FACTSHEET

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Biosecurity SA Aquatic Pests (08) 8303 9620

BIOSECURITY SA
PIRSA

Cleaning marine equipment

Your marine equipment should be regularly cleaned, especially prior to moving to a new location. Marine equipment includes boat anchors, ropes, moorings, buoys, wetsuits, dive flags, fishing gear, aquaculture equipment and structures (e.g. racks, sea cages, longlines).

Cleaning assists in preventing the spread of marine pests and aquatic diseases such as Pacific Oyster Mortality Syndrome (POMS). See best practice methods for cleaning marine equipment below.

DRYING OUT

Most marine organisms, with some exceptions such as Asian Green Mussel (*Perna viridis)*, Dead Man's Fingers (*Codium fragile spp.*) and Japanese Seaweed (*Undaria pinnatifida)*, cannot tolerate prolonged desiccation. This can therefore be an effective way of reducing the risk posed by marine pests. As a general guide, most marine organisms exposed to the air will die within seven days but some will survive for longer. Survival will be affected by:

- the type of species
- the life cycle of the species
- temperature
- humidity
- sunlight

Suitable treatment times need to be considered on a case-by-case basis. Further advice can be sought from the Biosecurity SA Aquatic Pests team.

FRESHWATER TREATMENT

A freshwater bath is a simple treatment, particularly for silt trap residue, and is an effective way of destroying many marine pests that have infested seed stocks and equipment. Freshwater can also be used to treat some species and equipment to reduce the threat from marine pests.

Immersion for more than three hours in freshwater (less than 0.5 per cent salinity) is the minimum time needed to kill some species, such as *Caulerpa taxifolia* but not all marine pests. For example, up to two days of immersion is necessary to completely kill all life stages of Japanese Seaweed or Green-lipped Mussels.

The European Green Shore Crab (*Carcinus maenas*) can also survive prolonged immersion in freshwater. In this case, other treatments should be used at the same time and all treatments should be followed by a visual inspection for any remaining live crabs.

COMBINING TREATMENT METHODS

Combining treatment methods is a highly effective way to kill marine pests. The most cost-effective and environmentally friendly combination of treatments is freshwater immersion for at least two hours followed by at least 12 hours of drying out.

HIGH PRESSURE BLASTING

A high pressure water blasting technique can be used with fresh water, salt water or hot water on a wide variety of species. It is also effective against a variety of biofouling pests and therefore has wider management benefits. This method is also gentler on boat hulls and equipment than mechanical removal (eg. scraping) and cleaning.

While high pressure water blasting can be used underwater, it is not generally used for marine pest control. Underwater blasting may not completely kill the target pests and therefore could increase the spread of certain pest species. Where possible, it is more effective and recommended to remove structures and equipment from the water for land-based treatment which allows safe containment of pests and fragments.

CHEMICAL TREATMENT

Chemical treatments, such as chlorine or hydrogen peroxide, can be effective at killing marine pests. The registration, control of use and environmental management for chemical treatments in the aquatic environment is strictly governed. The Australian Pesticides and Veterinary Medicines Authority (APVMA) oversees product registrations and permits. PIRSA regulates control of pesticide use. The Environment Protection Authority (EPA) regulates chemical treatment waste and discharge in the environment.

There is a specific APVMA permit for the use of chemicals for the decontamination of equipment for Pacific Oyster Mortality Syndrome (POMS). Note that you must check for permit updates as each permit is time-limited. Visit www.apvma.gov.au and 'search for a permit' PER82160.

For off-label use of chemicals and veterinary medicines in aquaculture, see the PIRSA website: http://www.pir.sa.gov.au/aquaculture/aquatic_animal_health/veterinary_medicine_use_in_aquaculture.

The *Environment Protection Act 1993* and related environment protection policies may also apply to the use and disposal of chemical treatments. If in doubt, contact the EPA.

Decontamination advice for Pacific Oyster Mortality Syndrome (POMS)

Please refer to PIRSA's POMS decontamination fact sheet.

HEAT TREATMENT

While not common, hot water has been used to successfully deal with marine pests. The effect of heat depends on exposure time and temperature, and these factors will vary depending on the species being treated. For example, immersion in 70°C for 40 seconds will not significantly raise the core temperature of Pacific Oysters (*Crossostrea gigias*) but will kill unwanted *sabellid* and spionid polychaetes. However, immersion in water at lower temperatures for longer periods can destroy

Pacific Oysters. Laboratory experiments have also shown that exposing Green-lipped Mussel seed stock to hot water (55°C) for about five seconds kills all juvenile stages of Japanese Seaweed without adversely affecting the survival rate of the mussels.

Heat treatment is also affected by surrounding temperatures and is generally more effective if there is a large difference between the surrounding area temperature and the species being treated. Heat treatment is most effective during winter in comparison to summer. Heat treatments are also likely to be more effective on soft-bodied pests and species with thin shells. Pests with thicker shells need higher temperatures and/or longer exposure.

For further advice on suitable treatment options contact the Biosecurity SA Aquatic Pests team on (08) 8303 9620 or email PIRSA.InvasiveSpecies@sa.gov.au

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Note: Information in this fact sheet is largely sourced from the national Marine Pests website at www.marinepests.gov.au