PROTECT FIORDLAND'S EXCEPTIONAL MARINE BIODIVERSITY AND VALUABLE MARINE RESOURCES

The introduction of unwanted marine pest species to pristine environments such as Fiordland has the potential to cause irreparable harm to biodiversity and the beauty of these regions. It is everyone's responsibility to reduce the risk of introducing marine pests into this iconic natural environment. When taking marine gear and equipment (e.g. fishing, diving gear, nets, pots, ropes, anchors) and non-moored craft (e.g. kayaks) and other equipment into Fiordland, remember to follow these simple steps:

CHECK – Check for and remove any living or dead marine growth from equipment prior to arriving in Fiordland.

CLEAN – Clean canoes/kayaks, snorkelling/dive gear, fishing/boat equipment prior to arriving in Fiordland (see table for guidance on treatment methods).

When cleaning equipment (as per guidelines overleaf), we recommend that you:

- Remove any visible marine organisms and dispose of them appropriately on land.
- Remember to also clean equipment having no visible marine organisms present – microscopic life stages of organisms can be on equipment, in seawater trapped inside kayaks, boats, or within ropes or nets and dive equipment.
- Follow correct handling precautions when diluting cleaning chemicals from concentrated solutions. Ensure there is adequate ventilation and, where possible, use protective gloves and appropriate eye wear.
- Where possible, use hot water (> 40°C) to make up a treatment solution, as this dramatically increases its effectiveness. A good rule of thumb is to use water that is hot enough to submerge your hand in without significant discomfort.
- Dispose of cleaning solutions well above the high tide mark and away from streams and rivers.
- Where possible, completely dry equipment following cleaning. Some marine organisms can survive days exposed to air, so the longer equipment is dried the more effective any cleaning measures will be.

CLEANING GUIDANCE

Provided below are a range of cleaning options to minimise the risk of transferring marine pests associated with canoes/kayaks, snorkelling/diving gear and fishing/boat equipment (e.g. nets, pots, anchors, ropes). Choose the best treatment option for your item/s, taking into consideration:

- time available (e.g. air exposure can take up to one month);
- access to treatment chemicals;
- size and amenability of the item/s to the treatment methods (e.g. a kayak may be too big to soak so spraying or air exposure is likely to be a better approach);
- sensitivity of equipment.

Photo: K Blakemore, Department of Conservation

Undaria on mooring rope in sunday cove

September 2016

CLEANING GUIDANCE

SOAK	SPRAY/WASH	DRY
Soak the item/s as per one of the methods below: • **Freshwater** for at least 72 hours. If soaking ropes, freshwater should be replaced after 12 hours.[1,2,3,4] • **Hot water** (> 40°C) for 20 minutes.[3,5] Temperatures exceeding 48°C should not be used on dive equipment as certain temperature-sensitive gear may be damaged . • **5 percent Palmolive dishwashing detergent/ freshwater solution** for 60 minutes. (5 percent solution = 500 mls of detergent into 10 litres of freshwater).[5] • **1 percent Dettol antiseptic/freshwater solution** for 60 minutes. (1 percent solution = 100 mls of dettol into 10 litres of freshwater).[5] • **2 percent bleach/freshwater solution** for 30 minutes* (2 percent solution = 200 mls of bleach into 10 litres of freshwater).[1,4] • **2 percent Decon 90™/freshwater solution** for 30 minutes.[1,4] • **5 percent acetic acid/ freshwater solution OR undiluted household vinegar** for 10 minutes* (5 percent solution = 500 mls of acetic acid into 10 litres of freshwater).[1,2] Palmolive dishwashing detergent, Dettol, bleach and vinegar can be readily purchased from most supermarkets and service stations. * Not recommended for dive gear as it may compromise the integrity of some plastics.[6]	For items too large or difficult to soak, spray the item/s as per one of the methods below: • **1 percent Dettol antiseptic/ freshwater solution** and leave for 60 minutes.[5] • **5 percent acetic acid/ freshwater solution OR undiluted household vinegar** and leave for 10 minutes. When spraying an item, ensure you generously cover all surfaces. Handheld sprayers can be readily purchased at a hardware store, or in the gardening department of supermarkets and other department stores.	For an item where chemical/ freshwater treatment is not feasible, remove from water and thoroughly air dry for one month.[1,2,3,4] Care is needed to ensure that the item is laid out in a manner that ensures all surfaces are completely dried. Prolonged air exposure is also an ideal complementary treatment for any item/s that has been soaked or sprayed.

SOURCES OF INFORMATION

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3 Forrest B, Blakemore K 2003. An Evaluation of Methods to Reduce Inter-regional Spread of the Asian Kelp Undaria pinnatifida via Marine Farming Activities. Prepared for the Ministry of Fisheries. Cawthron Report No. 773.
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5 Dunmore RA, Piola RF, Hopkins GA 2010. Assessment Of The Effects Of Household Cleaners For The Treatment Of Marine Pests: MAFBNZ Project 11815.
6 Blouin MA 2002. A procedure for the decontamination of SCUBA diving equipment and underwater gear after diving in waters containing zebra mussels (*Dreissena polymorpha*) and other exotic species of Dressenidae. Standard operating procedure, U.S. Geological Survey.
7 Piola RF, Dunmore RA, Forrest BM 2008. Evaluation of spray treatments for the management of marine pests. Prepared for MAF Biosecurity New Zealand.

For further information on the Fiordland programme and marine biosecurity, visit:
www.mpi.govt.nz/fiordland

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