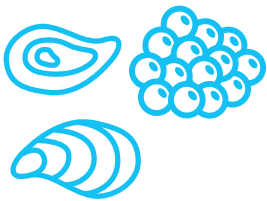


# Biofouling Management for Recreational Boating

## HOW TO PREVENT THE SPREAD OF INVASIVE AQUATIC SPECIES



### TRAILERED BOATS

INCLUDES SKI AND WAKE BOATS, FISHING BOATS, SAILING DINGHIES, CANOES, KAYAKS, WINDSURFERS AND SUPS



#### After every trip:

- Clean and remove weed, biofouling
- Flush and drain engine
- Clean and rinse hull
- Clean, rinse and drain all lockers, bilges, ballast tanks (wake boats)
- Clean all hull and deck fittings



#### Check, Clean and Dry Equipment:

- Paddles, fishing rods, hollow masts and booms
- Sails, covers
- Wetsuits, spray tops, lifejackets, shoes
- Skis, boards
- Trailers



#### Fishing boats:

- Bait and live wells
- Nets and tackle

Aim to have containment around these activities to contain Invasive Aquatic Species

CHECK  
CLEAN  
DRY

### LOCAL & COASTAL CRUISING

#### Pre-season – AVOID



#### Plan to avoid biofouling

- Select anti-fouling system based on:
- Vessel
  - Location/local waters
  - Expected type of cruising
    - Fast/slow, hard/soft paints
    - Non-toxic anti-fouling system

#### Preparation

- Apply anti-fouling coating according to manufacturers instructions:
- Hull preparation
  - Number of paint coats
  - Temperature

#### Records

- Retain records of biofouling management, what product used, when applied

#### During cruising season – REDUCE



#### Reduce

Use boat regularly to reduce build up of biofouling.

For longer trips, Clean before you leave:

- Lift and clean – contain and treat any biofouling

#### End of season – CONTAIN

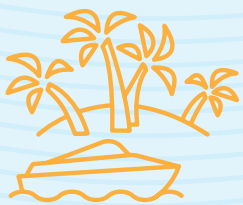


#### Contain biofouling at end of season

Select lift-out facility with containment for wash-water

AVOID  
REDUCE  
CONTAIN

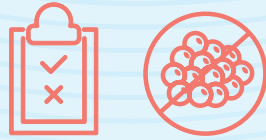
### LONG DISTANCE CRUISING



#### Dreams and plans

- Decide which places you are visiting

CLEAN THE  
HULL BEFORE  
YOU LEAVE



#### Discovery

- Research local biosecurity requirements
- Consider impact of Invasive Aquatic Species on local environment, society and economy
- Determine suitable biofouling prevention and management system



#### Preparation

- Apply anti-fouling coating and/or install other biofouling prevention system
- Retain documentation of what anti-fouling system used, when applied



#### Set sail

- Enjoy the journey
- Monitor biofouling level

#### Stop-overs

- Monitor biofouling on hull and niche areas and determine if cleaning is necessary

#### Clean before you leave

- To prevent transfer of Invasive Aquatic Species

### SHORE-BASED CLEANING



#### Slipways, hoists

- Choose facility with wash water catchment for collection of biofouling waste



#### Contain and treat

- Scrapings and biofouling waste should be contained, for example by skirting the hull and using a tarpaulin. Wash down water should not be allowed to return into the environment unless filtered and treated
- Treat and dispose of biofouling waste in line with the rules established by the marina or port authority



#### Report any unusual marine species

to local authority, regulator

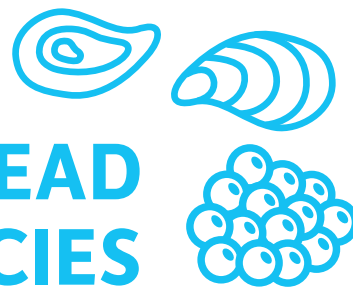
Improve and share knowledge:

- Marina operators
- Public slipway wardens
- Harbour staff
- Management
- Regulators
- Boat owners
- Local clubs/associations

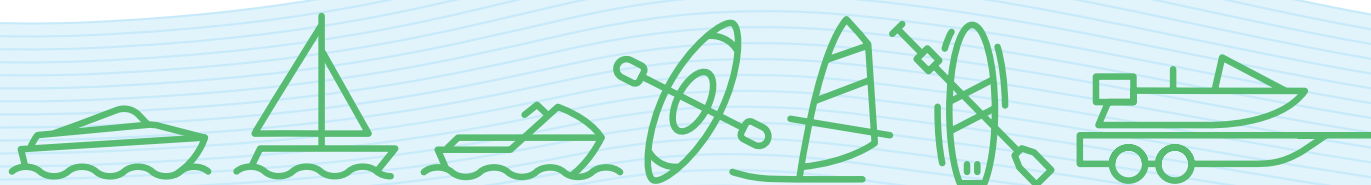
CONTAIN  
AND TREAT  
BIOFOULING



# TRAILERED BOATS: HOW TO PREVENT THE SPREAD OF INVASIVE AQUATIC SPECIES



INCLUDES SKI AND WAKE BOATS, FISHING BOATS, SAILING DINGHIES, CANOES, KAYAKS, WINDSURFERS AND SUPS



## After every trip:

- Clean and remove weed, biofouling
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- Clean, rinse and drain all lockers, bilges, ballast tanks (wake boats)
- Clean all hull and deck fittings



## Check, Clean and Dry Equipment:

- Paddles, fishing rods, hollow masts and booms
- Sails, covers
- Wetsuits, spray tops, lifejackets, shoes
- Skis, boards
- Trailers



## Fishing boats:

- Bait and live wells
- Nets and tackle

**Aim to have containment around these activities to contain Invasive Aquatic Species**

Keep the local species local, stop aquatic hitchhiking  
Contain the spread of invasive species –  
**CHECK CLEAN DRY**



Includes ski and wake boats, fishing boats, sailing dinghies, canoes, kayaks, windsurfers and SUPs.

## AIM:

Prevent the transfer of Invasive Aquatic Species from one waterway to another.



## WHY?

The introduction of Invasive Aquatic Species to a new area can cause significant harm to other marine life, threaten local species and biodiversity, as well as incur costs for boat owners, local business and affect livelihoods.



## KEY MESSAGE:

Check, Clean, Dry.



**Check** – most boats / craft have niche areas where water, and therefore marine species can remain out of sight, unless checked.

**Clean** – the best control is to ensure your vessel is free of all water (other than potable), slime, weed and marine life.

**Dry** – marine species need water to survive, therefore ensuring all parts of your boat are completely dry for at least 48 hours will prevent the spread of live species.

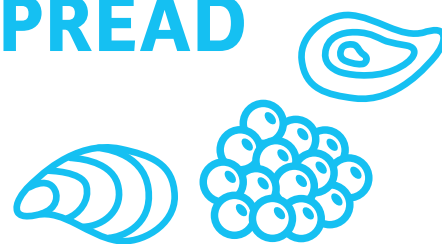
If your time on the water starts and finishes at a different location or your equipment is not stored in the same outdoor location, after every trip, **CHECK, CLEAN and DRY** the equipment/hull at the location you have been on the water:

- **check** and **clean** any attached biofouling and seaweed from your vessel, anchor, anchor well and trailer, and put in a bin, not back in the water.
  - **check** and **drain** outboard and hull fixtures for water that could harbour potential marine pests (including trimming outboard down to let water out of the gearbox housing)
  - **check** all niche areas – hull fittings, propeller, propeller shaft, deck fittings, any cavities in hull and trailer, especially if changing location.
  - **clean** / rinse the boat inside and out with fresh water, check lockers, bilges, ballast tanks (on wake boats) and drain, especially if changing location. Flush engine cooling system with fresh, clean water and clean strainers.
- **check, clean** and **dry** any equipment used on board such as fishing rods, paddles, lifejackets, hollow masts / boom, sails, covers.
  - **dry** all equipment, the hull and trailer before moving to a different waterway.
  - **dispose** of any biofouling and wastewater, including known Invasive Aquatic Species, in bins or to landfill, in accordance with applicable rules and regulations so that it cannot be returned to the water.
  - For fishing boats – **drain** and **dry** the bait well and live well.

**Avoid and reduce:** if possible, and without affecting the integrity of the craft, improve access to niche areas to make cleaning and drying easier, and improve drainage.



# LOCAL & COASTAL CRUISING: A GUIDE TO PREVENT THE SPREAD OF INVASIVE SPECIES



## Pre-season – AVOID



### Plan to avoid biofouling

Select anti-fouling system based on:

- Vessel
- Location/local waters
- Expected type of cruising
  - Fast/slow, hard/soft paints
  - Non-toxic anti-fouling system

### Preparation

Apply anti-fouling coating according to manufacturers instructions:

- Hull preparation
- Number of paint coats
- Temperature

### Records

- Retain records of biofouling management, what product used, when applied

## During cruising season – REDUCE



### Reduce

Use boat regularly to reduce build up of biofouling.

For longer trips, Clean before you leave:

- Lift and clean – contain and treat any biofouling

## End of season – CONTAIN



### Contain biofouling at end of season

Select lift-out facility with containment for wash-water

Stop the spread  
of invasive species  
**AVOID REDUCE  
CONTAIN**



Applicable to boats of all sizes stored afloat for the season, in marinas, harbours or moorings.

## AIM:

Prevent the spread of Invasive Aquatic Species along coastlines, rivers, harbours and between islands.



## WHY?

The introduction of Invasive Aquatic Species to a new area can cause significant harm to other marine life, threaten local species and biodiversity, as well as incur costs for boat owners, local business and affect livelihoods.



## KEY MESSAGE:

Avoid, Reduce, Contain



**Avoid** - the best control is to avoid the growth of biofouling through an effective anti-fouling system appropriate for the area and expected use of the boat.

**Reduce** – use the vessel regularly to reduce growth of biofouling.

**Contain** – when cleaning the vessel, contain and safely dispose of any biofouling following applicable rules and regulations.

### START OF THE SEASON (OR BEFORE LAUNCHING)

**Avoid or reduce** the growth of biofouling by selecting a suitable anti-fouling system that is appropriate to the area and the operating profile of your boat. Consider biocidal anti-fouling paint, a biocide-free coating or other anti-fouling system:

- If using biocidal anti-fouling paint:
  - > Use hard coatings for racing or high-performance hulls, or that are regularly cleaned/burnished hulls.
  - > Soft, self-polishing or ablative paints can be used on hulls that are not cleaned or burnished or for lower performance hulls.
- Select an appropriate anti-fouling system for fresh or salt water, and temperature of water.
- Select an appropriate anti-fouling system for niche areas such as propellers, propeller shafts, sail drives and water inlets.
- When opting for Biocide-free systems – research and select the most suitable method for your boat, such as ultrasound, wraps, silicone (non-stick) coatings.

Seek advice from local chandlery, boat clubs or manufacturers.

### DURING THE SEASON AFLOAT:

**Reduce the growth of biofouling** throughout the season through:

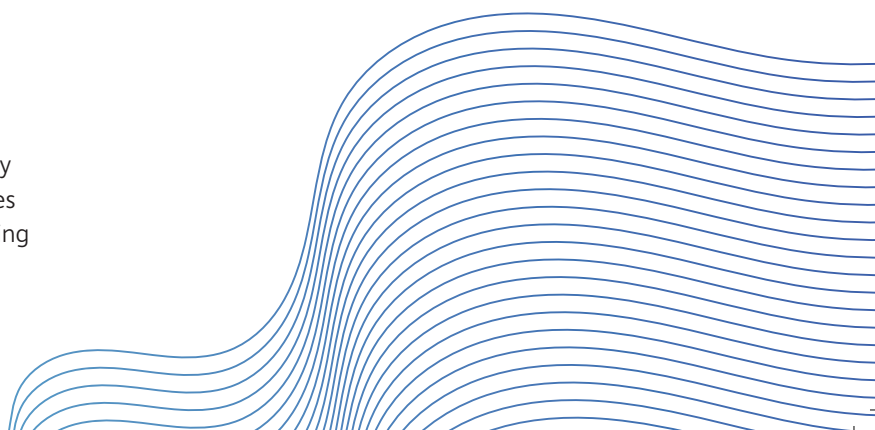
- Regular use – this will reduce the opportunity for biofouling to develop on the hull and keep propellers clean. If an anchor has been used, always wash off both the anchor and chain before stowing.
- If carrying out a mid-season clean, take the boat out of the water and remove any biofouling by water jetting, by using a brush or cloth. Avoid harsh scraping that removes or damages the paint film. Do not allow paint or biofouling residues to enter the water.

- Always **contain** and dispose of any biofouling:
  - > at a marina or yard with wash-water containment facilities.
  - > Air-drying will kill most small pest species in about 48 hours.
  - > Remove the biofouling on land to **contain** scrapings and wastewater to prevent potential Invasive Aquatic Species from getting back into the waterways or stormwater drains.
  - > Inspect raw water systems in your engine and clean if needed.
  - > For in-water cleaning see separate guidance section 5.3 (In water cleaning – risks and benefits).
- If cruising to new areas, clean the hull and niche areas before setting off. This has the benefit of faster passage time, reduced fuel use and minimises the risk of aquatic hitchhikers on your boat. This is especially important if IAS are known or suspected at your current location or departure point, or if cruising to a sensitive area.

### END OF SEASON

**Contain** any biofouling to prevent return of potentially Invasive Aquatic Species to the water.

Select a marina / yard with wash-water containment facilities. Always follow local regulations and rules of the marina / yard.

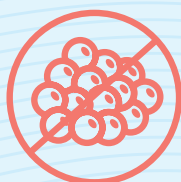


# LONG DISTANCE CRUISING: A GUIDE TO PREVENT THE SPREAD OF INVASIVE AQUATIC SPECIES



## Dreams and plans

- Decide which places you are visiting



## Discovery

- Research local biosecurity requirements
- Consider impact of Invasive Aquatic Species on local environment, society and economy
- Determine suitable biofouling prevention and management system



## Preparation

- Apply anti-fouling coating and/or install other biofouling prevention system
- Retain documentation of what anti-fouling system used, when applied



## Set sail

- Enjoy the journey
- Monitor biofouling level

## Stop-overs

- Monitor biofouling on hull and niche areas and determine if cleaning is necessary

## Clean before you leave

- To prevent transfer of Invasive Aquatic Species



Includes extended cruising and delivery trips between countries and continents, organised rallies and solo adventures.

### AIM:



Prevent the spread of Invasive Aquatic Species (IAS) between countries and continents.

### WHY?



The introduction of Invasive Aquatic Species to a new area can cause significant harm to other marine life, threaten local species and biodiversity, as well as incur costs for boat owners, local business and affect livelihoods.

### KEY MESSAGE:



Clean before you leave.

Clean before you leave – starting with clean hull and niche areas and cleaned raw water systems will prevent aquatic hitchhikers and ensure a more efficient passage.

**Planning:** Decide on area to visit, and potential stopovers.

Consider the environment, and biodiversity of your destination and potential stopovers and the potential impact of IAS on these.

Plan and align your biofouling management system with the requirements of your destination and potential stop-over points.

- Check local regulations for:
  - > Biocidal anti-fouling coatings – are there any local regulations or restrictions on types of anti-fouling paint that can be used?
  - > Biofouling limits – are there any clean hull requirements required on arrival or documentation required to prove your biosecurity controls?
  - > Cleaning restrictions – are there any local restrictions on where and how hull cleaning can take place, in-water cleaning or if only at specified locations.
- Allow sufficient budget to maintain your biofouling management system – anti-fouling coatings and treatments may not be as readily available or affordable as in your home port.

**Clean before you leave at:**

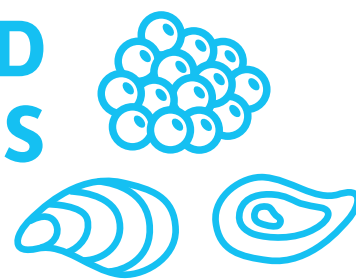
- Initial departure from home port.
- Each significant departure on the trip.

The added benefits include faster passage time, optimum boat performance, reduced fuel consumption and greenhouse gas emissions, minimized risk of transport of invasive species, and the added pride of a well-maintained vessel.

**On the Water:**

- Avoid sailing or motoring through water plants and weed if possible. This can chop up plants and can spread them further, especially if caught up on the hull or propeller.
- 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 species entering the engine.
- If an anchor has been used, wash off both the anchor and chain before stowing.

# SHORE-BASED CLEANING: HOW TO PREVENT THE SPREAD OF INVASIVE AQUATIC SPECIES



## Slipways, hoists

- Choose facility with wash water catchment for collection of biofouling waste



## Contain and treat

- Scrapings and biofouling waste should be contained, for example by skirting the hull and using a tarpaulin. Wash down water should not be allowed to return into the environment unless filtered and treated
- Treat and dispose of biofouling waste in line with the rules established by the marina or port authority



## Report any unusual marine species

to local authority, regulator



## Improve and share knowledge:

- Marina operators
- Public slipway wardens
- Harbour staff
- Management
- Regulators
- Boat owners
- Local clubs/associations

Stop the spread  
of invasive species

**CONTAIN  
AND TREAT  
BIOFOULING**





Operators of these facilities have a crucial role to play in preventing the arrival and spread of Invasive Aquatic Species (IAS) by promoting good biofouling management practices.

### AIM:

Prevent the introduction or spread of IAS by promoting good biofouling management practices.



### WHY?

The introduction of Invasive Aquatic Species to the local area can cause significant harm to local marine life, threaten local species and biodiversity, as well as incur costs for boat owners. It can also damage local infrastructure, businesses and livelihoods.



### KEY MESSAGE:

Contain and treat all biofouling.



Provide and maintain facilities where removed biofouling and other solid and liquid residues from boat cleaning and washing can be contained, treated, disposed of, or discharged correctly.

#### Contain

- Ensure that the hull and niche areas of boats taken out of the water at the facility are cleaned and pressure washed with fresh water. Removed biofouling and other debris should be contained.
- Scrapings and debris should be contained, for example by skirting the hull and using a tarpaulin. Wash down water should not be allowed to return into the environment unless filtered and treated.
- No biofouling is left on slings and on fenders, ropes, chains and anchors of boats. All equipment and clothing that has come into contact with the water should be thoroughly washed with tap water (including trailer and trolley/ vehicle tyres).
- Outboard engines are flushed with clean fresh water before leaving the site using appropriate equipment.
- Any biofouling removed should not come into contact with any land that is below the high-water mark. Many organisms can remain viable even in small (sometimes microscopic) quantities.

#### Treat

- Treat and dispose of biofouling waste safely. Fresh water, dry conditions and heat will all kill sea water Invasive Aquatic Species. Avoid using chemical treatments. In freshwater use dry conditions and/or heat to neutralise any potential species.

- All residues should be collected and stored for disposal in line with the requirements of local legislation and/or operation rules that may have been established by the marina or port authority.

#### Educate

- Raise awareness in the marina using signage highlighting dos and don'ts.
- Provide information (e.g. leaflets, etc) during the booking and checking-in processes to educate berth-holders and visitors to the marina about the need to prevent introduction of Invasive Aquatic Species. Encourage boaters to inspect and wash their boat if biofouling can be observed.
- Train marina staff on good practice for biofouling management, particularly lift-out operators who will see early signs of different marine species, using online awareness training, toolbox talks, or information leaflets.
- Encourage boaters to share experiences of effective anti-fouling systems that work in the local area.
- Encourage users of the marina to identify and report any unusual species on vessels or in the marina and report to the local Environmental Protection Authority.
- Monitor arrivals from significant distance (or areas of known IAS) and, if necessary, encourage visitors to safely clean their boat upon arrival.

