



Marine Biosecurity: Hull Fouling Guidance

The International Maritime Organisation (IMO) recognises that all craft will have some level of biofouling, even those which have been recently cleaned or anti-fouled. [Studies](#) have shown that hull fouling can have twice the number of invasive non-native species (INNS) compared to ballast water, making it perhaps the most important vector for introductions.

The amount of biofouling depends on many factors for example the type, age and condition of the antifouling coating and how the hull cleaning was undertaken. The way the vessel is used also has an influence including top and average speeds and time underway compared to time moored or anchored. Local environmental factors also come into play such as the salinity and water temperature in the area and the amount of particulate matter in the water. Finally, the underwater profile of the vessel is important. Hulls which have more niche areas such as bow thruster tubes, intake and discharge points or other voids have a higher risk of supporting INNS.

The IMO recommends actively minimising the biofouling on your vessel in order to reduce the risk of transferring INNS as well as improving fuel efficiency and lowering emissions.

Use of Antifouling to Reduce Biofouling

Whether your vessel is large or small, using an appropriate antifouling along with regular maintenance is the best way to reduce biofouling. Regular use of the vessel will also improve the performance of your antifouling.

Antifouling coatings are designed for different vessel types and for different patterns of use. Always read the descriptions and speak to an expert if you are unsure of which type to choose (see links below). The most effective type of antifouling for your vessel will depend on a number of factors including

- local environmental conditions.
- planned use of the vessel for example is the boat to be used year-round in the UK, hauled out or left static for long periods, or sailed internationally?
- average speed of the vessel, a faster vessel will require a different antifoul to a slower one.

- Construction of the vessel e.g. wood, aluminium, steel, GRP (glass reinforced plastic) or carbon fibre?

Known high risk fouling areas such as bow thruster tubes, water intakes or niche areas around the propeller or trailing edges should be treated with extra care. These areas may have extra turbulence which erodes the antifouling more quickly, or they may be protected from water movement allowing biofouling to attach more easily. An extra coat of antifouling may be effective, or a separate application of a different antifouling coatings may provide additional protection.

Hull Cleaning: recreational vessels

In England any cleaning of vessels in the water, which results in a deposit to the seabed, is an offence under the Marine and Coastal Access Act and will require a licence from the Marine Management Organisation. Cleaning hulls in the water can introduce INNS species to the local area as even small segments of some organisms are capable of surviving and possibly reproducing. When it is not possible to contain all debris produced from cleaning, use an onshore cleaning facility, at least once a year. Find one which captures and retains all chemical and biological material from the hull of your vessel so that none returns untreated to the sea. If you are planning a longer, or international journey, plan to have your hull cleaned as close to departure as is practical and also as soon as possible on your return.

Larger Vessels

Larger vessels should have a biofouling management plan and keep a record of activities and procedures carried out related to the management of biofouling. For further information see the IMO Guidelines For The Control And Management Of Ships' Biofouling To Minimize The Transfer Of Invasive Aquatic Species RESOLUTION MEPC.207(62) Adopted on 15 July 2011. In general though, only full capture, or closed circuit in-water hull cleaning systems should be considered for use between lay ups. Even small fragments of some organisms can be capable of living and reproducing, and additionally the chemical debris from the cleaned antifoul can cause an unwanted accumulation of biocides in local sediments.

Further References

[Guidance for minimizing the transfer of invasive aquatic species as biofouling \(hull fouling\) for recreational craft](#). BLG 16/5 26 October 2011

[Global Invasive Species Programme](#) (GISP) 2008, [Marine Biofouling: An Assessment of Risks and Management Initiatives](#). Compiled by Lynn Jackson on behalf of the Global Invasive Species Programme and the UNEP Regional Seas Programme.

[Practical Boat Owner test of antifouling coatings](#) (2016)

[UK Boats review of antifouling coatings](#) (2012)

[Antifouling Coatings Industry](#)