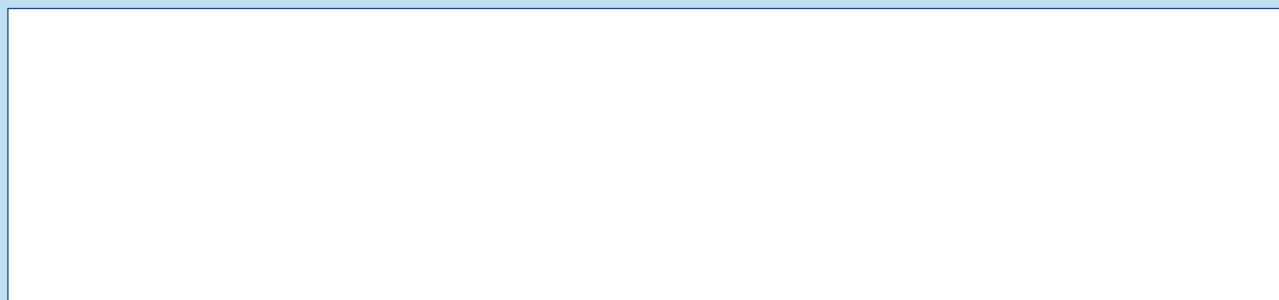


Glossary of acronyms and definitions

Antifouling	Coatings on underwater superstructures that reduce the ability for organisms to anchor to the structure as a substrate.
ANZECC	Australian and New Zealand Environment and Conservation Council.
Biofouling	The attachment of marine organisms to any part of a vessel, or any equipment attached to or on board the vessel, fishing gear, mooring devices and the like.
Domestic fishing vessels	Vessels that operate within Australian waters under Australian jurisdictions, i.e. Australian fishing vessels.
Entrainment	The pick up of a potential marine pest by a vessel, in water in the vessel, or attached to the hull.
Establishment	The potential pest separates from the vessel and survives in the new locality.
IWS	Internal water systems that carry raw water in a vessel for cooling or cleaning uses.
Marine pest	Any exotic marine species that may pose a threat to Australia's marine environment or industry, if introduced, established or spread. (Where exotic marine species is defined as any species not normally considered to occur and that may or may not be present in Australia's marine environment).
Niche areas/ niches	A protected or refuge area of relatively constant conditions in which marine organisms can escape detection or drying out. Also areas that are not coated in antifouling paint or areas where antifouling coating breakdown is common enabling the settlement of marine organisms.
Strainer box/ Strum box	The enlarged terminal on the suction end of a pipe and forming a strainer, which prevents the entrance of material liable to choke the pipe.
TBT	Tributyltin products widely used in antifouling products until recently. These products are now banned in Australia.
Translocation	The act of moving a marine pest from one locality to another.
Sector	Any marine based industry or recreational group capable of introducing or translocating an exotic marine species.
Well holes	Openings between live wells in vessels allowing circulation of seawater.

For further information check out www.marinepests.gov.au.





BEST PRACTICE GUIDELINES FOR DOMESTIC COMMERCIAL FISHING VESSELS TO MANAGE MARINE PESTS



Photo: Graham Wharton, Tropical Reef Shipyard

Preventing marine invasive pest outbreaks is critical. They can significantly impact the marine environment, human health and the economy, and have adverse effects on marine and coastal industries and values. By the time a new marine pest is detected in an environment, the chances of successful eradication are low. Efforts must then focus on containment and management which has a considerable economic and ecological cost.

Marine pests are mainly spread by ballast water and biofouling on vessels hulls and in niche areas and pipe work. While biofouling levels on vessels may seem insignificant, the pest potential of some species allows them to breed quickly from small numbers, with risk of a marine pest outbreak further increased by the frequency of vessel visits to a particular area.

The Australian commercial fishing industry has developed the following voluntary best practice management biofouling guidelines to help prevent introduction of marine pests and protect the marine environment, businesses, fishing grounds and ports from the impacts of marine pest outbreaks. The guidelines provide information for vessel owners, skippers, engineers and crews about vessel maintenance, operations, reporting and emergency response to outbreaks.

Best practice management biofouling guidelines are also being developed for commercial vessels, domestic recreational vessels, commercial non-trading vessels, the aquaculture and petroleum sectors and ports, marinas and slipways.

A: VESSEL MAINTENANCE

1. Maintaining trailered vessels onshore

- a. Check for, and remove entangled or attached biological matter from the boat and trailer (e.g. seaweeds).
- b. Check outboard and hull fixtures for water that could harbour potential pests (e.g. trim outboard down to let water out of the gearbox housing).
- c. Rinse the boat inside and out with fresh water, drain and if possible, allow to dry if moving to another location within 48 hours.
- d. Regularly remove slime from the hull to prevent the build-up of heavier secondary biofouling.
- e. Dispose of any biological matter, including known marine pests, in bins or to landfill so that it cannot be returned to the water.



NATIONAL BEST PRACTICE GUIDELINES FOR DOMESTIC COMMERCIAL FISHING VESSELS FOR MANAGING MARINE PESTS

2. Maintaining non-trailerred vessels and vessels that have raw water Internal Water Systems (IWS)

- a. Conduct hull scraping at a designated on-shore facility (e.g. marina or slipway with waste trapping facilities).
- b. Dispose of all biological matter that is removed from the vessel at on-shore facilities so that it cannot be returned to the water.
- c. Clean, and where possible, allow potential refuge spaces that could harbour marine pests to dry (e.g. live wells, anchor wells, propellers, sacrificial anodes, strainer boxes, around external keel pipes, raw water intakes, sea chests etc).
- d. Treat Internal Water Systems by cleaning intake and outlet points and by periodic flooding with fresh water prior to moving between regions.

3. Hull cleaning, antifouling coating and vessel maintenance

- a. Removal of biological matter during hull cleaning must be contained or collected, and treated and/or disposed of at on-shore facilities. If conducting hull servicing independently, remember to obtain relevant permits to discard biological matter at an approved disposal site.
- b. Consult an antifouling coating supplier for advice as required and select the most appropriate coating system, based on:
 - vessel operating location (tropical vs temperate);
 - vessel type/operating conditions; and
 - vessel construction (e.g. wood, steel, aluminium).

Note that antifouling products containing tributyltin (TBT) cannot be used in Australia.

- c. Apply and remove antifouling products at designated onshore facilities:
 - These premises should comply with the *Code of Practice for Antifouling and In-water Hull Cleaning and Boat Maintenance* (ANZECC 1997), which can be found at www.environment.gov.au/coasts/pollution/antifouling/code/index.html
 - Procedures for applying and removing antifouling products should be in accordance with manufacturer's instructions and also follow the ANZECC Code.
- d. Apply antifouling coatings with appropriate frequency:
 - Antifouling should be renewed according to the minimum frequency recommended by the paint manufacturer.
 - Assess the effectiveness of antifouling coating on vessels that are immobile for a prolonged period and if necessary clean the hull and re-apply antifouling coating prior to proceeding to sea.
- e. Regularly inspect unpainted surfaces:
 - If unpainted surfaces (i.e. echo sounders) are fouled, any biological matter should be removed and disposed of at on-shore disposal facilities.
 - Commercially available greases or other specified coatings can be applied to surfaces such as propellers to help keep them clean.
- f. Keep relevant records:
 - Keep records of hull maintenance and antifouling coatings in the vessel's operations and maintenance manuals. Records may include antifouling product invoices (brand and type), place and date of application, date for renewal and a record of any official inspection carried out (e.g. at survey).

B: VESSEL OPERATIONS

4. Normal deck activities

- a. Clear decks and any refuge areas on deck that may harbour a marine pest, such as spaces under winches and around deck fittings.
- b. Clean and dry mooring lines that have biofouling attached.
- c. Clear warps and anchors of biological matter and mud/sand as they are hauled.
- d. Regularly clean anchor and chain wells and lockers.

5. During fishing activities

- a. For divers, ensure that biological material entangled in dive gear is not transported to other dive sites.
- b. Use locally sourced bait wherever possible to prevent the introduction of pests and diseases.
- c. Return bycatch to the sea as near as possible to the point of capture.
- d. If gear is cleaned in port dispose of biological waste at land based facilities.
- e. Streaming of nets should be undertaken as close as possible to fishing grounds. Nets should be dried out regularly or prior to transfer to another boat to ensure living biological matter is not translocated. Be aware that streaming of nets by trawlers has the potential to move marine pests around. If you know that a marine pest is in your area or you suspect one might be, do not stream your nets to clean them.

6. Managing the use of live tanks and wells, and ballast systems

- a. Ballast water should be exchanged in accordance with the Australian Ballast Water Management Framework.
- b. Regularly clean and check live tanks, live wells and well holes for marine pests of biological matter.

C: REPORTING AND EMERGENCY RESPONSES

7. Emergency pest outbreaks

- a. If a pest outbreak occurs, additional measures such as reporting of voyage plans or restrictions to specific ports or areas may be required. These would be broadcast by relevant State/Territory authorities and may be managed on a fleet-by-fleet basis. Your State/Territory authority will inform you of the details of the particular pest and the outbreak.
- b. You may be requested to help in the event of a response to an emergency situation such as a pest outbreak (e.g. abalone divers assisting with clearance activities).

8. Reporting interactions with marine pests

- a. Be aware of encounters with unidentified organisms, known pests or potential pests that may lead to the accidental movement of species. Signs of a suspected pest could include unusually heavy biofouling, dominance of the fouling by one species, or a 'new' species not seen before in your region.
- b. Report any new sightings of these species or any other unusual species to the relevant authority. Call your local authority if you are concerned about a particular organism.
- c. Be aware of pest infestations in your fishing grounds and minimise the risk of moving these species around.
- d. If in doubt, keep a sample of the pest of concern. Freeze the specimen and hand it to the relevant authority as soon as possible.
- e. Time, date, location, depth and population details should be recorded when a suspected outbreak is noticed in a new area.