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EUROPEAN CODE OF CONDUCT ON RECREATIONAL BOATING AND INVASIVE ALIEN SPECIES

- FINAL -

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PRESENTATION

Invasive Alien Species are currently identified as a major risk for native species and ecosystems on a global scale. Their impact is particularly significant on islands, where they are responsible for a high number of extinctions, and in certain fragile or evolutionarily isolated ecosystems. The faunas of European rivers have been dramatically changed in the last hundred years as a result of loss of water quality and introductions of alien species by people as well as by some unintentional introductions.

The Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention) has been involved since 1993 in providing guidance to governments on avoiding new introductions and controlling the spread of invasive alien species. During these years we have realised the importance to work with the many different actors dealing on a daily base with organisms or living material, be it in the horticultural industry, in the pet trade or recreational fishing. In 2010 the Standing Committee to the Convention endorsed a European Charter on Recreational Fishing and Biodiversity and in 2013 a European Code of Conduct on Recreational Fishing and Invasive Alien Species.

It was only logical to complement that code of conduct with another code focussed on recreational boating, an activity that had been identified as a possible vector for the dispersal of some alien species. The code was entrusted to the European Boating Association in which we found an excellent and committed partner. People involved in recreational activities in the open air value nature as a pristine resource and are logically inclined to have a positive approach to “green” their activity and limit their possible impact on the environment. They rightly think that that biodiversity conservation is not a matter to be left to experts, but concerns us all.

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¹ A list of European Boating Association member and observer organisations can be found at: <http://www.eba.eu.com/participantorgs>

1. INTRODUCTION

1.1 Background

The term “alien species” is used by the Convention on Biological Diversity and invasive alien species (IAS), sometimes also known as invasive non-native species (INNS), are broadly defined as species whose introduction and/or spread threaten biological diversity or have other unforeseen impacts. Thus, the appearance of alien species in new locations is not always a risk to biodiversity. A significant subset of alien species can become invasive and potentially have serious impact on biodiversity or ecosystem services, human health and safety, as well as having other social and economic impacts. Some 12,000 species in the European environment are alien, of which roughly 10 to 15% are estimated to be invasive. Invasive alien species therefore represent one of the main threats to biodiversity and related ecosystem services. The risks such species pose may intensify due to increased global trade, transport, tourism and climate change (Regulation No 1143/2014). A study commissioned by the European Commission noted that only a proportion of the total costs associated with IAS are well documented. It calculated that the impact of IAS in Europe was worth at least 12.5 billion euros/year (Kettunen *et al* 2009).

A large proportion of IAS are introduced unintentionally. It is therefore crucial to manage the pathways of unintentional introduction more effectively. The EU approach is that action in this area should be gradual, given the relatively limited experience in this field, and make use of voluntary measures such as the actions proposed by the International Maritime Organisation's ‘Guidelines for the Control and Management of Ships' Biofouling’ (IMO, 2011). A separate guidance document, based on these guidelines, has also been produced which provides advice relevant to owners and/or operators of recreational craft less than 24 metres in length (IMO, 2012), using terminology appropriate for this sector (see Annex 1).

This Code of Conduct follows this voluntary guidance approach and is one of a number of voluntary instruments that are being drawn up or completed and adopted by the Bern Convention in sectors identified as possible pathways of IAS introductions, including “Hunting and IAS” and “Recreational Angling and IAS”. Due to the contact that recreational boating has with a range of freshwater and marine waterbodies, the sector has been identified as a potential pathway for the spread of aquatic IAS. However, aquatic IAS can also impact on recreational boating through damaging boating equipment, fouling submerged structures, blocking water intakes, increasing maintenance costs, affecting navigation and impacting on recreational access to waterbodies. Therefore action can also directly benefit the sector.

The main means of spreading can be via boat hulls or propellers, or within bilge or engine cooling water systems. This guidance builds on the IMO guidelines, incorporating the advice particularly on use of antifouling, and then expands those guidelines to cover more detailed advice on smaller craft particularly those which are used predominantly in freshwater. It incorporates detailed biosecurity guidance for recreational boating as it is fully recognised that preventing the arrival of aquatic IAS by recreational boaters as a vector is more effective than control and eradication once they have arrived. It is also anticipated that through education and awareness raising, recreational boating is part of the solution in tackling IAS by acting as the “eyes and ears” of the rivers, canals, lakes and seas of Europe in spotting and reporting the introduction and spread of these species as well as being active in control and eradication.

It is important to recognise that money spent by recreational boaters is discretionary and the sector is therefore particularly sensitive to regulations or restrictions that impose unreasonable additional expense. The right conditions must be created to foster growth in the sector. Voluntary codes of conduct and the identification and promotion of best practice in the recreational boating sector have been met with a high level of support and compliance from both industry and users and therefore should be used before introducing any statutory or legislative measures to control activities. There are also often significant differences in national legislation and it is not always physically possible, let alone practical, for a boat to comply with another country’s legislation for the time that it may be visiting and contributing to the local economy, therefore a consistent approach across countries is often more effective.

1.2 Socio-economic value of recreational boating

There is no general consensus as to the terminology used to describe the types of boat used for recreational boating, with expressions such as “recreational craft” or “private pleasure craft” being used to describe only subsets of such types of boat for the purposes of specific pieces of EU legislation. Recreational boating also includes the use of beach- or slipway-launched water toys such as wind surfers, sailing dinghies, inflatable boats and personal watercraft. Boats used for recreational boating may be small or large, propelled by sail and/or power and used on inland waters and/or at sea. Recreational boating at sea can range from close-to-shore to transoceanic. Recreational boating also includes the use of such boats privately owned and operated by the owner, hired (on bareboat or skippered charter) or used to provide a service (such as training or race participation).

The European Boating Association (EBA) is the European representative organisation for recreational boating. In the context of this document, the EBA considers recreational boating to mean using boats that are designed or adapted for sport or leisure, whether propelled by sail and/or power, for the purposes for which they are designed or adapted.

With over 27,000 km of inland waterways and more than 70,000 km of coastline, Europe offers the perfect environment for the 48 million European citizens who regularly participate in recreational marine activities (36 million of whom are boaters), as well as countless numbers of tourists. Over 6 million boats are kept in European waters while 4,500 marinas provide 1.75 million berths both inland and in coastal areas (ICOMIA, 2010).

Recreational boating is a family friendly activity with no age, sex or mobility barriers. Given a safe and accessible environment, recreational boating activities can be accessible to able-bodied and disabled alike. It eases pressure on land space and traffic on roads, preserves culture and maritime traditions and promotes an awareness of nature and its forces.

There is a trend how recreational boating is developing, diversifying from the traditional ‘sea and sun’ concept, to other more demanding and varied types of nautical recreation which includes recreational boating and the facilities needed to support it. Properly done, recreational boating (including yacht tourism, charters and water sports), and the associated economics, provide a vibrant opportunity for many communities which have seen their traditional water based industry and associated businesses sharply decline. Many of these communities are situated in areas of natural interest and are geographically well positioned to support the recreational boating community.

Recreational boating is an important business in rural areas and also offers a particularly valuable opportunity to retain or revive the economies of smaller ports and port communities that are at risk of being bypassed due to changes in commercial maritime and fishing traffic. Little used ports could be developed into marinas, to provide secure berthing for recreational boats. Recreational boating therefore provides an exceptional opportunity, particularly in the coastal region, for wealth and job creation.

The contribution recreational boating makes to local economies should not be underestimated. Recreational boating brings particularly high value, low impact tourism to inland and coastal regions, stimulating the local hospitality, transport, construction and supporting trades.

- In real terms in the Netherlands, the Marine and Yachting 2 Interreg 3 project estimated that every time a recreational boat stops, it spends between €150 - €180, which supports the local economy including the diverse small and medium enterprises that have been set up to exploit and support the boating industry.
- In the Channel Islands, the States of Jersey estimate that visiting yachtsmen spend in the order of £1.2 million during the months of July and August alone.
- It is estimated that the spending power of recreational boaters is 45% more than those who visit the coast by land.

Recreational boating frequently involves remote destinations that are difficult to reach by air or road. The voyage itself is as much a part of the experience as the destinations and experiences ashore. Longer voyages to visit otherwise inaccessible places of interest are more appealing and yachts will also reach places away from the cruise ship routes – in fact many will choose such less frequently visited places as recreational boaters generally have an adventurous nature and at the same time respect for the environment. Therefore, the socio-economic impact can be felt over a wider area.

Although levels of recreational boating fluctuates with the seasons, it does not cease out of season and the maintenance work that is carried out on the boat if it is laid up for any period also contributes to the economy. Many boaters continue to use their boat off season and some owners live aboard all year round. Recreational boating is therefore also an important consideration in terms of seasonality.

1.3 European and Member States IAS legislation and initiatives

The European Regulation (No. 1143/2014) on IAS came into force on 1st January 2015. The legislation seeks to address the problem of IAS in a comprehensive manner so as to protect native biodiversity and ecosystem services, as well as to minimise and mitigate the human health or economic impacts that these species can have.

The legislation foresees three types of interventions; prevention, early warning and rapid response, and management. The European Commission published the implementing regulation (No. 2016/1141) in 2016, bringing the first list of IAS of Union concern into force. Species on this list may not be intentionally brought into the territory of the EU, nor may they be kept, bred, transported to, from or within the Union, placed on the market, grown or released into the environment. The regulation also establishes a surveillance system for early detection and measures for rapid eradication. Furthermore, member states must provide for penalties if the regulation is not correctly applied.

At Member State level, legislation tends to be mixed and spread between different legislation and enforcement authorities. In England and Wales for example, the Wildlife & Countryside Act 1981 which also contains provisions relating to IAS enforcement of this being split between various authorities including the police but it contains no powers to enter property or enforce destruction of IAS on private property if the owner refuses consent. New powers have recently been brought in under the Infrastructure Act 2015 to rectify this. The measures provide government agencies in England and Wales with powers to enter into control agreements and, if necessary, control orders with landowners to ensure action can be taken against harmful species on their land. The measures follow similar provisions introduced in Scotland by the Wildlife and Natural Environment (Scotland) Act 2011. A mixed approach appears to be prevalent across Europe.

2. THE CODE OF CONDUCT

2.1 Audience and aims

This code of conduct is voluntary guidance aimed at all those that engage in recreational boating whether individual boaters, clubs or training centres, recreational boating governing bodies or those that are commercially engaged with recreational boating, for example charter boats or marinas. It is applicable to water management authorities and other bodies involved in managing ports or waterways. It is also intended for those Member States and their agencies that may regulate recreational boating activities. However this code is voluntary only and is not a legally binding instrument nor is it the intention that this code be used as the basis for future legislation. Its aim is to be compatible with other national and international initiatives on recreational boating and IAS such as the IMO's 'Guidance for minimizing the transfer of invasive aquatic species as biofouling (hull fouling) for recreational craft' (IMO, 2012 - see Annex 1). It incorporates that advice, particularly on use of antifouling, and then expands the IMO guidelines to cover more detailed advice on smaller craft particularly those which are used predominantly in freshwater.

The code of conduct uses the experience gathered by the Royal Yachting Association (RYA, 2015) and The Green Blue environment programme, a partnership project between the RYA and British Marine (TGB, 2015). This is pulled together with the biosecurity approach taken in the UK using the Check, Clean, Dry protocols (GBNNSS, 2015) developed by the GB Non Native Species Secretariat in collaboration with other UK Government Departments and stakeholders. Much of the guidance in these initiatives are repeated verbatim here or tailored to highlight issues around IAS and recreational boating.

2.2 Awareness, education, training, research and monitoring

The recreational boating sector should:

- Promote awareness of the code to encourage responsible recreational boating through targeted information, education and training within the sector. Particular emphasis should be placed on biosecurity, promoting and spreading the message, implementing basic biosecurity measures, encouraging everyone to do what they can, in particular to check and clean equipment. Action should not only be limited to locations where aquatic IAS are an issue, measures should be implemented by everyone, everywhere, everytime.
- Promote research into developing effective and practical biosecurity methods and tools for the recreational boating sector. Collaborate with relevant experts in developing awareness, engagement, training and education programmes aimed at informing recreational boating on IAS.
- Ensure that where relevant, government agencies and authorities engage with recreational boaters in programmes to prevent, early detect, eradicate or manage specific IAS on waters used by the sector.
- In collaboration with government agencies and recreational boating associations, monitor the application and implementation of the Code of Conduct and its effects on recreational boating among Member States.
- This Code of Conduct should be reviewed periodically, and as appropriate, taking into account new developments in IAS as it impacts recreational boating. Knowledge is still evolving, and new, practical and effective biosecurity techniques developed in partnership with the recreational boating sector should be supported where possible and included in future revisions.

2.3 Biosecurity for recreational boating

An appropriate anti-fouling coating system and good maintenance are the best way of preventing biofouling accumulation, which therefore minimises the risk of introduction and spread of aquatic IAS. However, this approach may not be appropriate for small trailered craft, particularly those used predominantly in freshwater.

Check, Clean, Dry

Following the discovery of the Ponto-Caspian gammarid species, *Dikerogammarus villosus*, at a public water supply reservoir at Grafham Water in England in 2010 the United Kingdom (UK) Government Departments and its Agencies together with environmental Non-Government Organisations and representative bodies from all water users in the UK adopted similar biosecurity practices to those used in New Zealand. This campaign has been effective in containing *Dikerogammarus villosus* to a limited number of sites. This report therefore recommends that this good practice should become the norm, where practical, for biosecurity control for recreational boating and other water users in Europe. This is consistent with the recent Code of Conduct for Recreational Fishing and IAS (Owen, 2013). In some places in Europe this will be a new concept, building on the practices in Australia, New Zealand and most recently in the United Kingdom following the recent discovery of this Ponto-Caspian species in that country.

The overriding principle is that prevention is better than cure and the key to success in this approach is the awareness, education and training principles noted previously and recognises that recreational boaters contact with water via equipment or clothing can result in their inadvertently becoming a vector for the transfer of aquatic IAS. Equipment includes boats, anchors, trailers, buoys and engines. Further information on 'Check Clean Dry' for anglers (including those fishing from recreational vessels) is available in the Code of Conduct on Recreational Fishing and IAS (Owen, 2013). The campaign consisted of a public initiative for all water users, launched in 2011, to promote the adoption of the principles of 'Check, Clean, Dry' (Anderson, 2015). This protocol relies on public participation, education, awareness raising and training to ensure that these procedures are followed, which are as follows:

Check

Check boats, equipment and clothing for living plants and animals. Pay particular attention to areas that are damp or hard to inspect.

Clean

Clean and wash all equipment, thoroughly with freshwater and anti-foul boats annually. Remove visible fouling and put in the bin, not back in the water.

Dry

When recovering a boat, trailer, dinghy, personal watercraft or RIB, drain water from every part and all equipment that can hold water, including any water that collects in bilges, before leaving the site. Clothing and equipment should be thoroughly dried for as long as possible before it is used elsewhere.

Use of hot water can provide a simple, rapid and effective method to clean equipment (Anderson, 2015). Submerging equipment for about 15 minutes at around 45°C can effectively kill a number of significant aquatic IAS. This technique is useful for participants who may be cleaning equipment such as wetsuits when they return home, however it is not practical for cleaning large equipment such as boats. If hot water is available on site, hot pressure washers can also be effective for cleaning boat hulls. Use of chemicals is not recommended as not all species are susceptible to each product.

Adequate signage or guidance should be in place in boating hotspots and particularly with site specific measures in areas known to already contain aquatic IAS, making all boaters aware of the risk and providing advice on how and why to prevent any spread. By demonstrating that aquatic IAS can damage boating equipment, affect navigation, increase maintenance costs, block water treatment systems, harm native habitats and impact on recreational access to waterbodies, participants may be more likely to take action. Where practical, access and egress points for boats arriving on site and recovery from the waters

should be limited, preferably to a single spot or point to enable biosecurity equipment to be readily provided and regularly used. Ideally, all cleaning and inspection operations should be supervised by a volunteer or member of staff.

More detailed tailored Check, Clean, Dry advice specific for recreational boating, particularly small trailered craft such as dinghies and RIBs is as follows:

On the water

- ✓ Avoid sailing or motoring through water plants and weed if possible. This can chop up plants and can spread them further. If caught up on the hull or propeller, invasive alien species can be transferred to another area.
- ✓ If the boat is on the water but not in use and stationary for a period of time, if possible, raise propellers out of the water to minimise the risk of invasive alien species entering the engine. Use your boat regularly to prevent biofouling of the hull and engine.
- ✓ If an anchor has been used, wash off both the anchor and chain before stowing.
- ✓ Any structures or equipment such as pontoons, piles and buoys which have been submerged in water for a time also pose a higher risk of spreading invasive alien species and so extra care should be taken when moving or working with them.

After use

- ✓ Once the boat is on shore, remove all visible plant and animal material and put in the bin.
- ✓ Use freshwater to wash down all parts of the boat that have been in contact with the water (including outboard, trailer and trolley/vehicle tyres). Pay attention to any crevices. Flush outboard engines with clean fresh water before leaving the site using appropriate equipment, flush muffs or in accordance with manufacturer's recommendations.
- ✓ Drain all water from the boat, including bilges. Allow the water to drain completely from engines by placing them in a vertical down position.
- ✓ Wash and dry all equipment, clothing and footwear. Drying for as long as possible is important because some invasive alien species can survive for over two weeks in damp conditions.
- ✓ If freshwater washing facilities are not available on site, ensure that the boat is washed down, drained and dried prior to arrival at another waterbody.
- ✓ Ensure that any wash water run-off or water emptied from boats after use does not drain into another waterbody.

Boat storage on land

- ✓ Store boats and outboard engines in a location where any run-off does not drain into a waterbody (e.g. drains, gullies or rivers).
- ✓ Return any engines to their vertical down position to drain.
- ✓ Use the general waste bin to dispose of any plant or animal material found in prop bags or other equipment.

Antifouling and in-water cleaning

If boats, such as yachts and motor cruisers, are normally kept in the water for long periods of time the Check, Clean, Dry approach may not be a practical method of preventing the spread of aquatic IAS. Although biofouling may not necessarily always contain IAS, it follows that reducing biofouling minimises the risk of spread.

An appropriate antifouling coating system and good maintenance are the best way of preventing biofouling accumulation for boats kept on the water. Lifting out, cleaning and antifouling annually keeps boat hulls clean, and has environmental benefits including both preventing the spread of invasive alien species and also improving fuel efficiency.

Different anti-fouling coating systems suit different operating profiles. An appropriate antifouling coating should be chosen by seeking expert advice and considering the time period between coatings, the use, location and type of the vessel and any legal requirements in the country of use. It is important to note that antifoul may not be effective against all species in all areas, for example, some types of antifoul are thought to be ineffective against biofouling by zebra mussels (Weissert, 2013). Therefore, appropriate antifouling should be combined with good maintenance, in-water cleaning and the Check, Clean, Dry approach where possible. The more a boat is used the less likely species will accumulate and the more effective any antifouling will be. By using the boat regularly over summer/growing season, the level of fouling can be reduced.

Antifouling is, by its nature, toxic to aquatic life. Since the banning of Tributyltin (TBT), most antifouls are now copper or zinc based. Available biocides are regulated by European and national regulations; however, during evaluation of these products, their toxicity should be balanced with their efficacy against biofouling, particularly by aquatic IAS.

Some of the compounds found in these antifouls can enter the environment through leaching or during removal of the paint, accumulating in organisms, forming concentrated deposits in the sediments and finding their way into wildlife further up the food chain. Boat owners can play a vital role in preventing concentrated scrapings from entering the water by following the following best practice advice.

When removing antifoul:

- ✓ Select a marina, club or boatyard which has a wash-down facility which collects residues and captures run off from wash down, or prevent antifoul scrapings from entering the water by collecting in a tarpaulin;
- ✓ Use a dustless vacuum sander or wet abraision to reduce dust toxic dust and to protect the users health;
- ✓ If using scrubbing piles, only scrub off the fouling and not the underlying paint – be careful not to let old or new paint enter the water;

When applying antifoul:

- ✓ Select the right type of antifouling for the area and boat usage, choosing the lowest levels of biocides and copper suitable for your needs – take advice from the local chandlery. Use water-based paints where possible, or paints low in Volatile Organic Compounds or look into using less damaging bottom paints, such as vinyl, silicone or Teflon, which are suitable for in-water hull cleaning systems;
- ✓ Apply the right amount of antifouling required and do not spill it – when applying use a sheet to collect drips;
- ✓ Dispose of used brushes, rollers and trays and empty cans of antifoul as hazardous waste.

It is always preferable to clean boats out of the water where waste can be effectively captured for proper disposal. However, in-water cleaning can be effective as an interim measure.

In-water cleaning can be suitable for removing light fouling, predominantly if the boat has been in the water for less than a year but has not been frequently used and therefore may have accumulated bio-fouling.

Particular consideration should be given to in-water cleaning prior to long distance trips, if cleaning out of the water is not possible. This will help prevent invasive alien species from being transferred long distances, for example from one country to another. Remove any potential invasive alien species in situ at a home harbour before transferring them somewhere else.

Before undertaking 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. In water cleaning systems are available in some marinas, or the process can be carried out by hand:

- ✓ Use gentle techniques to minimize both the release of toxic substances from any anti-fouling coating and the degradation of the anti-fouling coating system;
- ✓ Take care not to deplete the anti-fouling coating system which would then rapidly re-foul: in-water should not be used in order to delay haul-out beyond the specified service life of a coating. Many inland water recreational boats (narrow boats, motor cruisers and barges) do not have any anti-fouling coating - thus there is a reduced risk of toxicity for aquatic life from cleaning the hull in these cases;
- ✓ From a tender, a sponge can be used to clean as much material off as possible. Alternatively, use a long handled brush from the pontoon or the boat to clean off the material;
- ✓ Collect the material into a bucket or bag for disposal on land where practical.

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ANNEX 1

INTERNATIONAL MARITIME ORGANISATION

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

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 antifouling 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 tin²; 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;
- outlets, inlets and grates;
- rudder stocks and hinges;
- cathodic protection anodes;
- rope guards, stern tube seals and propeller shafts;
- anchors, chains and chain lockers;
- echo sounders and probes;
- apertures or free flooding spaces;
- areas prone to anti-fouling coating damage or grounding.

Biofouling in the niche areas of your craft can be minimized by ensuring an appropriate antifouling 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 anti-fouling coating system suitable for low water flow. If your anodes are attached by recessed bolts, then the recesses should be caulked.

² 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).

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 antifouling 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 TRAILED CRAFT KEPT OUT OF THE WATER?

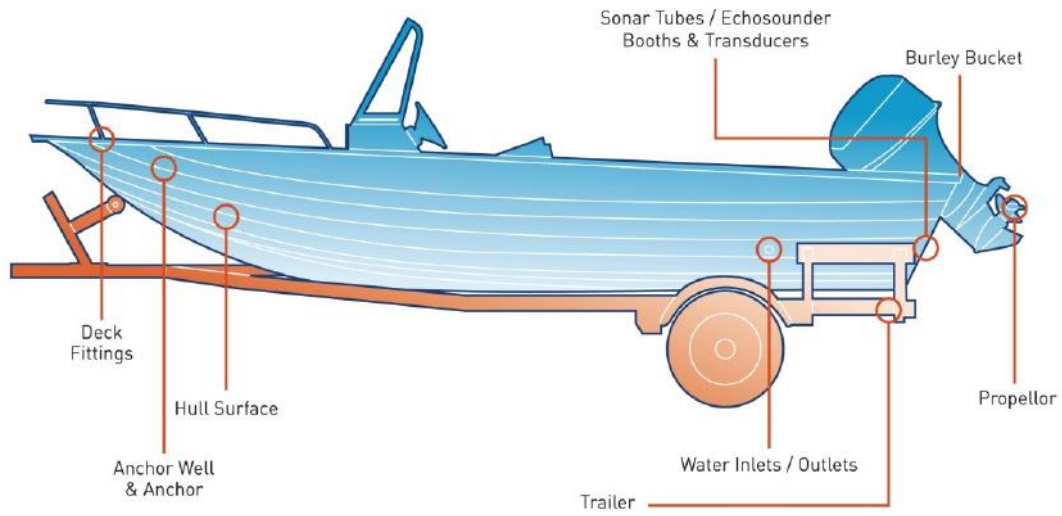
Even if your trailered craft is normally kept out of the water, it still has the potential to transfer invasive aquatic species from one area to another via the craft, its trailer or associated gear and equipment. The following measures should be taken after removing the craft from the water and before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



Example of a recreational craft diagram

