



# National biosecurity plan guidelines

for Australian oyster hatcheries



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## About this publication

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Cover Image Source: South Australian Oyster Growers Association

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# INTRODUCTION

These guidelines have been developed to provide Australian oyster hatcheries with the tools and templates to create fully auditable biosecurity plans.

These guidelines are part of the Fisheries Research and Development Corporation (FRDC) project, Development of sector-specific biosecurity plan templates and guidance documents for the abalone and oyster aquaculture industries (project number: 2016-245). We have developed them:

- in accordance with the national Aquaculture Farm Biosecurity Plan: generic guidelines and template ([www.agriculture.gov.au/fisheries/aquaculture/farm-biosecurity-plan](http://www.agriculture.gov.au/fisheries/aquaculture/farm-biosecurity-plan))
- based on input from a government/industry workshop held on 27 October 2016.

Biosecurity is a set of measures that help to prevent or reduce the risk of introducing disease into your hatchery, spreading disease within your hatchery, or spreading disease from your hatchery to the aquatic environment or to other aquatic enterprises.

Most recently, the rise of diseases such as Pacific Oyster Mortality Syndrome has highlighted the need for enhanced hatchery biosecurity. Worldwide, there is increasing risk of significant aquatic animal diseases and pests, both known and unknown, emerging and spreading. Aquaculture is a relatively young livestock industry, with unknown diseases potentially posing a significant risk in coming years.

Effective biosecurity is integral to any successful production system as it helps minimise unnecessary costs, can improve production outcomes, and helps maintain trade and market access. Those measures aimed at preventing disease entering your hatchery in the first place can lead to a significant return on your investment.

Preventing disease not only protects your business, but has wider benefits for the industry and communities that would potentially be devastated by a significant disease outbreak. Ownership and buy-in by your staff is critical for successfully implementing and operating farm biosecurity.



**Staff must understand that they can help protect their jobs, and ultimately the industry, by preventing the introduction of or minimising the spread of disease.**

# USING THESE BIOSECURITY PLANNING GUIDELINES

This document is designed to help oyster hatcheries:

- ➔ develop a farm biosecurity plan
- ➔ strengthen an existing farm biosecurity plan.

To develop an effective biosecurity plan, farmers need to consider a number of factors. These guidelines provide information, as well as templates and other resources, to help you assess risks common to oyster hatcheries. This will help you develop a biosecurity plan tailored for your hatchery.

The guidelines identify the major routes of potential disease transmission in oyster hatcheries, including disease entry, spread within your hatchery and spread from your hatchery. This will help you assess:

- ➔ risks associated with each route of disease transmission
- ➔ on-farm measures to minimise the risk of disease transmission
- ➔ what other supporting documents you will need to develop a comprehensive plan, for example standard operating procedures (SOPs).

You will also need to consider any additional risks specific to your hatchery, and associated risk management measures, that you may require.

Each hatchery will have a different spectrum of biosecurity challenges and operating environments because of variations in:

- ➔ operation size
- ➔ location and layout
- ➔ disease status of the region or state/territory
- ➔ proximity to other oyster populations, aquaculture sites or seafood enterprises (for example, processors)
- ➔ number and type of species farmed
- ➔ available resources.

You will need to develop an individual hatchery biosecurity plan that takes your hatchery's uniqueness into account. This ensures that the plan is practical for your operation, as well as being as simple and as low cost as possible to achieve desired biosecurity outcomes.

The guidelines provide supporting documentation, including templates and example SOPs, as appendices to help you develop your plan. You will need to tailor some documents (for example, hatchery-specific SOPs) specifically for your hatchery. See Appendix 8 for help on writing an SOP.

You will not need to duplicate existing documents, systems or records. However, where appropriate, reference these within your biosecurity plan.

Once you have navigated through these guidelines and assessed individual hatchery risks, you can create a hatchery biosecurity plan. Appendix 10 provides an electronic biosecurity plan editable template.

Appendix 9 provides a self-audit checklist against which you can assess your completed plan. Use this checklist to highlight any remaining gaps.

**Symbols used in these guidelines:**



Pen and paper icon indicates **supporting details** and other information to include in your farm biosecurity plan.



Tick on paper icon indicates **risk management measures** to implement and document. These measures are auditable.



Open file icon indicates **templates** provided to help develop individual farm biosecurity plans.



A comprehensive biosecurity plan will be a mandatory requirement of any import protocol.

# OYSTER DISEASES OF SIGNIFICANCE

Eleven diseases are currently listed as national reportable diseases for oysters (Table 1). These diseases are a threat to hatchery production and to market access and trade.

*Table 1. National reportable diseases of oysters*

Disease	Pathogen type	Presence in Australia
Ostreid herpes virus 1 microvariant (OshV-1 $\mu$ var)	Viral	Endemic (in Australia)
<i>Iridovirus</i>	Viral	Exotic ( <b>not</b> in Australia)
<i>Bonamia exitiosa</i>	Parasitic	Endemic (in Australia)
<i>Bonamia ostreae</i>	Parasitic	Exotic ( <b>not</b> in Australia)
<i>Bonamia spp.</i>	Parasitic	Status to be clarified
<i>Marteilia refringens</i>	Parasitic	Exotic ( <b>not</b> in Australia)
<i>Marteilia sydneyi</i>	Parasitic	Endemic (in Australia)
<i>Marteiliodes chungmuensis</i>	Parasitic	Exotic ( <b>not</b> in Australia)
<i>Mikrocytos mackini</i>	Parasitic	Exotic ( <b>not</b> in Australia)
<i>Perkinsus marinus</i>	Parasitic	Exotic ( <b>not</b> in Australia)
<i>Perkinsus olseni</i>	Parasitic	Endemic (in Australia)

Access the full and current list of National Reportable Diseases of Aquatic Animals on the Department of Agriculture and Water Resources website

(at [www.agriculture.gov.au/animal/aquatic/reporting/reportable-diseases](http://www.agriculture.gov.au/animal/aquatic/reporting/reportable-diseases)).

Under state and territory legislation farmers, aquaculture technicians, veterinarians and researchers, or anyone else involved in oyster aquaculture, must immediately report these, as well as any additional jurisdiction-specific diseases, to the relevant authority if suspected or detected. States and territories commonly refer to these diseases as Notifiable Diseases and lists are available on relevant jurisdiction websites.

The diseases shown in Table 1 include two pathogen types (viral and parasitic). Biosecurity planning needs to consider these types and how they are spread when determining risk management measures such as appropriate decontamination.

Key reportable oyster disease resources to help you identify such diseases include:

- 1. Aquatic Animal Diseases Significant to Australia: Identification Field Guide 4<sup>th</sup> Edition**, available on the Department of Agriculture and Water Resources website (at [www.agriculture.gov.au/animal/aquatic/guidelines-and-resources/aquatic\\_animal\\_diseases\\_significant\\_to\\_australia\\_identification\\_field\\_guide](http://www.agriculture.gov.au/animal/aquatic/guidelines-and-resources/aquatic_animal_diseases_significant_to_australia_identification_field_guide))  
This guide is also available as a free App that can be downloaded from the App Store (Apple devices), Google Play (Android devices) and Microsoft Store (Windows devices). We recommend that you and your staff install this on your mobile phones.
- 2. AQUAVETPLAN Disease Strategy Manuals**, available on the Department of Agriculture and Water Resources website (at [www.agriculture.gov.au/animal/aquatic/aquavetplan](http://www.agriculture.gov.au/animal/aquatic/aquavetplan))  
You can find a manual here for Pacific Oyster Mortality Syndrome (Ostreid herpes virus 1 microvariant).
- 3. OiE Disease Chapters – Diseases of Molluscs**, available on the World Organisation for Animal Health website (at [www.oie.int/international-standard-setting/aquatic-manual/access-online/](http://www.oie.int/international-standard-setting/aquatic-manual/access-online/)).

The Fisheries Research and Development Corporation website ([www.frdc.com.au](http://www.frdc.com.au)) is also an excellent resource for emerging issues and latest research. In addition to known diseases of significance, or those listed as reportable, there are potentially other diseases (for example, emerging or unknown diseases) that may be a future risk to production. Good hatchery biosecurity should be aimed at preventing entry and spread of both known and unknown disease.





# MAJOR ROUTES FOR DISEASE TRANSMISSION

Figure 1 outlines the biosecurity risk levels of a hatchery and the major ways that disease can be transmitted onto (entry-level), within (internal), and from (exit-level) oyster hatcheries:

- ➔ entry-level transmitters – stock (for example, broodstock, wild oysters, other farm stock), intake water, algae/feed, people (for example, staff and visitors), equipment and vehicles, and other animals (for example, vermin, wild birds, other animals entering via the intake water or returning escapees)
- ➔ internal transmitters – stock, water, people, equipment, vehicles, and other animals can transmit diseases
- ➔ exit-level transmitters – stock (including mortalities, discarded product, escaped oysters), discharge water, people, equipment, vehicles, and other animals and wastes.

When high levels of infection come into close contact with susceptible hosts, it is likely that the disease will become established and spread.

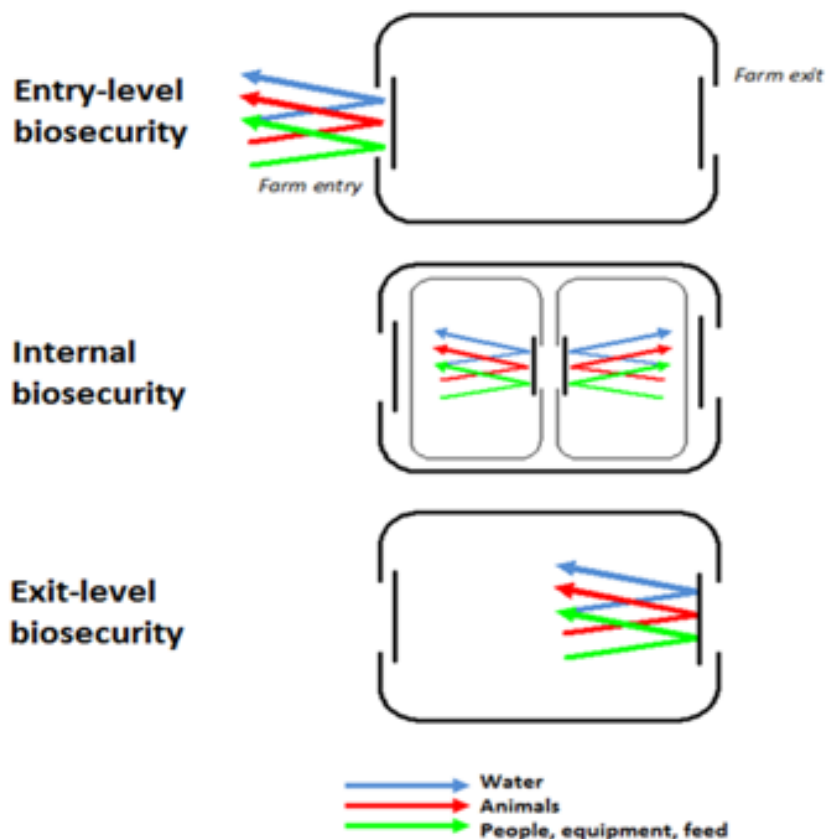


Figure 1. Different levels of hatchery biosecurity

Source: K. Ellard, (2015). Disease control recommendations to support aquatic animal health? *Proceedings of the Third OIE Global Conference on Aquatic Animal Health*, Session 4, 137-143.



For oyster hatcheries, broodstock, water, and the movement of equipment and people present the highest risk pathways for introducing and spreading disease. Address these pathways as a priority.

# WHAT TO INCLUDE IN YOUR BIOSECURITY PLAN

Your farm biosecurity plan needs to be read and interpreted by a range of people including hatchery staff, external auditors and jurisdictional staff. As such it should be easy to follow, with clear information and diagrams.

Below, we have outlined a suggested layout and inclusions to help you develop a comprehensive and concise biosecurity plan.

## SECTION 1

### ENTERPRISE INFORMATION

Enterprise information provides essential background detail about your hatchery. This includes the scale and scope of the operation.

#### Production details



Summarise detail of all relevant elements of hatchery production.

Relevant details include:

- ➔ broodstock source(s)
- ➔ product, including species and size
- ➔ hatchery activities – all production and administrative activities
- ➔ staff – number and areas of responsibility
- ➔ any associated sites linked to the hatchery – such as nursery sites.

#### Key contacts



Document key details for internal and external contacts, relevant to the operation's management, biosecurity and stock health.

Relevant contacts include:

- ➔ company, farm and specific area managers
- ➔ consulting veterinarians/oyster health professionals
- ➔ government aquatic animal health contacts
- ➔ laboratories used
- ➔ other industry representatives (for example, bay representatives).

## SECTION 2

## MAPS AND DIAGRAMS

Hatchery design and availability of infrastructure will determine how you can manage biosecurity. Include relevant information in this section of the plan.

### Hatchery locality and features



Provide a locality map and associated farm information.

You will need to assess and document specific disease transmission risks based on hatchery location.

Relevant details include:

- ➔ status of state or territory, region and/or bay for known diseases or marine pests of concern (for example, Pacific Oyster Mortality Syndrome)
- ➔ proximity to other aquaculture production in the bay or region (for example, oysters or other aquaculture leases)
- ➔ proximity to potential high-risk sites (for example, ports, processors or wild oyster populations)
- ➔ presence and type of wildlife, feral animals or vermin
- ➔ nearby roads, towns, boat ramps, marinas.



## Property maps and schematic diagrams

It is likely that you will need more than one property map in your biosecurity plan, to cover different levels of detail.

Ensure maps and diagrams include the following information.

### Hatchery layout



Provide a hatchery layout map and associated access information.



Appendix 1 includes a **biosecurity sign**.

Relevant details include the presence and location of:

- ➔ perimeter fences
- ➔ site entry/exit points and gates (and if gates are lockable)
- ➔ access/biosecurity sign location(s)
- ➔ access road(s)
- ➔ car park(s)
- ➔ reception point for hatchery visitors
- ➔ sheds/storage areas, tanks and other infrastructure
- ➔ algae production areas
- ➔ sedimentation pond(s)
- ➔ water intake and discharge pipes
- ➔ water pumps and filtration equipment
- ➔ vehicle loading/delivery area(s)
- ➔ wash down/disinfection area(s)
- ➔ waste disposal areas
- ➔ emergency muster point(s)



**R1.** The hatchery has a secure perimeter or otherwise well-defined boundary establishing a clearly defined biosecurity zone.



**R2.** You can close the main production area entrance to vehicle traffic if you activate the emergency response plan.



**R3.** Access gates are lockable and locked when no company personnel are on site.



**R4.** Clearly display entry signage that provides direction for visitors and includes company contact details.

## Production areas and biosecurity zone classifications



Provide a hatchery diagram outlining production areas and associated biosecurity zone classifications.

Be sure to include:

- ➔ entry and exit points for each production area/zone
- ➔ the location of any physical biosecurity measures between production areas/zones (for example, disinfection/sanitisation points, boot change areas)
- ➔ the class of stock within each production area/zone (for example, broodstock, larvae or spat)
- ➔ typical stock and staff/visitor movements including those between hatchery production areas/zones and between sites (if applicable).

Ensure you describe biosecurity zones (Table 2) shown in diagrams, and used in your farm biosecurity plan, in detail within supporting SOPs.

*Table 2. Summary of example farm biosecurity zones*

Biosecurity zone	Access
<b>Extreme (red)</b>	<ul style="list-style-type: none"> <li>➔ highly restricted</li> <li>➔ authorised personnel only</li> <li>➔ no entry to any other zones following access.</li> </ul>
<b>High (amber)</b>	<ul style="list-style-type: none"> <li>➔ limited access</li> <li>➔ authorised personnel only</li> </ul>
<b>Moderate (yellow)</b>	<ul style="list-style-type: none"> <li>➔ limited access</li> <li>➔ authorised personnel only</li> </ul>
<b>Low (green)</b>	<ul style="list-style-type: none"> <li>➔ no access restrictions (staff or visitors).</li> </ul>



**R5.** Divide the farm into biosecurity zones with zone-specific requirements relating to access, entry and exit procedures, and dedicated equipment.



**R6.** Clearly display biosecurity zone signage, consistent with biosecurity zone definitions and familiar to all personnel.

## SECTION 3

## ROUTINE MEASURES TO ADDRESS MAJOR DISEASE TRANSMISSION ROUTES

This section outlines routine risk management measures to address major disease transmission routes common to oyster hatcheries (as per page 7).

Routine measures are implemented and followed as part of normal daily hatchery operations. For each measure, we have assigned a risk category. These will help to highlight the measures you need to prioritise to provide the highest degree of assurance that you will not introduce or spread disease.

The risk-rating categories, based on a risk assessment, are outlined in Table 3.

*Table 3. Risk-rating categories*

Risk category	Potential risk level
Category A	Failure to implement risk management measures may result in a <b>critical risk</b> of disease transfer.
Category B	Failure to implement risk management measures may result in a <b>high risk</b> of disease transfer.
Category C	Failure to implement risk management measures may result in a <b>moderate risk</b> of disease transfer.
Category D	Failure to implement risk management measures may result in a <b>low risk</b> of disease transfer.

### Additional farm-specific risks – not covered by these guidelines

When developing your farm-specific biosecurity plan, you will also need to assess **any additional risks associated with your specific hatchery, not covered in these guidelines**. You will need to implement appropriate risk management measures. We have outlined this process below.

#### 1 Identify risks and perform a risk assessment

Identify any additional hatchery-specific risks (or routes of disease transmission). Perform a risk assessment for each risk identified:

- estimate the likelihood of disease entering the hatchery by this route
- determine the consequence of disease entry by this route

The level of risk posed is disease-dependent. As your farm biosecurity plan is not targeted at a specific disease, it is best practice to consider the worst-case scenario – an exotic or other emergency (or significant) oyster disease such as Pacific Oyster Mortality Syndrome.

		Consequence rating				
		Insignificant	Minor	Moderate	Major	Catastrophic
Likelihood rating	Remote	1	2	3	4	5
	Unlikely	2	4	6	8	10
	Possible	3	6	9	12	15
	Likely	4	8	12	16	20
	Certain	5	10	15	20	25

Figure 2. Risk estimation matrix

Risk level	Action
1–2 Negligible	Acceptable level of risk. No action required.
3–5 Low	Acceptable level of risk. On-going monitoring may be required.
6–10 Medium	Unacceptable level of risk. Active management is required to reduce the level of risk.
12–15 High	Unacceptable level of risk. Intervention is required to mitigate the level of risk.
16–25 Extreme	Unacceptable level of risk. Urgent intervention is required to mitigate the level of risk.

Figure 3. Assessment of disease consequences

Medium, high or extreme risks are considered unacceptable and require you to implement management measures. Monitor low risks to ensure the risk profile does not change over time.

You can find detailed information on performing a risk assessment in part 3 (pages 25 to 28) of the Aquaculture Farm Biosecurity Plan – generic guidelines and template, on the Department of Agriculture and Water Resources website

(at [www.agriculture.gov.au/fisheries/aquaculture/farm-biosecurity-plan](http://www.agriculture.gov.au/fisheries/aquaculture/farm-biosecurity-plan)).

## 2 Identify appropriate risk management measures

Manage risks with a variety of measures, including physical (for example, infrastructure and equipment), procedural (for example, production practices and training) or other supporting measures (for example, signage).

To address any specific additional risks identified for your hatchery, consider each of these measures as part of a standard approach.

## 3 Develop or identify associated supporting documentation

Support risk management measures with appropriate documentation (for example, SOPs, checklists, record keeping templates) outlining detailed risk management measures.

For example, your biosecurity plan may identify a risk management measure as the ‘use of footbaths between biosecurity zones’. Appropriate documentation to support this practice would be a ‘Disinfection SOP’, which details the type of disinfectant used, when it requires inspection and how regularly and by whom the disinfectant is to be changed. Do not include this level of detail in the body of your farm biosecurity plan, but instead reference the appropriate supporting documentation. You could use a document number, name or other relevant code to reference an SOP.

Accompany SOPs by a date-stamped checklist wherever possible to provide evidence that an accountable staff member is following the SOP procedure(s). Supervisors, managers and/or auditors can readily monitor checklists.





Source: Olivia Evans

## Animals

















**Objective:** Minimise the risk of stock and other animal movement introducing and spreading disease.

The most significant risk for bringing disease into a hatchery is through broodstock, especially if you don't know the health status of the broodstock.

Manage stock introduction and movement carefully to minimise this risk. See Table 4 for a summary of risk management measures.

*Table 4. Risk management measures for stock and animal movement*

Risk category	Risk management measures
<b>(A) Critical</b>	 <p><b>R7.</b> Obtain health status information and appropriate permits for broodstock before it enters the hatchery. Ensure the health status of any introduced stock is equal to or better than that of stock already present. Permanently quarantine stock if you cannot achieve this.</p>
	 <p><b>R8.</b> Keep broodstock in isolation in separate water from all other farm stock and in separate production units/dedicated quarantine facilities with appropriate biosecurity measures.</p>
	 <p><b>R9.</b> House multiple marine aquaculture species (for example, oysters and abalone) separately, with appropriate biosecurity measures and do not share water across species.</p>

Risk category	Risk management measures
<b>(B) High</b>	 <b>R10.</b> Inspect broodstock on introduction to the hatchery and clean if required.
	 <b>R11.</b> Dispose of mortalities or unwanted stock in an appropriate manner* that is approved by the relevant jurisdictional authority. Ensure dead or unwanted stock is not returned to the environment or accessible to scavengers (for example, birds).
	 <b>R12.</b> Investigate health problems (suspected diseases) with assistance from aquatic animal health professionals.
	 <b>R13.</b> Ensure staff responsible for managing oyster husbandry are trained in, and aware of, their role and responsibility in reporting signs of disease and high mortality.
	 <b>R14.</b> In accordance with jurisdictional requirements, immediately inform relevant authorities of any significant, unexplained mortality event or suspected reportable disease.
	 <b>R15.</b> Keep stock stress to a minimum by ensuring appropriate water quality, hygiene, stocking density, nutrition and handling.
<b>(C) Moderate</b>	 <b>R16.</b> Inspect oyster health, mortality and behaviour daily. Record this information.
	 <b>R17.</b> Remove mortalities daily.
<b>(D) Low</b>	 <b>R18.</b> Ensure domestic animals (for example, cats and dogs) do not have access to production areas at any time.
	 <b>R19.</b> Bait vermin as necessary (if you observe live rodents, droppings or nests).
	 <b>R20.</b> Keep all building entrances closed when not in use to prevent vermin and/or wildlife accessing the building.

\*For further disposal information, see the AQUAVETPLAN Operational Procedures Manual – Disposal at [www.agriculture.gov.au/animal/aquatic/aquavetplan/disposal](http://www.agriculture.gov.au/animal/aquatic/aquavetplan/disposal).

## People



**Objective:** Minimise the risk of people movement introducing and spreading disease.

The risk of people introducing disease to your farm is greatest if they have recently visited other farms, or environments potentially containing diseases of concern.







Contaminated skin, clothing and footwear can all potentially spread disease. See Table 5 for a summary of risk management measures.

## Staff



Appendix 2 is an example of a **pre-employment biosecurity declaration**.

*Table 5. Risk management measures for staff movement*

Risk category	Risk management measures
(B) High	 <b>R21.</b> Do not permit staff to visit other aquaculture sites or seafood processors before entering the hatchery (unless they have been appropriately decontaminated).
(D) Low	 <b>R22.</b> To ensure effective disinfection at all times, locate footbaths (or provide the opportunity to change into zone-specific boots) and hand sanitation stations at the hatchery entrance/exit and between biosecurity zones.
	 <b>R23.</b> Ensure boots worn in production areas are not worn or taken outside their designated production area.
	 <b>R24.</b> Ensure staff attend work in laundered, clean clothes each day.
	 <b>R25.</b> Only permit designated staff to routinely enter farm quarantine areas.
	 <b>R26.</b> Ensure work flow is unidirectional (from low- to high-risk zones) when staff need to access multiple zones during a day. Make sure you have an appropriate procedure when this is not possible.

## Visitors – contractors, suppliers and other service personnel, family and neighbours



Appendix 3 provides a **visitor biosecurity declaration** template.












Appendix 4 provides a **visitor log** template.



Appendix 5 provides suggested **hatchery entry conditions for visitors**.

Table 6. Risk management measures for visitor movement

Risk category	Risk management measures
(B) High	 <p><b>R27.</b> All visitors must complete a biosecurity declaration on arrival to ensure you assess their risk to hatchery biosecurity. Consider refusing entry to high-risk visitors.</p>
(C) Moderate	 <p><b>R28.</b> Limit movement of people onto and through the hatchery, in particular restrict visitor access to quarantine zones.</p>
	 <p><b>R29.</b> Appropriately disinfect all visitors on production area entry and exit using footbaths (or provide the opportunity to change into zone-specific boots) and hand sanitation stations.</p>
(D) Low	 <p><b>R30.</b> Visitors must sign-in on arrival (by completing the hatchery visitor log) and undergo a hatchery biosecurity induction.</p>
	 <p><b>R31.</b> Clearly display hatchery entry requirements to visitors at the sign-in point.</p>
	 <p><b>R32.</b> Ensure contractors conduct routine maintenance work within quarantine area(s), where possible, between batches and before final disinfection.</p>
	 <p><b>R33.</b> The site manager must approve all visitors and visits must be unidirectional from lowest to highest risk areas.</p>
	 <p><b>R34.</b> Accompany visitors at all times when on site.</p>
	 <p><b>R35.</b> Use approved contractors for routine services.</p>

## Equipment, vehicles and vessels













**Objective:** Minimise the risk of equipment, vehicle or vessel movement introducing and spreading disease.

Depending on their history of use, contaminated equipment, vehicles or vessels can carry and spread disease agents.

Equipment and vehicles pose the greatest risk of disease transfer if used for off-site aquaculture purposes or in association with stock or broodstock, especially if these are diseased. See Table 7 for a summary of risk management measures.

*Table 7. Risk management measures for equipment, vehicle and vessel movement*

Risk category	Risk management measures
<b>(B) High</b>	 <p><b>R36.</b> Do not permit equipment, vehicles or vessels that have been in contact with off-site oysters or water used to hold off-site oysters to enter the hatchery. In exceptional circumstances, make sure you can appropriately clean and disinfect* such equipment, vehicles or vessels, or those of unknown origin or status, before using on the hatchery.</p>
<b>(C) Moderate</b>	 <p><b>R37.</b> Use specific equipment, clearly labelled, per zone.</p>
	 <p><b>R38.</b> Do not remove equipment from its dedicated zone and use elsewhere in the hatchery.</p>
	 <p><b>R39.</b> Keep equipment used for multiple aquatic marine species (for example, oysters and abalone) species specific and do not share.</p>
	 <p><b>R40.</b> If moving equipment between zones or species (for example, an expensive item), ensure you clean and disinfect* it appropriately.</p>
	 <p><b>R41.</b> Keep equipment properly maintained and appropriately decontaminated* as required. Ensure maintenance records are maintained and up-to-date.</p>

Risk category	Risk management measures
<b>(D) Low</b>	 <b>R42.</b> Park visitor vehicles in a dedicated parking area.
	 <b>R43.</b> Ensure the hatchery has a dedicated delivery and loading area.
	 <b>R44.</b> Regularly clean all hatchery areas and keep free of rubbish and clutter.
	 <b>R45.</b> Clean contractor tools before entry and ensure they are free of dust/organic matter.
	 <b>R46.</b> Disinfect and dry all equipment and surfaces between runs.

\*Use appropriate cleaning and disinfection methods where deemed necessary based on risk.

Appropriate cleaning and disinfection methods are outlined in the:

- ➔ NSW Department of Primary Industries primefact Pacific Oyster Mortality Syndrome Movement Protocol, found on the department's website (at [www.dpi.nsw.gov.au/\\_data/assets/pdf\\_file/0011/637679/POMS-oyster-equipment-movement-protocol-primefact-1287.pdf](http://www.dpi.nsw.gov.au/_data/assets/pdf_file/0011/637679/POMS-oyster-equipment-movement-protocol-primefact-1287.pdf))
- ➔ Australian Pesticides and Veterinary Medicines Authority (APVMA) permit to allow emergency use of sodium hypochlorite for decontamination in aquatic quarantine situations, found on the APVMA website (at [portal.apvma.gov.au/permits](http://portal.apvma.gov.au/permits); to view the current permit search using keywords hypochlorite and oyster).
- ➔ APVMA permit to allow emergency use of a range of registered decontaminant products for use in decontamination and control of oyster pathogens, found on the AVPMA website (at [portal.apvma.gov.au/permits](http://portal.apvma.gov.au/permits); to view the current permit search using keywords decontamination and oyster).

You can also find biofouling management guidelines, for minimising the spread of marine pest species, on the Australian Government marine pests website (at [www.marinepests.gov.au/marine\\_pests/publications/Documents/Aquaculture\\_guidelines.pdf](http://www.marinepests.gov.au/marine_pests/publications/Documents/Aquaculture_guidelines.pdf)).



Source: Department of Agriculture and Water Resources



## Water, waste and feed



**Objective:** Minimise the risk of water, waste and feed introducing and spreading disease.

Hatchery water supply can pose a significant risk of disease transfer depending on if the source water carries disease. This is particularly important if there are host animals in the water source, or if it is close to water discharge from other aquatic enterprises or processors. See Table 8 for a summary of risk management measures.

*Table 8. Risk management measures for water, waste and feed*

Risk category	Risk management measures
(A) Critical	 <p><b>R47.</b> Treat incoming water appropriately (for example, screening, ageing, filtration, ultra-violet light, ozone) to minimise the risk of disease/pest entry.</p>
	 <p><b>R48.</b> Treat discharge water from dedicated quarantine facilities appropriately to minimise the risk of disease/pest establishment in the marine environment.</p>

Risk category	Risk management measures
(B) High	 <b>R49.</b> Ensure water intake and outflow avoid cross contamination.
	 <b>R50.</b> Install screens on discharge pipes.
	 <b>R51.</b> Dispose of other waste appropriately (for example, used water filters).
	 <b>R52.</b> Direct high-risk wastewater down drains away from foot traffic.
	 <b>R53.</b> Design water flow within the hatchery to prevent disease spread between biosecurity zones.
	 <b>R54.</b> Ensure contact with untreated water (for example, inspecting or maintaining water treatment equipment) occurs at the end of the day.
	 <b>R55.</b> Regularly service and maintain water treatment infrastructure and keep a record.
	 <b>R56.</b> Adequately monitor water treatment to ensure it remains effective.
(D) Low	 <b>R57.</b> Ensure potable water is available for cleaning and disinfection procedures.
	 <b>R58.</b> Source nutrient media and starter culture from a reputable supplier so you can ensure quality and content.

## SECTION 4

**ADDITIONAL SUPPORTING MEASURES****Training**

**Objective:** Ensure all farm staff understand they share the responsibility of maintaining farm biosecurity and must practice good biosecurity in all their work.



Appendix 6 provides suggested **training record template**.



Ensure all staff are appropriately trained so they understand both farm- and role-specific biosecurity requirements.

Staff need to understand the major routes of disease transmission and signs of oyster ill-health.

Use a training record to ensure you do not overlook staff training. It will also remind you to refresh training regularly (annually at a minimum), as well as after you update any procedures or associated documents.

You can also use a training record to document additional role-specific training such as sample collection, packaging and submission.



**R59.** Ensure the hatchery has a biosecurity manager responsible for creating, maintaining and reviewing the biosecurity plan, associated documents and activities including staff training.



**R60.** Ensure that staff can readily access the hatchery biosecurity plan and all associated documents at all times.



**R61.** Provide all staff with a hatchery biosecurity induction and ongoing biosecurity training relevant to their role. Document this and ensure it encompasses:

- ➔ the hatchery biosecurity plan
- ➔ the emergency response plan
- ➔ SOPs, associated documents including checklists and work practices that support these plans.

## Record keeping



**Objective:** Record information necessary to support good biosecurity practices, in accordance with the farm biosecurity plan.

Good record keeping is necessary for auditing farm biosecurity plans and to provide demonstrable proof that you are following biosecurity protocols.

In the event of a disease outbreak, you can use these records to trace the potential source of disease and identify breakdowns in adherence to biosecurity protocols. You can also use them to help review and improve hatchery practices and protocols.

The minimum information that you should record is outlined below.

## 1 Stock movements

Records of stock movements and inventory are essential for tracing activities in the event of a disease outbreak.

At a minimum, we suggested you include:

- ➔ source of broodstock, including original and most recent source (if different)
- ➔ movement of larvae and spat within the hatchery (for movement between different biosecurity zones)
- ➔ movement of spat from the hatchery.

Records for each movement should include the following at a minimum:

- ➔ date of movement
- ➔ batch or other identifier
- ➔ number of individuals
- ➔ buyer, including contact details (for spat sales)
- ➔ origin (of broodstock), including contact details.



**R62.** Maintain detailed records about stock movements and inventory and keep them readily accessible.



## 2 Stock health, mortality and water quality records

Health and performance records provide evidence that you are regularly monitoring stock. Records, especially of mortalities, help you monitor for unusual health problems.

At a minimum, we suggest you include:

- ➔ mortalities/failed batches (including the method of disposal and if you have archived any samples)
- ➔ details of any poorly performing spat
- ➔ water quality information
- ➔ results of laboratory testing associated with clinical disease or for health certification purposes or other surveillance.



**R63.** Maintain detailed stock health, mortality and water quality records and keep them readily accessible.



## SECTION 5

**EMERGENCY PROCEDURES**

**Objective:** Ensure you develop emergency procedures and identify additional biosecurity measures to implement if there is a suspected emergency animal disease or serious endemic disease. This could be either in the hatchery, or because of an increased threat of introducing disease if an outbreak is suspected in the state/territory or region.



Appendix 7 provides an **emergency response plan template**.

An emergency response plan is an essential document for each site and must provide clear guidelines as to the:

- ➔ specific trigger(s) for an emergency animal disease alert (for example, mortality rate, abnormal stock behavior)
- ➔ key emergency contacts
- ➔ notification pathways and responsibilities, including jurisdictional notification
- ➔ high biosecurity risk management measures that you need to immediately implement when you activate the emergency plan – this includes stock movement and hatchery access restrictions (examples of these are included within the emergency response plan template)
- ➔ sample collection, storage and submission guidelines – you may specify a number of oysters for broodstock or a volume for spat (for example, 20ml container)
- ➔ disposal and quarantine protocols
- ➔ the physical location and/or web link of key response or other resource documents (for example, AQUAVETPLAN, jurisdiction disease response plan(s), site disease response plan(s)).

This plan must be in line with AQUAVETPLAN, found on the Department of Agriculture and Water Resources (at [www.agriculture.gov.au/animal/aquatic/aquavetplan](http://www.agriculture.gov.au/animal/aquatic/aquavetplan)), and other jurisdictional requirements.

Hatchery emergency plans should also include the procedures you need to follow in the event of a non-disease emergency that may influence hatchery biosecurity, for example a power failure, water treatment failure or natural disaster. This will ensure you have clearly identified responsibilities, notification pathways and other procedures before such an event.



**R64.** Ensure the hatchery has an emergency response plan.

## SECTION 6

## LEGISLATIVE AND JURISDICTIONAL REGULATORY REQUIREMENTS

Hatchery practices must comply with:

- ➔ relevant agency and jurisdictional legislation (local, federal and state/territory)
- ➔ license conditions



**R65.** Adhere to applicable import requirements and obtain translocation permits for all stock and equipment movement.



**R66.** Undertake batch testing or surveillance requirements in compliance with jurisdictional regulatory requirements.



**R67.** Only keep commercially farmed species on site in accordance with license conditions.



**R68.** Ensure any veterinary medicines provided to stock are compliant with relevant state and national legislation (including the Commonwealth regulator, Australian Pesticides and Veterinary Medicines Authority).

We have looked at other regulatory requirements in previous sections, including:



**R11.** Dispose of mortalities or unwanted stock in an appropriate manner that is approved by the relevant jurisdictional authority. Ensure dead or unwanted stock is not returned to the environment or accessible to scavengers (for example, birds).



**R14.** In accordance with jurisdictional requirements, immediately inform relevant authorities of any significant, unexplained mortality event or suspected reportable disease.

## SECTION 7

**DOCUMENT CONTROL AND REVISION RECORD**

Include document control information and a revision record in your farm biosecurity plan.

This ensures you provide evidence to demonstrate your plan is being maintained as a living document and is continually reviewed and updated based on:

- ➔ changed biosecurity threats
- ➔ ongoing learnings
- ➔ infrastructure upgrades
- ➔ changes in hatchery practices
- ➔ newly available risk management tools or information
- ➔ audit recommendations.



**R69.** Ensure you regularly review the farm biosecurity plan (annually at a minimum).

## SECTION 8

**AUDIT RECORD**

Include a record of any audits completed (if applicable).

Include both:

- ➔ internal and external audits
- ➔ scheduled and completed audits

Note key outcomes/audit recommendations for reference and to demonstrate that you are critically reviewing your plan.

Include brief but specific notes of any findings or required corrections, or refer to a detailed document containing this information.



**R70.** Regularly audit your farm biosecurity plan (annually at a minimum) to ensure you are implementing it effectively and improving on it as appropriate.

## SECTION 9

**SUPPORTING DOCUMENTS**

Include a list of associated documents (SOPs, checklists and record keeping templates) that are referenced within your farm biosecurity plan.

This list ensures you can readily identify supporting documents and make them accessible for review and audit. You do not need to include them in the body of your plan. Keep them elsewhere (to ensure version control is preserved) or include them as appendices.

We suggest you include the following supporting documents (Table 9), although you may incorporate multiple topics into the same SOP depending on your hatchery. Hatchery size, number of staff and scale of production are all likely to influence SOP requirements.

Checklists are essential supporting documents and you should use them in association with SOPs wherever possible. Checklists provide the evidence that an accountable staff member is following procedures outlined in an SOP at correct intervals.

*Table 9: Standard operating procedures and record keeping*

Suggested standard operating procedures and checklists	Record keeping templates/other documents
New employee induction and training	Pre-employment biosecurity declaration
Hatchery visitors	Visitor biosecurity declaration
Stock arrivals, movement and dispatch	Visitor log
Escapee prevention, inspection and collection	Hatchery entry conditions for visitors
Collecting and disposing of mortalities and other waste	Staff training record
Disinfection	---
Hatchery biosecurity zones	---
Emergency response plan	---



**R71.** Clearly identify supporting documents (for example, SOPs, checklists and templates) associated with the farm biosecurity plan and keep them readily available.



**Each individual farm's biosecurity plan, and its effective implementation and operation, will directly influence the ability of the oyster industry to withstand an outbreak of disease, and the cost of control.**

## APPENDIX 1

**BIOSECURITY SIGN**

You can buy corflute signs at [www.farmbiosecurity.com.au/buy-a-gate-sign/](http://www.farmbiosecurity.com.au/buy-a-gate-sign/)





APPENDIX 2

# PRE-EMPLOYMENT BIOSECURITY DECLARATION

I, ..... hereby agree to abide by MY EMPLOYER'S BIOSECURITY rules and standards.

I understand the following applies at all times:

**I must:**

1. attend work in clean, laundered clothes
2. only enter those areas of the hatchery I am approved to access
3. follow a one-directional flow of work (from low-risk to high-risk zones) if required to enter more than one zone during daily work
4. immediately report any biosecurity breaches to management
5. immediately report any suspicion of disease to management.

**I must not:**

1. visit other aquaculture sites or seafood processors for 24 hours before entering the hatchery unless I have had a full head-to-toe shower and changed into clean, laundered clothes and shoes
2. wear or take boots outside their designated production area
3. move any zone-specific equipment to any other zone.

Signature ..... Date .....

APPENDIX 3

# VISITOR BIOSECURITY DECLARATION

1. Are you entering production areas of the hatchery?

Yes  No

2. Have you been in contact with any aquaculture or the aquatic environment in the previous 24 hours, including:

- recreational fishing
- seafood processors
- water sports/activities (including diving)

Yes  No

(Go to question 3)

3. If yes, have you had a head-to-toe shower and changed into clean clothes and shoes?

Yes  No

- postpone non-essential visit
- hatchery manager to assess risk before granting access

I ..... agree to abide by the **entry conditions for visitors**.

Signature ..... Date .....



## APPENDIX 5

## HATCHERY ENTRY CONDITIONS FOR VISITORS

Entry to this hatchery is subject to the following conditions:



If entering production areas, visitors must **not have been in contact with any other aquaculture, seafood processors or the aquatic environment** on the same day (or within the previous 24 hours).



Visitors must **complete a visitor biosecurity declaration**.



Visitors must **complete the visitor's log**.



Visitors must **wear boots** provided.



Visitors must **clean/sanitise hands** before entering production areas.



## APPENDIX 7

**EMERGENCY RESPONSE PLAN TEMPLATE**

This document outlines employee actions and responsibilities if an emergency animal disease is suspected in the hatchery.

**Plan trigger**

Unusually high, unexplained mortality. <Define this for your hatchery (for example, a specific mortality rate, abnormal stock behaviour)>.

**Important contacts**

Include contacts appropriate to your farm. The table below contains some examples

Title	Name	Contact details
Company/general manager	<name>	Mobile: Phone: Email:
Hatchery manager	<name>	Mobile: Phone: Email:
District veterinary officer	<name>	Mobile: Phone: Email:
Aquatic animal health officer	<name>	Mobile: Phone: Email:
Consultant veterinarian	<name>	Mobile: Phone: Email:
Fishwatch Hotline (or equivalent)	<name>	Mobile: Phone: Email:
Laboratory	<name>	Mobile: Phone: Email:
Emergency Animal Disease Watch Hotline	<name>	Phone: 1800 675 888

## Notifications and responsibilities

<Allocate responsibilities to relevant personnel.>

When this plan is triggered, employees must immediately implement the following practices.

Action	Responsibility	Complete/date
1. Contact the relevant authority through the relevant reporting pathway for your state/territory (for example, district veterinary officer, aquatic animal health officer, the Emergency Animal Disease Watch Hotline or the Fishwatch Hotline)	Name: Position:	Y/N <date>
2. Follow all instructions as the relevant authority directs.	Name: Position:	Y/N <date>
3. Collect, package and submit samples for pathology as the relevant authority directs.	Name: Position:	Y/N <date>
4. Do not dispatch any spat from the hatchery until the relevant authority approves it.	Name: Position:	Y/N <date>
5. Isolate any suspected or known diseased stock.	<name>	Y/N <date>
6. Restrict hatchery access to visitors: <ul style="list-style-type: none"> <li>➔ secure the farm perimeter</li> <li>➔ deny access to non-essential visitors</li> <li>➔ postpone routine repair/maintenance</li> <li>➔ postpone non-essential deliveries, including broodstock.</li> </ul>	Name: Position:	Y/N <date>
7. Do not let personnel, equipment and machinery leave the hatchery until the relevant authority approves it.	Name: Position:	Y/N <date>
8. Restrict staff access to hatchery production areas. Only let authorised staff carry out essential stock management and husbandry procedures.	Name: Position:	Y/N <date>
9. Ensure you make all staff aware of the actions being taken and their individual responsibilities.	Name: Position:	Y/N <date>
10. Advise all customers/processors immediately affected by a potential delay in spat supply.	Name: Position:	Y/N <date>
11. Compile a list of movements over the preceding two weeks – including stock, personnel, equipment and machinery.	Name: Position:	Y/N <date>

## Sample collection, packaging and dispatch

Collect samples as the [relevant authority](#) advises.

[Document which staff members you have trained in sample collection and packaging.](#)

### Sample collection

Follow these guidelines when submitting fresh samples:

- ➔ Collect samples aseptically.
- ➔ Do not submit dead animals unless specifically requested to do so, submit live (preferably live gaping) samples from affected upwellers or tanks.
- ➔ Place samples in individual sterile containers (do not mix 'healthy' specimens with those from affected upwellers or tanks if asked to submit both).
- ➔ Keep samples refrigerated or on ice and ensure sufficient ice is included to keep samples cool throughout transport.

### Sample labelling

- ➔ Ensure that sample labels will remain attached and legible.
- ➔ Unlabeled samples are unacceptable.
- ➔ Labels should include:
  - site
  - contact details
  - date
  - descriptor, based on what has been requested (for example, 'spat from affected upweller').

### Packaging samples

- ➔ Carefully pack samples to avoid breakage, leakage or contamination.
- ➔ Place samples in non-breakable, leak-proof containers – do not use glass jars.
- ➔ Pack samples in an appropriate container (for example, a disposable poly box or foam esky) together with sufficient paper or other absorbent material to soak up any leakage. Secure the lid.

### Packaging samples

- ➔ Submit samples as soon as possible following collection and keep cool to prevent decomposition.
- ➔ Submission details:

Name: [of state or territory laboratory](#)

Address: [you are submitting samples to](#)

Contact number: [of laboratory liaison or case manager](#)

Name and contact number: [of courier – arrange transport directly through the relevant authority or laboratory \(ensure these arrangements are clear in this plan\)](#)



## Disposal and quarantine protocols

Insert disposal protocol information (for example, 'In the event that this plan is triggered double-bag mortalities and dispose of in a closed skip bin. Do not return dead stock to the environment or let scavengers have access to them').

You need to consider disposal options in this plan, depending on the volume of stock (which will depend on hatchery size). For further information, see 'AQUAVETPLAN – Operational procedures manual – Disposal', found on the Department of Agriculture and Water Resources website (at [www.agriculture.gov.au/SiteCollectionDocuments/animal-plant/aquatic/aquavetplan/disposal-manual.pdf](http://www.agriculture.gov.au/SiteCollectionDocuments/animal-plant/aquatic/aquavetplan/disposal-manual.pdf)).

Insert details of quarantine protocols, including isolation and disinfection, or reference a site-specific quarantine SOP.

## Key response plans

Insert the details of any other response plans or documents for other oyster diseases if applicable.

If you identify Ostreid herpesvirus-1 microvariant, your hatchery will follow:

- ➔ the requirements of 'AQUAVETPLAN – Disease Strategy Manual – Ostreid herpesvirus-1 microvariant', found on the Department of Agriculture and Water Resources website (at [www.agriculture.gov.au/SiteCollectionDocuments/animal-plant-health/aquatic/aquavetplan/aquavetplan-dsm-ostreid-herpes.pdf](http://www.agriculture.gov.au/SiteCollectionDocuments/animal-plant-health/aquatic/aquavetplan/aquavetplan-dsm-ostreid-herpes.pdf) [include the electronic and/or physical location on site])
- ➔ any specific state or territory emergency response documents (insert their electronic and/or physical location on site)
- ➔ directions from the [relevant authority](#).

## APPENDIX 8

## HOW TO WRITE A SIMPLE STANDARD OPERATING PROCEDURE

Standard Operating Procedures (SOPs) provide detailed and clear instructions on how to carry out a task/tasks. This means that any employee can carry out the task/tasks correctly each and every time.

A well-written SOP will also help ensure that trainers have covered all relevant details.

### Key considerations when writing a standard operating procedure

- ➔ Ensure the SOP is concise, but still contains all the necessary information to perform the procedure.
- ➔ Keep SOPs short and consider breaking longer SOPs into multiple shorter SOPs.
- ➔ Where appropriate, use tables, lists, flow diagrams, photos, icons and/or other graphics rather than large blocks of text. These can be more effective than text alone.
- ➔ Write for the target audience (those using the SOP) in plain English. Ensure steps are clear.
- ➔ Avoid vague statements. Use language such as 'must use' rather than 'please use' or 'should use'.
- ➔ Ensure SOPs follow a logical thought process and number the steps to complete the procedure.

### Suggested format

#### Title

Example: [Disposal of Biological Waste SOP \(DBW1.0\)](#)

Consider assigning a brief reference code or number that you can use in your farm biosecurity plan and other documents.

#### Purpose

What is the reason for having this procedure, what is its aim?

For example: [This procedure aims to ensure you dispose of biological waste properly, including oyster mortalities, to minimise the risk of spreading disease from the hatchery.](#)

You may also need to include relevant additional (non-biosecurity) reasons for having this procedure (for example, work health and safety or environmental protection requirements).

#### Responsibilities

List staff member(s) and what they are required to do. For example:

Staff member(s)	Responsibility
All	Understand and follow this procedure. Report any breach of this procedure to your supervisor or the hatchery manager immediately.
Administration officer	Order replacement mortality bags when supervisor or hatchery manager advises.
Hatchery manager	Ensure all staff follow this SOP. Maintain and update this SOP.

## Definitions

Include definitions of any technical terms or acronyms used. Omit this section if not required.

## Procedure

List the activities and tasks that make up this procedure, as well as any checklists staff members need to use. For example:

1. Check upwellers and tanks daily for mortalities.
2. Record any mortalities on the daily checklist.
3. Immediately report any mortalities over x% to the hatchery manager. Do not remove mortalities in this instance until the hatchery manager advises, as you may need to observe the situation further and collect samples.
4. Remove mortalities from upwellers and tanks at the end of each day, moving from lower to higher risk zones (for example, spat then broodstock).
5. Sanitise hands and boots between zones as per the Disinfection SOP.
6. Place mortalities into mortality bags and seal with tape.
7. Place sealed bags in the skip bin and ensure the lid is closed.
8. Do not return to any production area following mortality disposal.
9. Advise the administration officer when the skip bin is three-quarters full so they can order a replacement.

## Document control

To ensure the SOP remains relevant and appropriately updated, include document control information.

Document control	Details	Approval/review	Details
Version	e.g. 1.0	Approved by	Name Position
Status	e.g. Approved, Draft	Date approved	<date>
Contact	Name Position	Next review due	<date> (should not exceed 12 months)

## APPENDIX 9

## AUDIT CHECKLIST

Page ref.	Associated req.	Infrastructure and facility standards	Yes	No	N/A	Corrective action/ comments
9	R1, R2	Does the hatchery have a secure perimeter? Can you close off access to prevent vehicle entry when required?				
9	R3	Are access gates closed and locked during non-business hours?				
9	R4	Is there adequate signage to inform visitors of the biosecure area and what they need to do on arrival?				
10	R5	Do clear biosecurity zones exist in the hatchery? Do zone-specific procedures support this?				
10	R6	Are staff familiar with the hatchery's biosecurity zones and associated requirements?				
20, 21	R47 to R53	Does water intake, discharge and flow throughout the farm minimise disease entry and spread?				
21	R54 to R56	Can you provide evidence to demonstrate you appropriately maintain and assess water treatment for effectiveness?				
18, 19, 21	R40, R41, R44, R46, R57	Can you provide evidence that you appropriately maintain and clean hatchery infrastructure and equipment? Is potable water available for cleaning?				
18	R37 to R40	Is equipment used in the hatchery dedicated to a zone (or species) and clearly labelled as such?				
18, 19	R36, R45	Do you assess any equipment brought onto the hatchery for risk and appropriately treat it (clean and/ or disinfect)?				
19	R42, R43	Does the hatchery have dedicated areas for visitor parking and delivery/loading?				

Page ref.	Associated req.	Personnel standards	Yes	No	N/A	Corrective action/ comments
16	R21, R23 to R26	Does each employee sign a 'Pre-Employment Biosecurity Declaration' that specifies site and role biosecurity requirements?				
16, 17	R22, R29	Are hand sanitisation stations and footbaths (or separate boots) available, and used, at hatchery entrance/exit and where required between biosecurity zones?				
17	R30	Is there a visitors' log that all visitors must complete on arrival?				
17	R27	Do all visitors sign a visitor biosecurity declaration? Match this to the visitors' log.				
17	R31	Do you prominently display the hatchery entry conditions for visitors near the visitors' log?				
17	R28, R31 to R35	Are there appropriate (and documented) procedures in place to manage the risks posed by visitors to the hatchery?				
22	R59	Does the hatchery have a specified biosecurity manager?				

Page ref.	Associated req.	Production practices	Yes	No	N/A	Corrective action/ comments
14	R8, R9	Do you house and manage stock of different disease risk separately?				
14, 15	R7, R10	Is there an appropriate procedure in place for stock introduction and stock movement within and from the hatchery?				
15	R11, R17	Is there an appropriate procedure in place for disposing of dead stock?				
15	R15	Are appropriate procedures in place to optimise stock health?				
15, 24	R12, R16, R63	Can you provide evidence to demonstrate you regularly monitor stock health and you investigate any health problems?				

Page ref.	Associated req.	Production practices	Yes	No	N/A	Corrective action/ comments
15	R18 to R20	Do you effectively prevent and control hatchery access by wildlife, vermin or domestic animals?				
21	R54	Is there an appropriate procedure in place to ensure any contact with untreated water does not pose a risk to susceptible hatchery stock?				
21	R58	Do you source nutrient media and starter culture from a reputable supplier?				

Page ref.	Associated req.	Documentation and training	Yes	No	N/A	Corrective action/ comments
15	R13	Are hatchery production staff appropriately trained in reporting disease and mortality?				
25	R64	Does the hatchery have an emergency response plan?				
22	R60, R61	Are all staff aware of the location, content and their role and responsibilities associated with the site emergency response plan, biosecurity plan and associated documents (for example, SOPs)?				
22	R61	Do you have a current training record for each employee?				
23	R62	Is there a system in place to record stock inventory and movements and can you readily interrogate this for tracing purposes?				
15, 26	R11, R14, R65 to R68	Can you provide evidence to demonstrate you adhere to applicable legislative and jurisdictional requirements?				
27	R69, R70	Can you provide evidence, through revision and audit records, that you critically review the biosecurity plan and improve on it as appropriate?				
28	R71	Can you readily identify and provide on request all supporting documents associated with the biosecurity plan?				

## APPENDIX 10

**BIOSECURITY PLAN TEMPLATE****How to use template**

Use this template to create a farm biosecurity plan. For further information, use the National Biosecurity Plan Guidelines for Australian Oyster Hatcheries ([www.agriculture.gov.au/animal/aquatic/guidelines-and-resources](http://www.agriculture.gov.au/animal/aquatic/guidelines-and-resources)) in conjunction with this template.

We have included explanatory text in **blue**, which you can **delete** after completing your plan.

Replace the text in **red** with details specific to your farm.



Available templates are shown in **green** next to the template symbol. The National Biosecurity Plan Guidelines for Australian Oyster Hatcheries has templates in the appendices, which you can modify for your hatchery.

- Delete information or risk management measures that do not apply to your hatchery.
- +** Add additional information or risk management measures applicable to your hatchery.

Delete this section when you have completed your plan.



## SECTION 1

**ENTERPRISE INFORMATION****Production details**

Add additional categories to this table as required, or delete any categories or detail not applicable.

Category	Details
Species/product	Species: <i>Cassostrea gigas</i> and/or other Size of spat produced: Family line: Spat for sale to on-growers, spat for on-growing by company, spat exported
Site activities	For example: <ul style="list-style-type: none"> <li>➡ broodstock quarantine, conditioning and spawning</li> <li>➡ larval and early spat production</li> <li>➡ microalgae production</li> <li>➡ company administration</li> </ul>
Staff	Hatchery production staff: <number> (consider further breakdown of staff per zone for large hatcheries) Administration staff: <number> Senior management: <number>
Associated sites	Grading facilities: <location> Sea-based nurseries: <location>

**Key contacts**

Add additional contacts to this table as required, or delete any contacts not applicable.

**Internal Contacts**

Name	Position	Contact details
<name>	Company/general manager	Mobile/phone: Email:
<name>	Hatchery manager	Mobile/phone: Email:
<name>	Administration manager	Mobile/phone: Email:
<name>	Operations manager	Mobile/phone: Email:

## External Contacts

Name	Position	Contact details
<name>	Aquatic biosecurity officer	Mobile/phone: Email:
<name>	District veterinary officer	Mobile/phone: Email:
<name>	Consulting veterinarian	Mobile/phone: Email:
<name>	Laboratory	Mobile/phone: Email:
<name>	Bay/other industry representative	Mobile/phone: Email:
<name>	Courier	Mobile/phone: Email:

## SECTION 2

**MAPS AND DIAGRAMS**

Obtain maps from google maps [www.google.com.au/maps](http://www.google.com.au/maps). Satellite images help demonstrate the hatchery location relative to major towns, roads and other infrastructure in the area.

Create diagrams easily within this document by inserting shapes of various colour and size.

Ensure maps are large, clear and legible.

You may be able to combine some maps or diagrams depending on the size and/or complexity of the hatchery.

**Hatchery locality and features**

Add additional categories to this table as required, or delete any categories not applicable.

Category	Details
Hatchery location and access	<ul style="list-style-type: none"> <li>➔ address, state, region of state</li> <li>➔ closest town name, distance from closest town</li> <li>➔ GPS coordinates</li> <li>➔ road(s) from which you can access the hatchery</li> </ul>
Disease status of state/region	Known diseases or marine pests of concern (for example, Pacific Oyster Mortality Syndrome) for the state (or region).
Proximity to other aquaculture production	For example: <ul style="list-style-type: none"> <li>➔ oyster leases</li> <li>➔ other aquaculture leases</li> <li>➔ processors.</li> </ul>
Proximity to high-risk sites	For example, wild oyster populations, ports.
Other	For example: <ul style="list-style-type: none"> <li>➔ presence and type of wildlife, feral animals or vermin</li> <li>➔ significant natural features</li> <li>➔ boat ramps, marinas</li> </ul>

Insert a small map of the wider state area with the hatchery location marked. Then insert a larger hatchery locality map and mark applicable additional information. Use symbols to mark relevant features, for example:

-  Hatchery site
-  Processor
-  Wild oyster population

## Farm maps and schematic diagrams

### Hatchery layout



#### Biosecurity sign

Insert a hatchery layout map/diagram and include details relating to the following risk management measures. Display these as part of the map/diagram or list them as additional information.



**R1.** The hatchery has a secure perimeter or otherwise well-defined boundary establishing a clearly defined biosecurity zone.



**R2.** You can close the main production area entrance to vehicle traffic if you activate the emergency response plan.



**R3.** Access gates are lockable and locked when no company personnel are on site.



**R4.** Clearly display entry signage that provides direction for visitors and includes company contact details.

### Production areas and biosecurity zone classifications

Insert a diagram of hatchery production areas and their associated biosecurity zone classifications. Display details relating to the following risk management measures, applicable to your **hatchery**, as part of the map/diagram or as additional information.



**R5.** Divide the hatchery into biosecurity zones with zone-specific requirements relating to access, entry and exit procedures, and dedicated equipment.



**R6.** Clearly display biosecurity zone signage, consistent with biosecurity zone definitions and familiar to all personnel.

*Example hatchery biosecurity zones*

Biosecurity zone	Access
<b>Extreme (red)</b>	<ul style="list-style-type: none"><li>➔ highly restricted</li><li>➔ authorised personnel only</li><li>➔ no entry to any other zones following access.</li></ul>
<b>High (amber)</b>	<ul style="list-style-type: none"><li>➔ limited access</li><li>➔ authorised personnel only</li></ul>
<b>Moderate (yellow)</b>	<ul style="list-style-type: none"><li>➔ limited access</li><li>➔ authorised personnel only</li></ul>
<b>Low (green)</b>	<ul style="list-style-type: none"><li>➔ no access restrictions (staff or visitors).</li></ul>

Develop supporting SOPs to capture further detailed information relating to your biosecurity zone classifications, such as who is authorised to access each zone, entry and exit procedures and any additional relevant information.

## SECTION 3

## ROUTINE MEASURES TO ADDRESS MAJOR DISEASE TRANSMISSION ROUTES




### Animals













**Objective:** Minimise the risk of stock and other animal movement introducing and spreading disease.

Amend the risk management measures outlined in the following sections to reflect actual hatchery practices. Add specific detail where applicable and delete any measures not applicable.

For example, amend 'Mortalities or unwanted stock are disposed of in an appropriate manner' to reflect the actual procedure: 'Place mortalities in plastic bags, seal with tape and place in a skip bin (with a lid). Empty the skip each fortnight.'

Risk category	Risk management measures	Supporting documentation
(A) Critical	 <p><b>R7.</b> Obtain health status information and appropriate permits for broodstock before it enters the hatchery. Ensure the health status of any introduced stock is equal to or better than that of stock already present. Permanently quarantine stock if you cannot achieve this.</p>	Add titles or codes of any associated SOPs, checklists or record keeping templates in this column
	 <p><b>R8.</b> Keep broodstock in isolation in separate water from all other farm stock in separate production units/dedicated quarantine facilities with appropriate biosecurity measures.</p>	
	 <p><b>R9.</b> House multiple marine aquaculture species (for example, oysters and abalone) separately, with appropriate biosecurity measures and do not share water across species.</p>	









Risk category	Risk management measures	Supporting documentation
<b>(B) High</b>	 <b>R10.</b> Inspect broodstock on introduction to the hatchery and clean if required.	Add titles or codes of any associated SOPs, checklists or record keeping templates in this column
	 <b>R11.</b> Dispose of mortalities or unwanted stock in an appropriate manner that is approved by the relevant jurisdictional authority. Ensure dead or unwanted stock is not returned to the environment or accessible to scavengers (for example, birds).	
	 <b>R12.</b> Investigate health problems (suspected diseases) with assistance from aquatic animal health professionals.	
	 <b>R13.</b> Ensure staff responsible for managing oyster husbandry are trained in, and aware of, their role and responsibility in reporting signs of disease and high mortality.	
	 <b>R14.</b> In accordance with jurisdictional requirements, immediately inform relevant authorities of any significant, unexplained mortality event or suspected reportable disease.	
	 <b>R15.</b> Keep stock stress to a minimum by ensuring appropriate water quality, hygiene, stocking density, nutrition and handling.	
<b>(C) Moderate</b>	 <b>R16.</b> Inspect oyster health, mortality and behaviour daily. Record this information.	Add titles or codes of any associated SOPs, checklists or record keeping templates in this column
	 <b>R17.</b> Remove mortalities daily.	
<b>(D) Low</b>	 <b>R18.</b> Ensure domestic animals (for example, cats and dogs) do not have access to production areas at any time.	Add titles or codes of any associated SOPs, checklists or record keeping templates in this column
	 <b>R19.</b> Bait vermin as necessary (if you observe live rodents, droppings or nests).	
	 <b>R20.</b> Keep all building entrances closed when not in use to prevent vermin and/or wildlife accessing the building.	

## People















**Objective:** Minimise the risk of people movement introducing and spreading disease.

### Staff

Risk category	Risk management measures	Supporting documentation
(B) High	 <p><b>R21.</b> Do not permit staff to visit other aquaculture sites or seafood processors before entering the hatchery (unless they have been appropriately decontaminated).</p>	<p>Add titles or codes of any associated SOPs, checklists or record keeping templates in this column</p>  Pre-employment biosecurity declaration
(D) Low	 <p><b>R22.</b> To ensure effective disinfection at all times, locate footbaths (or provide the opportunity to change into zone-specific boots) and hand sanitation stations at the hatchery entrance/exit and between biosecurity zones.</p>	<p>Add titles or codes of any associated SOPs, checklists or record keeping templates in this column</p>  Pre-employment biosecurity declaration
	 <p><b>R23.</b> Ensure boots worn in production areas are not worn or taken outside their designated production area.</p>	
	 <p><b>R24.</b> Ensure staff attend work in laundered, clean clothes each day.</p>	
	 <p><b>R25.</b> Only permit designated staff to routinely enter farm quarantine areas.</p>	
	 <p><b>R26.</b> Ensure work flow is unidirectional (from low- to high-risk zones) when staff need to access multiple zones during a day. Make sure you have an appropriate procedure when this is not possible.</p>	









## Visitors – contractors, suppliers and other service personnel, family and neighbours






Risk category	Risk management measures	Supporting documentation
<p><b>(B) High</b></p>	<p> <b>R27.</b> All visitors must complete a biosecurity declaration on arrival to ensure you assess their risk to hatchery biosecurity. Consider refusing entry to high-risk visitors.</p>	<p>Add titles or codes of any associated SOPs, checklists or record keeping templates in this column</p> <p> Visitor biosecurity declaration</p>
<p><b>(C) Moderate</b></p>	<p> <b>R28.</b> Limit movement of people onto and through the hatchery, in particular restrict visitor access to quarantine zones.</p>	<p>Add titles or codes of any associated SOPs, checklists or record keeping templates in this column</p>
	<p> <b>R29.</b> Appropriately disinfect all visitors on production area entry and exit using footbaths (or provide the opportunity to change into zone-specific boots) and hand sanitation stations.</p>	
<p><b>(D) Low</b></p>	<p> <b>R30.</b> Visitors must sign-in on arrival (by completing the visitor log) and undergo a hatchery biosecurity induction.</p>	<p> Visitor log</p> <p> Entry conditions for visitors</p>
	<p> <b>R31.</b> Clearly display hatchery entry requirements to visitors at the sign-in point.</p>	
	<p> <b>R32.</b> Ensure contractors conduct routine maintenance work within quarantine area(s), where possible, between batches and before final disinfection.</p>	
	<p> <b>R33.</b> The site manager must approve all visitors and visits must be unidirectional from lowest to highest risk areas.</p>	
	<p> <b>R34.</b> Accompany visitors at all times when on site.</p>	
	<p> <b>R35.</b> Use approved contractor for routine services.</p>	

## Equipment, vehicles and vessels




**Objective:** Minimise the risk of equipment, vehicle or vessel movement introducing and spreading disease.



Risk category	Risk management measures	Supporting documentation
(B) High	 <p><b>R36.</b> Do not permit equipment, vehicles or vessels that have been in contact with off-site oysters or water used to hold off-site oysters to enter the hatchery. In exceptional circumstances, make sure you can appropriately clean and disinfect such equipment, vehicles or vessels, or those of unknown origin or status, before using on the hatchery.</p>	Add titles or codes of any associated SOPs, checklists or record keeping templates in this column
(C) Moderate	 <p><b>R37.</b> Use specific equipment, clearly labelled, per zone.</p>	Add titles or codes of any associated SOPs, checklists or record keeping templates in this column
	 <p><b>R38.</b> Do not remove equipment from its dedicated zone and use elsewhere on the hatchery.</p>	
	 <p><b>R39.</b> Keep equipment used for multiple aquatic marine species (for example, oysters and abalone) species specific and do not share.</p>	
	 <p><b>R40.</b> If moving equipment between zones or species (for example, an expensive item), ensure you clean and disinfect* it appropriately.</p>	
	 <p><b>R41.</b> Keep equipment properly maintained and appropriately decontaminated* as required. Ensure maintenance records are maintained and up-to-date.</p>	











<b>(D) Low</b>		<b>R42.</b> Park visitor vehicles in a dedicated parking area.	Add titles or codes of any associated SOPs, checklists or record keeping templates in this column
		<b>R43.</b> Ensure the hatchery has a dedicated delivery and loading area.	
		<b>R44.</b> Regularly clean all hatchery areas and keep free of rubbish and clutter.	
		<b>R45.</b> Clean contractor tools before entry and ensure they are free of dust/organic matter.	
		<b>R45.</b> Disinfect and dry all equipment and surfaces between runs.	

### Water, waste and feed



**Objective:** Minimise the risk of water, waste and feed introducing and spreading disease.

Risk category	Risk management measures	Supporting documentation	
<b>(A) Critical</b>		<b>R47.</b> Treat incoming water appropriately (for example, screening, ageing, filtration, ultra-violet light, ozone) to minimise the risk of disease/pest entry.	Add titles or codes of any associated SOPs, checklists or record keeping templates in this column
		<b>R48.</b> Treat discharge water from dedicated quarantine facilities appropriately to minimise the risk of disease/pest establishment in the marine environment.	

Risk category	Risk management measures	Supporting documentation
<b>(B) High</b>	 <b>R49.</b> Ensure water intake and outflow avoid cross contamination.	Add titles or codes of any associated SOPs, checklists or record keeping templates in this column
	 <b>R50.</b> Install screens on discharge pipes.	
	 <b>R51.</b> Dispose of other waste appropriately (for example, used water filters).	
	 <b>R52.</b> Direct high-risk wastewater down drains away from foot traffic.	
	 <b>R53.</b> Design water flow within the hatchery to prevent disease spread between biosecurity zones.	
	 <b>R54.</b> Ensure contact with untreated water (for example, inspecting or maintaining water treatment equipment) occurs at the end of the day.	
	 <b>R55.</b> Regularly service and maintain water treatment infrastructure and keep a record.	
	 <b>R56.</b> Adequately monitor water treatment to ensure it remains effective.	
<b>(D) Low</b>	 <b>R57.</b> Ensure potable water is available for cleaning and disinfection procedures.	Add titles or codes of any associated SOPs, checklists or record keeping templates in this column
	 <b>R58.</b> Source nutrient media and starter culture from a reputable supplier so you can ensure quality and content.	

SECTION 4

# ADDITIONAL SUPPORTING MEASURES



**Objective:** Ensure all farm staff understand they share the responsibility of maintaining farm biosecurity and must practice good biosecurity in all their work.

## Training

Describe what training is undertaken by staff, how it is recorded and how often it is refreshed.



Training record template



**R59.** Ensure the hatchery has a biosecurity manager responsible for creating, maintaining and reviewing the biosecurity plan, associated documents and activities including staff training.



**R60.** Ensure that staff can readily access the hatchery biosecurity plan and all associated documents at all times.



**R61.** Provide all staff with a hatchery biosecurity induction and ongoing biosecurity training relevant to their role. Document this and ensure it encompasses:

- ➔ the hatchery biosecurity plan
- ➔ the emergency response plan
- ➔ SOPs, associated documents including checklists and work practices that support these plans.

Site biosecurity manager details:

Name	Contact details	Responsibilities
<name>	Mobile: Phone: Email:	<insert details>

## Record keeping



**Objective:** Record information necessary to support good biosecurity practices, in accordance with the farm biosecurity plan.

### 1 Stock movements

Outline how and what stock movement information is kept and accessible – this may involve referencing existing systems.



**R62.** Maintain detailed records about stock movements and inventory and keep them readily accessible.

### 2 Stock health, mortality and water quality records

Outline how and what stock health, mortality records and water quality records are kept and accessible. This may involve referencing existing systems.



**R63.** Maintain detailed stock health, mortality and water quality records and keep them readily accessible.

## SECTION 5

# EMERGENCY PROCEDURES



**Objective:** Ensure you develop emergency procedures and identify additional biosecurity measures to implement if there is a suspected emergency animal disease or serious endemic disease. This could be either in the hatchery, or because of an increased threat of introducing disease if an outbreak is suspected in the state or region.



Emergency response plan template

Reference the site emergency response plan (ERP) here, clearly noting its electronic and physical location. Outline the trigger for enacting the ERP, such as a specific mortality rate or abnormal stock behaviour.



**R64.** Ensure the hatchery has an emergency response plan.

## SECTION 6

## LEGISLATIVE AND JURISDICTIONAL REGULATORY REQUIREMENTS

Outline any legislative and/or jurisdictional requirements that apply to the hatchery and describe how the hatchery is adhering to these.



**R65.** Adhere to applicable import requirements and obtain translocation permits for all stock and equipment movement.



**R66.** Undertake batch testing or surveillance requirements in compliance with jurisdictional regulations.



**R67.** Only keep commercially farmed species on site in accordance with license conditions.



**R68.** Ensure any veterinary medicines provided to stock are compliant with relevant state and national legislation (including the Commonwealth regulator, Australian Pesticides and Veterinary Medicines Authority).

## SECTION 7

## DOCUMENT CONTROL AND REVISION RECORD

Document control	Details	Approval/review	Details
Version	e.g. 1.0	Approved by	Name Position
Status	e.g. Approved, Draft	Date approved	<date>
Contact	Name Position	Next review due	<date> (should not exceed 12 months)

### Revision record

Date	Version	Revision description
Date	e.g. 1.0	Should be brief but specific – avoid vague statement like ‘plan updated’ but rather state ‘SOP XXXX added’, ‘Key contact details amended’.



**R69.** Ensure you regularly review the farm biosecurity plan (annually at a minimum).

SECTION 8

## AUDIT RECORD

Date	Type	Auditor(s)	Audit notes – remedial action	Date of next audit
Date	Internal or external	Name of auditor	Should be brief but specific – avoid vague statements such as ‘minor changes made’. Instead provide details or reference to a full audit report.	Next audit date



**R70.** Regularly audit your farm biosecurity plan (annually at a minimum) to ensure you are implementing it effectively and improving on it as appropriate.

SECTION 9

## SUPPORTING DOCUMENTS

List documents that are referenced in, or associated with, this plan. Add documents to this table as required and delete any that are not applicable.

Standard operating procedures	Record keeping templates/other documents
New employee induction and training	Pre-employment declaration
Hatchery visitors	Visitor biosecurity declaration
Stock arrivals, movement and dispatch	Visitor log
Collection and disposal of mortalities and other waste	Staff training record
Disinfection	N/A
Hatchery biosecurity zones	N/A
Emergency response plan	Emergency response plan

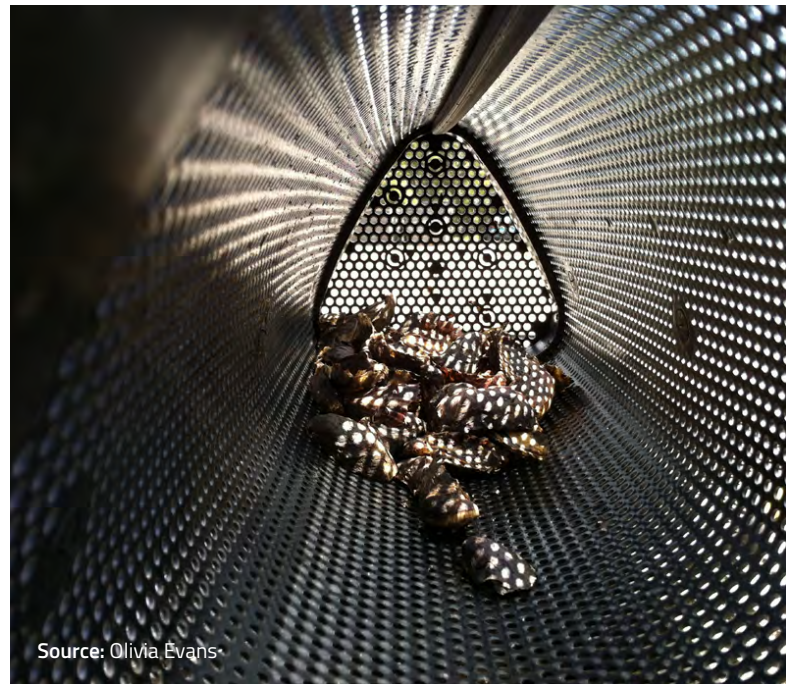


**R71.** Clearly identify supporting documents (for example, SOPs, checklists and templates) associated with the farm biosecurity plan and keep them readily available.





Source: South Australian Oyster Growers Association



Source: Olivia Evans



Source: Olivia Evans

