DEVELOPMENT OF INTERNATIONAL MEASURES FOR MINIMIZING THE TRANSFER OF INVASIVE AQUATIC SPECIES THROUGH BIOFOULING OF SHIPS

Guidance for minimizing the transfer of invasive aquatic species as biofouling (hull fouling) for recreational craft

Submitted by

SUMMARY

Executive summary: This paper presents a guidance document for owners and /or operators of recreational craft less than 24m in length (Annex 1) for the consideration of BLG16. This guidance document will be used as a communication tool to assist in the implementation of the Guidelines for the Control and Management of Ships' Biofouling to Minimize the Transfer of Invasive Aquatic Species (The Guidelines) for the recreational sector.

Action to be taken: Paragraph 6
Related documents: BLG 15/9; MEPC 62/11/2

Introduction

1 The Sub-Committee on Bulk Liquid and Gases (BLG) at their 15th session agreed that all ships should be included within the scope of the Guidelines for the Control and Management of Ships’ Biofouling to Minimize the Transfer of Invasive Aquatic Species (The Guidelines).

2 BLG also agreed that a separate guidance document that provided advice for owners and /or operators of recreational craft less than 24m in length should be developed based on annex 3 of document BLG 15/9. The developed document would contain information from the Guidelines in a user friendly format using language and tone appropriate for the recreational sector.

3 BLG 15 agreed to continue considering this guidance document at BLG 16, and noted the intention of Australia to lead the development of this document out of session. A number of parties indicated their interest in contributing to the development of this guidance document out of session including:

   Australia
   Netherlands
and the following non-governmental organizations:

- Friends of the Earth International FOEI
- International Council of Marine Industry Associations ICOMIA
- International Paint and Printing Ink Council IPPIC
- International Sailing Federation ISAF

4 A guidance document for owners and/or operators of recreational craft less than 24m in length is presented to BLG 16 for consideration (Annex 1).

5 With the adoption of the Guidelines as a Marine Environment Protection Committee (MEPC) Resolution at its 62nd session in July 2011, it is essential that this guidance document be finalised to assist with the implementation of these Guidelines in the recreational sector.

**Action requested of the Sub-Committee**

6 The Sub-committee is invited to consider the draft Guidance for owners and/or operators of recreational craft less than 24m and take action as appropriate.

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Annex 1
GUIDANCE FOR MINIMIZING THE TRANSFER OF INVASIVE AQUATIC SPECIES AS BIOFOULING (HULL FOULING) FOR RECREATIONAL CRAFT

WHAT IS BIOFOULING?

Biofouling is the accumulation of aquatic organisms such as micro-organisms, plants and animals, on surfaces and structures immersed in or exposed to the aquatic environment. Biofouling may also be known as hull fouling.

WHY IS THE TRANSFER OF BIOFOULING A PROBLEM?

Aquatic organisms may be transferred to new locations as biofouling and can be harmful and invasive in locations where they do not naturally occur.

The transfer of invasive aquatic organisms can threaten freshwater, brackish and marine environments, human, animal and plant life, and economic and cultural activities.

Even if there is no visible biofouling it is important that you undertake the measures outlined in this guidance. Once invasive aquatic species are established in a new habitat, they are often impossible to eradicate.

WHAT INFLUENCES THE AMOUNT OF BIOFOULING ON A CRAFT?

All craft have some biofouling, even those recently cleaned or anti- fouled. Biofouling is influenced by factors such as:

- the type, age and condition of anti-fouling systems and hauling/slipping and hull cleaning practices;
- operating profile, including operating speeds, time underway compared with time moored or anchored, water temperature, and where the craft is normally kept (e.g. on land, in a marina or at an estuarine mooring);
- places visited; and
- design and construction, particularly for areas that are more susceptible to biofouling (e.g. rudders, propellers and propeller shafts).

By actively minimizing the biofouling on your craft, you greatly reduce the risk of transferring invasive aquatic species and can also improve your craft’s speed and energy efficiency.

WHO SHOULD USE THIS GUIDANCE MATERIAL?

This guidance is for use by all owners and operators of recreational craft less than 24 metres in length as all craft can potentially transfer invasive aquatic species.

HOW CAN BIOFOULING BE MINIMIZED?

If your recreational craft is normally kept in the water (regardless of whether it is trailerable or not) an appropriate anti-fouling coating system and good maintenance are the best way of preventing biofouling accumulation. If you regularly operate your recreational craft in both
marine and fresh waters, this may help to reduce the accumulation of biofouling (as many marine fouling species do not easily survive in fresh to slightly brackish water and vice versa) however a good maintenance regime is still essential.

IS ONE ANTI-FOULING COATING SYSTEM ACCEPTABLE FOR ALL CRAFT?

Different anti-fouling coating systems suit different operating profiles. To choose an anti-fouling coating you should seek expert advice and consider:

- planned periods between hauling/drying out or maintenance—to make sure the coating is effective for that time period;
- craft speed and patterns of use—biofouling can rapidly accumulate when craft are stationary or inactive in port or coastal waters;
- construction material (steel, wood, aluminium etc)—coatings are specific for different hull materials;
- any legal requirements including the Anti-Fouling Systems Convention, in which a principal clause is a complete ban on the use of anti-fouling paints containing TBT—highly poisonous tri-butyl tin\(^1\); and
- the location of the coating on the craft—different coating types may be required for different parts of a vessel, such as around the propeller shaft or rudders, due to water flow conditions.

HOW CAN BIOFOULING BE MINIMIZED IN NICHE AREAS?

Niche areas are areas particularly susceptible to biofouling growth due to different water flow conditions, the exposure of the anti-fouling coating system to wear or damage, or the fact that these areas may be inadequately coated. For example, a rudder and any hull projections or indentations may generate turbulent flow with a high wear factor. Niche areas may include:

- propellers, thrusters and/or propulsion units;
- rudder stocks and hinges;
- rope guards, stern tube seals and propeller shafts;
- apertures or free flooding spaces;
- areas prone to anti-fouling coating damage or grounding;
- outlets, inlets and grates;
- cathodic protection anodes;
- anchors, chains and chain lockers;
- echo sounders and probes.

Biofouling in the niche areas of your craft can be minimized by ensuring an appropriate anti-fouling coating system is applied, including on entrances to inlet and discharge pipes, rudder fixtures, bow and stern thrusters, propellers and shafts (unless polished), rope cutters etc. When hauling out and applying an anti-fouling coating, you need to make sure that you change the positions of block or slings to ensure these areas are also coated.

Some niche areas are not protected by an anti-fouling coating system, e.g. cathodic protection (CP) anodes. You can minimize biofouling associated with these anodes if they are flush-fitted, or a rubber backing pad is inserted between the anode and the hull, or the gap is caulked. Otherwise, you need to ensure that the hull under the anode and its strap has an

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\(^1\) TBT has been proven to pose a substantial risk of toxicity and other chronic impacts to marine organisms and can also harm human health as a result of the consumption of affected seafood.
anti-fouling coating system suitable for low water flow. If your anodes are attached by recessed bolts, then the recesses should be caulked.

If your craft has a marine growth prevention system (MGPS) using electronics or injections of chemicals to minimize biofouling in internal seawater systems, it is important that you regularly check that the MGPS is operating correctly.

WHAT ABOUT CLEANING?

It is important that you regularly assess the need for cleaning and the condition of the anti-fouling coating system with regular in-water inspections, where it is safe to do so. Special in-water inspections of your craft are appropriate:
• 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 anti-fouling system.

It is always preferable to clean out of the water where the waste can be effectively captured for proper disposal. When cleaning your craft it is important that you take the following precautions:
• ideally, haul your boat out of the water to clean it at least once a year;
• always follow the manufacturer’s instructions for preparing, applying and cleaning or maintaining your anti-fouling coating system;
• use cleaning methods and facilities that capture biological, chemical and physical debris; and
• co-ordinate cleaning or maintenance of the anti-fouling coating system, hull and niche areas with voyage planning to ensure a craft starts significant journeys as clean as practical.

Checking, cleaning and drying gear and equipment such as anchors, chains, nets, bait wells, and sports equipment after each trip is also an effective way to avoid accidentally transporting invasive aquatic species between water bodies.

WHAT ABOUT CLEANING THE HULL IN-WATER?

In-water cleaning is suitable for removing light fouling (e.g. the slime layer) with gentle techniques that minimize both the release of toxic substances from the anti-fouling coating and the degradation of the anti-fouling coating system.

Before you undertake any in-water cleaning, check with the local authorities for any regulations regarding the in-water cleaning of boat hulls and / or the discharge of chemicals into the water column. If possible, use appropriate technology that captures biological, chemical and physical debris and dispose of it in an appropriate onshore facility. Where craft can be readily hauled out, it is always preferable to clean the hull and niche areas out of water, and to collect and dispose of the removed materials in accordance with local requirements.

When cleaning an area coated with a biocidal anti-fouling coating system use cleaning techniques that minimize the release of biocide into the environment. In-water scrubbing of large and distinct biofouling (e.g. barnacles, tubeworms or fronds of algae) generates debris that may create a pulse of biocide which could harm the local environment and could affect
future applications by the port authority for the disposal of dredge spoil. It may also prematurely deplete the anti-fouling coating system which would then rapidly re-foul. It is therefore not recommended that you scrub your craft in-water in order to delay haul-out beyond the specified service life of a coating.

Craft with biocide-free anti-fouling coating systems are likely to require regular in-water cleaning. It is important to use cleaning techniques that do not damage the coating and impair its function.

**IS RECORDING BIOFOULING ACTIVITIES IMPORTANT?**

It is useful for you to record details of the anti-fouling system used on your craft, any inspections made and notes of its effectiveness, all in one place. You can collect this information in the craft’s log or in a separate note book. The anti-fouling manufacturer’s product data sheets may form a useful part of this record. It is also useful to include a diagram of the hull of the craft with the location of niche areas and a summary of plans for minimizing biofouling for each area (e.g. planned time interval between anti-fouling system renewals and how the different niche areas will and/or have been treated). Example diagrams are shown at the end of this guidance. Some port or harbour authorities may ask to see your records as a basis on which to decide whether a visiting craft must be cleaned or treated.

**WHAT ABOUT TRAILERED CRAFT KEPT OUT OF THE WATER?**

Even if your trailered craft is normally kept out of the water, it still has the potential to transfer invasive aquatic species from one area to another via the craft, its trailer or associated gear and equipment. The following measures should be taken after removing the craft from the water and before transporting your craft to another water body or storing it on land to reduce this risk.

- remove attached biofouling (e.g. seaweeds, barnacles, mussels) from the craft, gear, equipment and trailer;
- drain hull compartments, pipework and outboard engines;
- rinse the boat inside and out with fresh water and if possible dry before moving;
- dispose of biofouling and waste water ashore where it cannot get back into the water or stormwater drains; and
- inspect, clean and dry gear and equipment after each trip.

**HOW IS THE IMO INVOLVED?**

The International Maritime Organisation is the international organization responsible for the safety and security of shipping and prevention of marine pollution by ships, including recreational craft. Due to global concerns about the effects of invasive aquatic species on the environment, the IMO has developed uniform voluntary guidelines for all craft to minimize the risk of transferring invasive aquatic species as biofouling. This guidance is consistent with the IMO guidelines.
Example of a recreational trailered craft diagram.

![Diagram of a recreational trailered craft]

Example of a recreational craft diagram

![Diagram of a recreational craft]