

## Biosecurity - Aquatic fieldwork hygiene

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### Management of the biosecurity risk

This procedure has been developed as a detailed guideline to ensure an appropriate level of aquatic fieldwork hygiene for all NSW Department of Primary Industries (NSW DPI), an office within the NSW Department of Industry, and Local Land Services (LLS) staff, contractors, permit holders and research collaborators that conduct aquatic fieldwork for NSW DPI and LLS. Any person who conducts work within the NSW aquatic environment creates a risk of introducing and/or spreading aquatic pests and diseases between different aquatic locations in NSW. Aquatic fieldwork can unknowingly spread aquatic pests or diseases from one area to another. Once an introduced aquatic pest or disease is established in an area, it is very difficult to eradicate.

### Scope

The *Biosecurity Act 2015* (the Act) promotes biosecurity as a shared responsibility between government, industry and communities. This procedure is a State Priority for NSW and should be read in conjunction with the Aquatic Biosecurity – Pests and Diseases policy. The procedure applies to NSW DPI and LLS in their role as authorised officers under the Act.

The Aquatic Fieldwork Hygiene procedure also applies to everyone engaged by NSW DPI and LLS, contractors, permit holders and research collaborators that conduct aquatic fieldwork for NSW DPI to work in NSW waterways. For the purpose of this procedure NSW waterways includes:

- the interface between NSW waterways and terrestrial environment, marine, estuarine and freshwater environments and wetlands, whether privately or publicly owned/managed
- aquaculture facilities, including ornamental facilities and private aquaria.

This procedure applies to all aspects of aquatic fieldwork undertaken by NSW DPI and LLS staff, including planning, implementation and return to base at the end of an aquatic fieldwork activity. This document outlines procedures that have been developed for above mentioned individuals to implement this standard of aquatic hygiene that minimises the biosecurity risks associated with aquatic fieldwork activities. As new knowledge comes to light, these procedures will be reviewed accordingly.

### Biosecurity legislation summary

A number of aquatic pests and diseases are notifiable under schedule 1 of the Biosecurity Regulation 2017. This means that a person who owns or is in charge of aquatic animals or marine vegetation, or a person working with aquatic animals or marine vegetation in their professional capacity, has a duty to notify an authorised officer within one working day if they suspect, or are aware of aquatic pests and diseases.

A number of other aquatic pests and diseases are listed as prohibited matter under schedule 2 of the Act. This means that a person who owns or is in charge of aquatic animals or marine vegetation, or a person working with aquatic animals or marine vegetation in their professional capacity, has a duty to immediately notify an authorised officer if they suspect, or are aware of aquatic pests and diseases.

Examples of who the 'duty to notify' applies to include:

- people who own aquatic animals or marine vegetation, such as hobbyists in the case of ornamental fish, and
- people who own or are in charge of commercial facilities that house aquatic animals or marine vegetation, and
- recreational and commercial fishers who have caught fish that they know or suspect to be diseased, and
- veterinarians and other professionals consulted about aquatic animals or marine vegetation.

Recreational divers and other people who know or suspect the presence of an aquatic pest or disease are also encouraged to notify.

Under section 28 of the Act it is an offence for people to deal with prohibited matter. In the context of aquatic pests and diseases, this means that it is an offence for people to do anything that is described in section 12 of the Act as dealing with which includes moving, selling or treating aquatic animals or marine vegetation infected with aquatic pests or diseases, unless the person could not have reasonably known that they were dealing with aquatic pests or diseases. Note that the Secretary (or delegate) can issue a prohibited matter permit that authorises specific dealings with prohibited matter, such as aquatic pests or diseases, subject to specific conditions.

In the case of an outbreak of an emergency aquatic pest or disease, the Secretary (or delegate) may issue an emergency order under section 44 of the Act. This would declare a biosecurity emergency and establish measures to respond to that biosecurity emergency.

The collection, use and disclosure of information in accordance with this procedure, including any internal or external discussion or distribution of information, must be in compliance with the *Privacy and Personal Information Protection Act 1998* or be exempted by the operation of section 387 of the Act.

Section 387 (2) of the Act provides authority for the disclosure of information about a person, without the consent of the person: to a public sector agency, or to any other person, but only if the disclosure is reasonably necessary for the purpose of exercising a biosecurity risk function.

### **Work health and safety**

The *Work Health and Safety Act 2011* places an obligation on the agency (NSW DPI and LLS) as a person conducting business or undertaking and workers to provide a safe and healthy workplace. Safe Work Method Statements that support activities included in this procedure must be used in identifying, assessing and controlling risks.

NSW DPI and LLS work together to create a safe and supportive work environment when undertaking any activities for this procedure.

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# Aquatic fieldwork hygiene procedure

## 1. Roles and responsibilities

### 1.1. NSW Department of Primary Industries and Local Land Services will:

- ensure that this the biosecurity risk of fieldwork activities is minimised through implementation of this procedure when undertaking research or compliance or other operational activities
- provide information to stakeholders that this procedure exists and is being implemented to provide assurance that NSW DPI and LLS activities do not contribute to biosecurity risk when moving gear and equipment between estuaries.

## 2. Fieldwork planning

Aquatic fieldwork planning should include identification of the activities that may allow for the introduction and/or spread of a pest or disease and ensuring that the appropriate hygiene procedure is implemented to minimise the risk of those activities introducing or spreading a pest or disease.

When visiting multiple waterways (fieldwork locations) plan fieldwork according to the level of biosecurity risk i.e. unknown risk waterways should be scheduled first, followed by those of known risk. If possible, known risk waterways should be scheduled as a separate event, especially if extra biosecurity risk mitigation measures are required.

The aquatic fieldwork plan should include:

- a list of activities to enable identification of appropriate procedures for implementation of each activity to reduce its risk of spreading a pest or disease
- current status of aquatic pests and/or diseases in the fieldwork locations being visited (i.e. known or unknown). This may include checking the NSW DPI website at: [www.dpi.nsw.gov.au/biosecurity/aquatic](http://www.dpi.nsw.gov.au/biosecurity/aquatic) for up to date information
- practical considerations with regard to feasibility (availability of water, time, daylight)
- assessment of conditions at each site that may impact type of cleaning required (i.e. if raining and muddy, on-site cleaning would be required)
- a checklist of equipment required to enable appropriate cleaning and/or disinfecting of fieldwork equipment before leaving each fieldwork location
- scheduling fieldwork to ensure time is allowed at the end of work at each fieldwork location for hygiene requirements.

Note: Items not needed during field work operations should remain at the worksite, at accommodation or within the motor vehicle's enclosed compartment.

## 3. Areas of known infestations

- locations of known infestations can be found at [www.dpi.nsw.gov.au/fishing/pests-diseases/pest-disease-distribution](http://www.dpi.nsw.gov.au/fishing/pests-diseases/pest-disease-distribution)
- during an emergency response, procedures may be put in place that will offer a higher level of hygiene requirements.
- specific procedures may already be developed for areas of known infestations, for example:
  - INT11/7170 POMS procedure – oyster collection, storage and transport
  - INT11/11823 POMS procedure – oyster surveillance visits.

## 4. General guidelines

### 4.1 Pre-departure inspection

- thoroughly check all aquatic fieldwork equipment for visible debris
- remove any visible debris found, bag and dispose in general waste away from any waterway. The equipment should then be cleaned
- where possible all fieldwork equipment should be dry before reuse.

### 4.2 End of fieldwork inspection

- this is done at the conclusion of field operations at each fieldwork location
- inspect all equipment thoroughly and remove any visible debris
- empty any excess water from fieldwork equipment (such as bilge of a vessel or engine bay of a vehicle) away from the boat-ramp when leaving a fieldwork location (may contain algae, mud or debris)
- any collected debris should be placed in a sealed bag and disposed of into general waste away from the waterway.

#### 4.3 Cleaning and disinfection

- cleaning should be undertaken when leaving each fieldwork location (with the exception of extenuating circumstances, such as rapid changes to weather). Workers should conduct cleaning according to the following steps:
  - thoroughly clean equipment with a freshwater hose on site removing visible traces of mud,
  - where washing with a freshwater hose is not possible, use bottled clean/fresh water (water brought on the fieldwork trip especially for that purpose) to clean equipment as thoroughly as possible, addressing visibly dirty areas/high risk areas of equipment, and
  - where cleaning on site is not possible, all efforts should be made to remove bulk of debris/other material before moving to another suitable cleaning area (such as a commercial car wash).
- disinfection should be undertaken when leaving each fieldwork location that is a known risk waterway:
  - after cleaning, disinfect with an appropriate solution according to equipment type.
- some examples of cleaning and disinfection solutions are provided below. Note: This is not an exhaustive or prescriptive list. If other products are identified as practical for use, and achieve appropriate cleaning and disinfection, they can also be used:
  - Detergent:
    - CT18: non-hazardous, non-dangerous goods. Is acceptable for use on unpainted surfaces, however is known to be harsh on boat gelcoat polish/paintwork.
  - Disinfectant:
    - Virkon-S: this should be pre-mixed (according to manufacturer's instructions) and taken in the field in a suitable spray pack. After cleaning (removal of all mud, debris), spray down vehicle with the Virkon-S mix and leave to dry.
    - 1% Chlorine (disinfectant): pre-mixed and taken in an appropriate spray pack. After cleaning (removal of all mud, debris), spray down vehicle with the solution and leave to dry.
- all parts of fieldwork equipment should be allowed to air or sun dry if possible between fieldwork locations (particularly when sites are in a new catchment)
- cleaning and disinfection should be completed on site in a manner that ensures any soap/chemical residue does not enter the waterway. Where cleaning on site is not possible, all efforts should be made to remove bulk of debris/other material before moving to another suitable cleaning area
- where water is not available for cleaning (and workers are directed to continue field work in other locations) workers must check for and remove visible debris and all equipment must be dried before moving to a new fieldwork location.

Note: When fieldwork is being conducted in known risk waterways, such as an area where Pacific Oyster Mortality Syndrome (POMS) is known to occur, fieldwork planning must ensure that either adequate supplies are available for cleaning (cleaning and disinfection must be conducted when leaving known risk waterways) or alternatively fieldwork in known risk waterways should occur in

isolation, thereby allowing all equipment to be thoroughly cleaned/disinfected and dried before re-using in another fieldwork location.

- after completing river crossings vehicles must be parked (preferably on a level area) with handbrake on and one or more wheels chocked on both sides. The vehicle and any trailers must be checked in areas described in 6.3 and any aquatic weeds and pests removed. An exception is when multiple river crossings are completed on a single tributary; however inspections must be completed before workers cross a new tributary.

## 5. Reporting suspected aquatic biosecurity threats

Any NSW DPI or LLS worker who observes suspected aquatic pests or diseases while undertaking aquatic fieldwork is required to report these to Aquatic Biosecurity & Risk Management on:

- (02) 49163877 / (02) 4982 1232, or
- [aquatic.pests@dpi.nsw.gov.au](mailto:aquatic.pests@dpi.nsw.gov.au), or
- the online reporting form [www.dpi.nsw.gov.au/content/forms/aquatic-pest-sighting](http://www.dpi.nsw.gov.au/content/forms/aquatic-pest-sighting)

## 6. Aquatic fieldwork equipment

### 6.1 Resources and equipment

- car/truck wash facilities – self-service with high pressure & cleaning cycles or drive-through
- access to freshwater, where run-off containing potential pest and disease substances will not enter waterway
- cleaning equipment (e.g. hose with trigger nozzle, spray bottles, buckets, brushes, sponge)
- Brushes for cleaning PPE and other equipment (e.g. broom or smaller brushes to suit equipment type)
- large containers or bottles of clean (e.g. potable) freshwater
- plastic foot baths
- plastic tubs to contain equipment for transport
- rubbish bags & ties – heavy duty
- PPE including gloves, safety glasses
- floor mat – for personal protection when inspecting under vehicles
- undercarriage mirror
- measuring container for cleaning & disinfecting solutions
- cleaning and disinfecting solutions/products (e.g. Virkon-S, 1% chlorine, CT-18, salt).

### 6.2 Specific hygiene guidelines for aquatic fieldwork equipment

NSW DPI and LLS workers should implement the highest practical standard of cleaning and risk minimisation for all aquatic fieldwork situations.

In addition to 3.3 *Cleaning and disinfection* the following specific guidelines must be followed according to equipment/gear type being used:

- **'Vehicles'** includes cars, four wheel drives, tractors, trucks, quad bikes, motorbikes:
  - prior to inspection, vehicles must be parked (preferably on a level area) with handbrake on and one or more wheels chocked on both sides
  - specific areas of vehicles that should be checked, cleaned, rinsed, disinfected and dried include:
    - tyres
    - wheel guards (mud-flaps) and arches
    - engine bays
    - underside (using undercarriage mirror)
    - chassis/body/tray
    - radiator grill
    - external fixtures (such as foot steps in 4WD)
    - carpets (if applicable)

- hydraulics (if applicable/tractors)
- steering wheel, gear shift and door handles.
- **'Vessels and Trailers'** includes all watercraft, powered or non-powered, transportable or moored, and any trailer (including non-watercraft):
  - specific areas of vessels and trailers that should be checked, cleaned, rinsed, disinfected and dried include:
    - live-well
    - sump and bung area
    - deck
    - anchor, anchor rope and chain, and anchor well
    - engine
    - hull
    - carpets (if applicable)
    - bilge / buoyancy chambers (if applicable)
    - wheels (wheel guards, mud-flaps)
    - all surfaces of trailers including underside
    - oars.
  - at the completion of sampling, lift all loose items from the deck of the boat and liberally rinse deck, live well and all equipment with clean water.
  - moored/berthed vessels: Vessels moored/berthed at a location can also act as a vector for the translocation of marine pests by carrying fouling on the hull. Regular slipping (or removal to trailer) and maintenance (e.g. cleaning and anti-fouling) is required (e.g. at least annually). Operators of moored/berthed vessels should also ensure that marine or estuarine water is not transferred from one NSW waterway to another; marine or estuarine water carried on-board must be exchanged or dumped in offshore waters (not within an estuary) before entering a new NSW waterway. Operators should also ensure that anchor and mooring lines are free from debris before they are deployed.
- **'Aquatic fieldwork sampling equipment'** includes nets (e.g. seine, gill and fyke nets, dip or scoop nets, grapple hooks), fish and invertebrate traps, storage bins, buckets:
  - specific areas/parts that should be checked, cleaned, disinfected (in known risk locations) and dried include:
    - ropes
    - inside and outside of storage containers
    - nets, particularly around the knots (prone to capture aquatic debris)
  - cleaning of nets/ropes may include either hosing or soaking with freshwater (after working in marine environment), or by soaking in salt water (after working in a freshwater environment).
  - disinfectants should be applied and the equipment should then be thoroughly rinsed. Note: residues on equipment may impact subsequent sampling, especially of live animals.
- **'Electrofishing equipment'** includes backpack and boat electrofishing gear types:
  - in addition to those areas described under 'vessels', the specific areas of electrofishing equipment to be checked, cleaned, disinfected (in known risk locations) and dried include:
    - anodes and cathodes
    - foot switches
    - dip-nets
    - live wells
    - measuring boards.
  - disinfection of electrofishing equipment may be done using 1% pool chlorine solution
  - where possible, allow the boat and equipment to dry before re-packing for transport.
- **'PPE and other personal gear'** includes boots, waders, gloves, wet weather jackets and pants, backpacks, clothing, hard hat, high visibility vest, sunglasses:

- before going into the field, PPE, clothing and footwear should be checked to ensure it is generally clean and dry and that there are no visible fragments of biological material or soil
- specific areas that should be checked, cleaned, disinfected and dried include:
  - soles and outer parts of all boots, waders and shoes
  - cleaning of PPE and other personal gear could be done using freshwater and a brush to ensure that biological debris and soil is thoroughly removed
  - if disinfection cannot be done PPE and personal gear must be thoroughly dried before using in a new fieldwork location
  - all PPE or personal gear made from neoprene or felt that cannot be disinfected must be completely dried for at least 24 hours when leaving each fieldwork location that is a known risk waterway.
- **‘Water sampling equipment’** includes water quality meters, probes, collection containers, buckets and poles:
  - all water sampling equipment should be checked, cleaned, disinfected (in known risk locations) and dried
  - if disinfection cannot be done, water sampling equipment must be thoroughly rinsed with freshwater and dried (with the exception of probes that must be kept moist) before using in a new area.
- **‘Electronic equipment’** includes notebooks, tablets, laptops, mobile phones, GPS etc. All electronic equipment should be checked, cleaned, disinfected (in known risk locations) and dried. If disinfection cannot be done, electronic equipment must be thoroughly wiped down and dried before using in a new area.

### 6.3 Destruction, disposal and investigation of suspected aquatic diseases/pests

Any bulky debris that may include or harbour a suspected aquatic pest or disease must be disposed of appropriately.

Any additional specimens considered suspect should be appropriately destroyed and disposed of:

- aquatic pest destruction and disposal methods:
  - **in the case of marine vegetation or aquatic pests** (e.g. *Caulerpa taxifolia*) it is recommended that suspected pests or introduced vegetation is carefully placed in a plastic bag and disposed of away from the waterway to landfill
  - **in the case of freshwater weeds** (e.g. *Salvinia*, *Cabomba*, Alligator weed), it is recommended that the vegetation is carefully placed in a plastic bag and later disposed of by drying out the material and either incinerating or burying
  - **in the case of fish** it is recommended that suspected pest or fish are humanely euthanased (according to NSW DPI guidance on [acceptable methods](#)) and disposed of away from the waterway to landfill.
- investigation and collection:
  - **in the event of a suspected detection of a range extension or a new incursion of a pest, weed or aquatic disease** consideration should be given to:
    - collection of suitable samples for identification purposes, and
    - cessation of activities until investigation/identification is made if the activity is likely to increase risk of spread of the suspect pest/disease.
  - aquatic fieldwork workers should contact Aquatic Biosecurity by phoning (02) 4982 1232 for advice on appropriate sample collection and preservation methods. Aquatic Biosecurity will coordinate with workers for the collection and identification of any suspected aquatic pest or disease – please contact Aquatic Biosecurity for detailed procedures
  - in the event that contact cannot be made with Aquatic Biosecurity, samples should be retained, in a sealed container, on ice where possible but not frozen, for identification or disease investigation until contact with Aquatic Biosecurity can be made



- for freshwater aquatic weeds call the NSW DPI Invasive Plants and Animals Hotline on 1800 680 244 or contact your local Council Weeds Officer.

## 7. Definitions and acronyms

Aquatic pest	as per 'pest' definition in Biosecurity Act 2015, yet referring to animals included in the definition of fish under the <i>Fisheries Management Act 1994</i> , and to marine vegetation
Biosecurity matter	as per definition in Section 10 of the <i>Biosecurity Act 2015</i>
<i>Caulerpa taxifolia</i>	a bright green marine alga that is a listed pest species in NSW
Disease agent	as per definition in <i>NSW Biosecurity Act 2015</i>
DPI	NSW Department of Primary Industries
EHN	Epizootic haematopoietic necrosis
Fieldwork equipment	any item, vehicle, vessel or PPE that is used during aquatic field operations
Fieldwork location	any NSW waterway where aquatic fieldwork is conducted. A waterway is considered a new fieldwork location if the worker has been required to travel by vehicle to get there or the waterway is disconnected from the previous fieldwork location
Known risk waterway	a waterway in NSW that has a known infestation of aquatic pest (tilapia in Cudgen lake) or a disease outbreak (such as QX disease or Pacific Oyster Mortality Syndrome)
LLS	Local Land Services
NSW waterways	includes any lake, coastal and marine waters, creek, river, stream, estuary, aquaculture lease area, aquaculture facility, private dam, aquaria, municipal water supplies. Also includes the interface between the waterways and land, i.e. riverbank, rocky shores etc
POMS	Pacific Oyster Mortality Syndrome
PPE	personal protective equipment
QX disease	refers to the disease caused by <i>Marteilia sydneyi</i> that impacts the native Sydney rock oyster and is known to occur in several NSW estuaries.
Unknown risk waterway	a waterway in NSW that is not known to have an aquatic disease or pest present

## 8. Documentation

Water safety management system (Fisheries Compliance Operations)

Policy - Biosecurity collection, use and disclosure of information

Policy - Records Management (IND-I-177)

Policy - Information Security (IND-I-197)

Policy - Classified Information (IND-I-196)

Policy -Government Information (Public Access) (IND-I-178)

Procedure - Biosecurity collection, use and disclosure of information

Procedure – POMS oyster collection, storage and transport of samples

Procedure – POMS oyster surveillance visits

[‘A guide to acceptable procedures and practices for aquaculture and fisheries research](#), 3<sup>rd</sup> Edition November 2009’

[Conduct of research - Guideline](#)

OUT09/11253 [Weeds of National Significance - Cabomba control manual](#)

[Weeds of National Significance – Alligator weed control manual](#)

[Weeds of National Significance – Salvinia control manual](#)

[Factsheet 1119 – Come Clean Go Clean – a step by step guide to vehicle wash down](#)

[Factsheet 1152 – Vehicle biosecurity kit – plant industries](#)

Grains Farm Biosecurity Program [Factsheet – Is your field research a biosecurity risk?](#)

[Primefact 714 - Standard Operating Procedure: Decontamination for commercial abalone divers](#)

[Australia's National List of Reportable Diseases of Aquatic Animals](#)

[Primefact 1290 – Make 'clean' part of your routine](#)

## 9. Records

Fieldwork records retained by NSW DPI and LLS workers may be required by the Aquatic Biosecurity and Risk Management team in the event of a pest or disease incursion.

## 10. Revision history

<b>Version</b>	<b>Date issued</b>	<b>Notes</b>	<b>By</b>
1	01/07/2017	Substantially revised procedure in response to the <i>Biosecurity Act 2015</i>	Animal Biosecurity and Welfare

## 11. Contact

Biosecurity NSW – General Enquires  
1800 808 095  
[biosecurity@dpi.nsw.gov.au](mailto:biosecurity@dpi.nsw.gov.au)