



MAFRI PROJECT SPOTLIGHT
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**PREVENTING THE MOVEMENT OF MARINE PESTS
– A CASE STUDY FOR MUSSEL ROPES**

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The spread of exotic marine pests between Australian water bodies is a potential threat to both natural marine communities and aquaculture industries. While marine pests can be introduced and transferred between waterways by ballast water and hull fouling, in the absence of good management, they can also be introduced to new areas by aquaculture or fishing equipment.

Both larval and juvenile exotic species have been found on mussel ropes in aquaculture growing areas. Mussel ropes are regularly moved between areas to maximise the growth of the shellfish and therefore to ensure a saleable crop and maintain the viability of the industry. Of concern to scientists, fisheries managers, fishers and marine farmers is the potential for exotic species to be moved to waters where they are not yet established.

Port Phillip Bay has the largest number of exotic marine species of Victoria's bays and inlets, with a number of species being listed as 'Noxious Aquatic Species' because of their potential to cause serious environmental and economic damage to the State's fisheries. Three of these species are the northern Pacific seastar, *Asterias amurensis*, The European fanworm, *Sabella spallanzanii*, and the Japanese 'wakame' seaweed, *Undaria pinnatifida*. To date, there is no evidence to suggest that any of these species have become established in Western Port Bay.

The Marine and Freshwater Resources Institute (MAFRI) in Queenscliff has spent the past 18 months researching and trialing treatments, based on the use of simple household cleaning agents and freshwater, to remove these exotic pest species from mussel ropes before they are moved between Port Phillip and Western Port bays. The aim of the research project was to maximise mussel survival while ensuring a total kill of targeted marine exotic species.

Four different treatments (air drying, tap water, 2% bleach and 2% detergent) were assessed in laboratory and field trials. These treatments were chosen as they have no residual effect on native species and they do not contaminate the commercial product. The research team found that the most effective treatments were tap water or 2% detergent immersion, followed by overnight air-drying. Field trials of these treatments found that they were extremely effective in killing the exotic species and there was no significant death of mussels. Tap water immersion followed by air-drying was considered to be the most cost effective, environmentally friendly and easy to use treatment.

The results of the project are extremely promising. Farmers have adopted the freshwater treatment for ropes – not only to kill exotic pest species that have settled on the ropes, but also to reduce the amount of general fouling, resulting in better mussel growth rates and improved product quality.

While not directly assessed, the results of this study suggest that the use of these treatments may also provide a cost-effective means of cleaning other fishing, aquaculture or boating equipment. The project was funded by the Commonwealth funding initiative - Coasts and Clean Seas, Fisheries Victoria and substantial in-kind support from the Victorian mussel industry.