

The following requirements are to be effective after a vessel's first regularly scheduled dry dock after January 1, 2018 (existing vessels) or upon delivery on or after January 1, 2018 (new vessels):

3.5.1 Development and Maintenance of a Biofouling Management Plan and a Biofouling Record Book (*1 August 2019*)

The Biofouling Management Plan is to:

- Be prepared specifically for each vessel
- Provide a description of the vessel's biofouling management strategy
- Be consistent with the Biofouling Management Plan described in the IMO Biofouling Guidelines
- Be current as of the most recent out-of-water maintenance or delivery (if the vessel has never undergone out-of-water maintenance)
- Describe the practices and antifouling systems specifically used for the hull and niche areas listed in 2 CCR section 2298.6(c)(1)

The Biofouling Record Book is to:

- Contain details of all in-water inspections and biofouling management measures undertaken since the most recent out-of-water maintenance or delivery (if the vessel has never undergone out-of-water maintenance)
- Be consistent with the Biofouling Record Book described in the IMO Biofouling Guidelines
- Include descriptions of niche area management practices, as required by 2 CCR section 2298.6(c)(2)

3.5.2 Reporting Requirements (*1 August 2019*)

All vessels subject to the California State regulations are required to submit the Marine Invasive Species Program Annual Vessel Reporting Form to the CSLC. Submission is required at least 24 hours in advance of the first arrival of each calendar year at a California port.

3.5.3 Mandatory Biofouling Management of the Vessel's Wetted Surfaces (*1 August 2019*)

If a vessel is using an antifouling coating, the antifouling coating should not be aged beyond its effective coating lifespan, as documented in the vessel's Biofouling Management Plan.

If the antifouling coating is aged beyond the effective coating lifespan, the Biofouling Management Plan should describe how biofouling is to be managed after the expected coating lifespan is exceeded. All management actions should be documented in the Biofouling Record Book.

If a vessel is not using an antifouling coating, the Biofouling Management Plan should describe how biofouling is to be managed in the absence of an antifouling coating. All management actions should be documented in the Biofouling Record Book.

Niche area management practices should be described in the Biofouling Management Plan and completed actions should be documented in the Biofouling Record Book. Niche areas (if present) should be managed using one or more practices that are appropriate for the vessel and its operational profile, as determined by the owner, operator, master, or person in charge of the vessel and may include sea chests, sea chest gratings, bow and stern thrusters, bow and stern thruster gratings, fin stabilizers and recesses, out-of-water support strips, propellers and propeller shafts, and rudders.

3.5.4 Mandatory Biofouling Management for Vessels that Undergo an Extended Residency Period (i.e., remain in the same location for 45 or more days) (1 August 2019)

Vessels that have remained in one port for 45 or more consecutive days are to comply with the following biofouling management requirements upon arrival at a California port:

- Biofouling in the niche areas should be managed in a manner that is consistent with the niche area management practices described in the Biofouling Management Plan;
- Any activities conducted to manage biofouling on niche areas or any wetted surface should be documented in the Biofouling Record Book.

3.5.5 Propeller Cleaning (1 August 2019)

Propeller cleaning or polishing is not prohibited under the California State regulations.

Additional information on the California State Lands Commission (CSLC) regulations **including petitions for alternative management actions and emergency exemptions** is available on the CSLC website.

Owners/operators, Masters, and crew are to note that the State of California Biofouling Regulations requires vessels to retain **the vessel-specific Biofouling Management Plan and Record Book** onboard the vessel.

The documents are to be made available to California State Lands Commission staff for review during an onboard inspection.

5 New Zealand (1 August 2019)

Beginning May 15, 2018, all commercial and recreational vessels arriving in New Zealand will need to meet the "clean hull" threshold as defined in the Craft Risk Management Standard (CRMS) which references the IMO guidelines:

From May 2018, vessels should arrive in New Zealand with a "clean hull". This means:

- Vessels staying up to 20 days and only visiting designated ports (places of first arrival) are allowed a slight amount of biofouling (slime layer, goose barnacles, and up to a certain percentage of early fouling or algae growth, depending on the vessel area examined).
- Vessels staying longer than 20 days or visiting places that are not places of first arrival are only allowed a slime layer and goose barnacles. In the interim, the New Zealand Ministry for Primary Industries (MPI) can take action on vessels that pose a severe biofouling risk.

Additional information, details and guidance on meeting New Zealand's biofouling requirements can be found on the Ministry for Primary Industries website.



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



APPENDIX 2 **References** *(1 August 2019)*

- IMO (2011), Resolution MEPC.207(62), “Guidelines for the Control and Management of Ships’ Biofouling to Minimize the Transfer of Invasive Aquatic Species”
- IMO (2012), MEPC.1/Circ.792, “Guidance for Minimizing the Transfer of Invasive Aquatic Species as Biofouling (Hull Fouling) for Recreational Craft”
- IMO (2013) MEPC.1/Circ.811, “Guidance for Evaluating the 2011 Guidelines for the Control and Management of Ships’ Biofouling to Minimize the Transfer of Invasive Aquatic Species”
- Office of the Federal Register National Archives and Records Administration, 33 CFR 151.2050 - Additional requirements-nonindigenous species reduction practices
- US EPA (2013), Vessel General Permit for Discharges Incidental to the Normal Operation of Vessels (VGP)
- CSLC (2017), Guidance Document for Biofouling Management Regulations to Minimize the Transfer of Nonindigenous Species from Vessels Arriving at California Ports
- MPI (2018), Risk Management Standard, Biofouling on Vessels Arriving to New Zealand