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Development of sector-specific biosecurity plan templates and guidance documents for the abalone and oyster aquaculture industries

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15 November 2017

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AUSTRALIAN ABALONE GROWERS ASSOCIATION

Government of South Australia
Primary Industries and Regions SA

Australian Government
Department of Agriculture and Water Resources

oysters australia

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In submitting this report, the researcher has agreed to FRDC publishing this material in its edited form.

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Abbreviations

FRDC	Fisheries Research and Development Corporation
PIRSA	Primary Industries and Regions South Australia
DAWR	Department of Agriculture and Water Resources
OA	Oysters Australia
AAGA	Australian Abalone Growers Association
POMS	Pacific Oyster Mortality Syndrome
AVG	Abalone Viral Ganglioneuritis
SCAAH	Sub-Committee for Aquatic Animal Health
AHC	Animal Health Committee
AHAP	Abalone Health Accreditation Program
AHA	Animal Health Australia

Executive Summary

What the report is about

This project developed industry endorsed biosecurity plans and guidance documents for:

1. The abalone farming industry (land based)
2. Oyster hatcheries

This project was led by Primary Industries and Regions South Australia (PIRSA) during late 2016 and 2017 in collaboration with co-investigators from other relevant state jurisdictions as well as industry peak bodies. The project was completed in consultation with industry members, which included workshops for each sector, to ensure that practical, comprehensive and relevant documents were produced. Furthermore, at the request of industry, PIRSA facilitated the implementation of the draft biosecurity guidelines on abalone farms and oyster hatcheries, which provided good test cases.

Upon Animal Health Committee (AHC) endorsement these documents will become nationally agreed guidelines and form not only an integral part of health accreditation and translocation protocols to assist in the safe translocation of oysters and abalone but also a fundamental means of protecting the sectors from disease risks.

Background

The emergence and spread of significant known and unknown aquatic animal diseases have posed, and will continue to pose, an increasing threat to Australia's relatively favourable aquatic animal health status. The abalone and oyster industries are two sectors with firsthand experience of the devastating impacts of infectious animal diseases. In the last decade Abalone Viral Ganglioneuritis (AVG) and Pacific Oyster Mortality Syndrome (POMS) have caused substantial economic impacts in Australia and now present trade barriers for movement of livestock.

This project was focussed on the land based oyster (hatchery) and abalone farm sectors that are in need of a nationally consistent and agreed approach to biosecurity. Furthermore, a robust biosecurity plan is a critical component of health accreditation programs (e.g. the Abalone Health Accreditation Program (AHAP)) to facilitate safe interjurisdictional trade in both aquatic species.

The need for sector-specific biosecurity plans has been identified nationally as a key activity in AQUAPLAN 2014-2019, Australia's third national strategic plan for aquatic animal health endorsed by industry, the Commonwealth and state and territory governments. Additionally, 'improved market access underpinned by a strong biosecurity system' was identified as a strategic priority in the 2015 Commonwealth of Australia's 'Agricultural Competitiveness White Paper'. Furthermore, a national Aquatic Deed is currently being developed by Animal Health Australia (AHA) as an agreed approach to emergency aquatic animal disease responses between industry and government. The requirements of an Aquatic Deed will include auditable farm biosecurity as a disease prevention measure.

Aims/objectives

The key objective of this project was to develop biosecurity plan templates and guidance documents for the Australian land based abalone farms and oyster hatcheries.

Methodology

This project was conducted in two stages for each industry sector (abalone and oysters).

Stage one involved the delivery of an industry-government workshop for each sector where the proposed content for each biosecurity guideline was determined based on disease risks, disease risk pathways and risk management strategies appropriate and practical to the sector as identified by workshop participants. Workshops were well attended by relevant government personnel, peak industry body representatives and farmers from across Australia (see Appendix 1 and 2).

Stage two of the project involved a review of relevant literature, policy and biosecurity manuals of other sectors that was considered together with workshop outputs to draft guidance documents and templates. This stage also involved reviewing existing company plans and biosecurity practices used within the two sectors.

Following completion of draft guidelines, all workshop participants were provided with another opportunity to actively collaborate on this project. Draft documents were provided for review prior to submission to ensure what had been produced was comprehensive, applicable on-farm and met the needs of the sector. Furthermore, PIRSA staff worked with individual farms to facilitate implementation of these guidelines. This involved reviewing farm biosecurity plans, site visits and auditing of individual farm biosecurity plans to determine appropriateness of the guidelines.

Results and implications for relevant stakeholders

The biosecurity guidelines produced by this project provide industry with detailed guidance to develop new, or improve on existing, farm biosecurity plans and supporting documentation (e.g. Standard Operating Procedures). The guidelines include a 'farm biosecurity plan template', which was identified by industry as an important step to facilitate individual farms to implement biosecurity. Some individual farms volunteered to develop, or update, their biosecurity plan and have them audited by PIRSA to enable the testing and refinement of these guidelines.

Farm biosecurity plans may be required as part of health accreditation programs, as a requirement of livestock translocation protocols or as an independent business decision to protect the farm, industry and community from disease incursions and disease spread. Depending on the enterprise's individual business needs, and cost benefit analysis, a farm may elect to adopt some or all of the best practice biosecurity recommendations outlined in the guidance documents.

Following endorsement these documents will provide industry and relevant jurisdictions with a nationally agreed standard of farm biosecurity. In Australia, the current need for auditable farm biosecurity is a requirement in the AHAP for abalone livestock translocations and a requirement for oyster livestock translocation protocols (e.g. in Tasmania for movement of spat from hatcheries located within infected zones).

Recommendations

In order to gain the most benefit from these guidelines it is recommended that government and industry work together to implement best practice farm biosecurity. This requires an iterative process between a farm and government to develop, review, refine and adequately audit farm biosecurity.

Similar farm biosecurity guidelines are now required for other sectors, particularly for sea-based farms which are heavily reliant on disease prevention measures to avoid impacts of disease. It is recommended that additional sector-specific guidelines be developed for the aquaculture industry.

Keywords

Oyster, Abalone

Land based aquaculture

Biosecurity plan, Disease prevention

Native Oyster, *Ostrea angasi*, Pacific Oyster, *Crassostrea gigas*, Pearl Oyster, *Pinctada spp.*, Sydney Rock Oyster, *Saccostrea glomerata*

Blacklip abalone, Haliotis *rubra*, Greenlip abalone, *Haliotis laevigata*, hybrid abalone

Introduction

Worldwide, there is increasing risk of significant known and unknown aquatic animal diseases emerging and spreading. Although Australia has a relatively favorable aquatic animal health status, two of Australia's highest priority aquatic diseases, abalone viral ganglioneuritis (AVG) and Pacific Oyster Mortality Syndrome (POMS), have caused substantial economic impacts in Australia's seafood industries and now present trade barriers for movement of livestock. Although the abalone and oyster industries and relevant jurisdictions have implemented a range of measures to mitigate these significant disease risks, both industry sectors were lacking a nationally consistent, agreed approach to auditable biosecurity to facilitate trade.

In recent years increasing importance has been placed on farm biosecurity as a disease prevention measure at a national level. In 2014, the aquatic animal industries, the Commonwealth and state and territory governments endorsed Australia's third national strategic plan for aquatic animal health – AQUAPLAN 2014-2019. AQUAPLAN priorities to enhance Australia's management of aquatic animal health included the key activity 1.1 "develop sector-specific biosecurity plan templates and guidance documents". In 2015 the Commonwealth of Australia 'Agricultural Competitiveness White Paper' was released with strategic priority being: "improved market access underpinned by a strong biosecurity system". In 2017 the national 'Aquaculture Farm Biosecurity Plan – generic guidelines and template' was published as a guidance document for Australia's aquaculture industry.

Australian abalone farmers have suffered serious losses from disease, including three cases where entire farms had to be de-stocked due to an outbreak of AVG. Two of these occurrences were in Victoria in 2006, while the third case was in 2011 in Tasmania, following contamination of intake water from a neighbouring live holding facility. Prior to this, AVG had not been recorded in Australia. AVG is now an international and national trade barrier for the movement of live abalone. A national Abalone Health Accreditation Program (AHAP) was developed by the Sub-Committee on Aquatic Animal Health (SCAAH) to facilitate the safe movement of abalone, and includes a requirement for an auditable farm biosecurity plan.

The Australian oyster growing industry have suffered serious economic impacts from a number of diseases including QX disease, Bonamia and Pacific Oyster Mortality Syndrome (POMS). POMS is caused by a highly infectious and virulent virus (Ostreid herpesvirus type-1 microvariant; OsHV-1 µvar) leading to rapid high mortality (up to 90%) of Pacific Oysters. POMS has devastated three oyster growing regions in New South Wales (2010, 2013) and more recently in Tasmania (2016, 2017). POMS now presents a significant trade barrier for the movement of Pacific Oysters within and between jurisdictions.

Farm biosecurity plans outline disease prevention and preparedness measures and are generally a basic requirement for trade and market access for live aquatic organisms. Biosecurity (for the purpose of this document) describes the systems put in place to protect a farm from diseases. A biosecurity plan should describe and address in detail the pathways for introduction, spread and transmission of disease and describe preparedness measures including infrastructure, equipment, training and supporting documentation. Measures must be in place to mitigate disease exposure at each critical control point in association with animal introduction and movement, people, equipment, water, feed and waste.

Objectives

1. To develop an industry-endorsed, sector-specific biosecurity plan and relevant guidance documents for the Australian farmed abalone industry (land-based).

2. To develop an industry-endorsed, sector-specific biosecurity plan and relevant guidance documents for the Australian oyster industry (land-based).

Method

The project was completed in two stages for each industry plan.

Stage 1: Industry workshop to agree on contents of the sector-specific biosecurity plan

Stage 2: Development of a draft sector-specific biosecurity plan and related documents

Stage 1. Industry workshops

Workshops were held for each sector during late 2016 to determine the proposed content of each plan. The workshops were well attended (see Appendix 1 and 2) by farmers, peak industry body representatives and relevant government personnel. The format for each workshop included:

- A site visit relevant to each sector. These occurred at Jade Tiger (Queenscliff, VIC) and Shellfish Culture (Clifton Beach, TAS). See Figures 1 and 2.

- A series of presentations covering diseases of concern for each species, biosecurity auditing, the generic aquaculture biosecurity plan, risk pathways and risk mitigation (See Figure 3); and,

- Facilitated discussion and group tasks to identify risks, risk pathways and management strategies appropriate and practical to the sector (See Figure 3).

The workshop agendas and presentations given can be found as Appendices 3, 4, 5 and 6.

Each table had representatives from different organisations, including a mix of government, industry and interstate personnel.

All group information and outputs were discussed and documented.

Figure 1. Site visit at Jade Tiger Abalone Farm, Queenscliff VIC

Figure 2. Site visit at Shellfish Culture, Clifton Beach TAS

Figure 3. Workshop presentations and facilitated group discussions

The workshops delivered as part of this project were important to ensure a consultative and collaborative approach to the project. By providing industry and government the opportunity to contribute to and review the biosecurity guidelines and associated documents helped to ensure relevant and practical outcomes.

Stage 2. Draft biosecurity plan development

Following on from the sector workshops the draft biosecurity plans were developed. This part of the project involved:

1. Collating and reviewing workshop outputs
2. Reviewing relevant literature and policy (see Appendix 3)
3. Consulting Farm Biosecurity Plan Manuals of other agriculture sectors (see Appendix 3)
4. Review of existing aquaculture company plans and biosecurity practices

Co-investigators (Appendix 4), respective government departments and all workshop participants were provided the opportunity to review and provide feedback on the documents developed before finalisation. This was an important part of the development to ensure the guidelines can be nationally agreed.

Final draft sector-specific biosecurity plans, guidelines and associated documents were then submitted (Appendices 9 and 10) to the national Sub-Committee for Aquatic Animal Health (SCAAH) for endorsement. On 23 October 2017 the Principal Investigator was informed that SCAAH had endorsed the guidelines for both sectors, which will now be submitted to the Animal Health Committee (AHC) composed of the Chief Veterinary Officers (CVOs) from all jurisdictions for final endorsement.

Figure 4. Reviewing existing company biosecurity practices, farm biosecurity plans and associated documentation.

Results, Discussion and Conclusion

This project has successfully delivered the following outputs and benefit:

- Development of sector-specific biosecurity plan templates and guidance documents for the Australian Land Based Abalone Industry and Australian Oyster Hatcheries including best practice recommendations for each sector.
- A nationally consistent approach to biosecurity planning and farm biosecurity plans to support improved disease prevention and security of the sectors, and inform consistent conditions for movements of live animals within and between jurisdictions, for export and integrated breeding programs.
- Improved biosecurity and disease prevention awareness by industry (farmers).
- Increased knowledge of major aquaculture diseases of concern identified as threats to each sector and preparedness to both unknown and known biosecurity threats
- Enhanced working relationships amongst government and industry (state and national).
- The ability for the abalone and oyster (land based) sectors to fulfil improved preparedness and shared risk mitigation responsibilities required under the Aquatic Deed, should they become signatories.

Many of these outputs were in excess of the project however will provide direct benefit to the oyster and abalone industries, the aquaculture industry more generally and associated jurisdictions. The approach taken to deliver this project was one of inclusion whereby all stakeholders were engaged and encouraged to actively participate in and influence the outputs of the project.

Implications

The biosecurity plan documents produced through this project will provide industry with detailed guidance to develop a new, or improve existing, farm biosecurity plans and supporting documentation. Improving biosecurity practices represents a crucial step in ensuring a profitable, secure and resilient aquaculture industry.

Documented (and in some cases auditable) farm biosecurity plans are a common requirement of health accreditation programs and livestock translocation protocols. Consequently, these guidelines will facilitate industry to trade in livestock or as an independent business decision to protect the farm, industry and community from disease incursions. Depending on the enterprise's individual business needs and cost benefit analysis, a farm may elect to adopt some or all of the best practice biosecurity recommendations outlined in the guidance documents.

Following endorsement and publication on the DAWR website, these documents will provide relevant jurisdictions with a nationally agreed standard of farm biosecurity for abalone and oyster hatcheries.

Recommendations

It is recommended that the opportunity to ensure the documents are adopted and implemented at an enterprise level by the sectors for which they have been developed is explored. This may be enabled by state commitment to assisting individual businesses, if feasible, or as part of an implementation project.

It should also be acknowledged that farm biosecurity is an ongoing and evolving process that requires refinement and adaptation over time. This may be in response to new disease threats or risk pathways, improved risk mitigation strategies or technology or available infrastructure and resources. Industry and government should be encouraged to develop a workable process to enable ongoing review following initial implementation.

Further development

This project has highlighted risks and mitigation strategies that specifically pertain to oyster hatcheries and abalone land-based farms. Naturally there are specifics that apply to other aquatic sectors and hence there is scope to identify other sectors for which biosecurity plan guidance documents and templates could be developed.

In particular sea-based farms, which are heavily reliant on disease prevention measures to avoid impacts of disease, are a sector that is currently lacking specific guidelines.

Extension and Adoption

Upon endorsement by AHC the national biosecurity plan guidelines (Appendix 5 and 6) will be published by DAWR and hence readily accessible by industry. The draft versions of the two national guidelines have already been provided to OA and AAGA as part of the review process and are therefore available to industry through these peak bodies for use prior to official publication. Additionally, the draft national guidelines were circulated to all workshop participants for review and feedback.

Upon publication of the two national guidelines, the website link will be circulated to OA, AAGA, workshop participants and relevant jurisdictions to ensure government, industry and farmers are informed of this final step.

PIRSA Fisheries and Aquaculture have been working with the land-based abalone farms within South Australia since late 2016 to assist with the development and finalisation of their farm biosecurity plans, emergency response plans and supporting documentation (such as Standard Operating Procedures). Two of the abalone farms have now fully developed their farm biosecurity plans appropriate to meet the requirements of the AHAP. PIRSA has commenced annual auditing of those farms, at their request, in line with these biosecurity guidelines.

The department has also extended a personal offer of assistance to South Australia's oyster hatcheries, of which there are currently five in operation and will continue to work with this sector. One hatchery has also developed a farm biosecurity plan and has been successfully audited.

The project has been presented at the following:

1. PIRSA Biosecurity SA Animal Health Conference, Adelaide, 15-16 June 2017
2. 4th FRDC Australasian Aquatic Animal Health and Biosecurity Scientific Conference, Cairns, 10-14 July 2017
3. 'State of Play' of the Oyster Industry Seminar, Coffin Bay, 3 August 2017
4. AAGA RD&E Workshop, Queenscliff, 10-11 August 2017

Project materials developed

1. National Biosecurity Plan Guidelines for the Australian Land Based Abalone Industry (Appendix 5)
2. National Biosecurity Plan Guidelines for Australian Oyster Hatcheries (Appendix 6)

Appendices

1. Appendix 1. Attendance Record and Abalone Biosecurity Workshop Information Sheet, Abalone Workshop 8th-9th September 2016, Queenscliff, Victoria
2. Appendix 2. Attendance Record and Oyster Hatchery Biosecurity Workshop Information Sheet, Oyster Hatchery Biosecurity Workshop, 27th October 2016, Hobart, Tasmania
3. Appendix 3. Project References
4. Appendix 4. Project Co-investigators and other contributors
5. Appendix 5. National Biosecurity Plan Guidelines for the Australian Land Based Abalone Industry
6. Appendix 6. National Biosecurity Plan Guidelines for Australian Oyster Hatcheries
7. Appendix 7. Letter from Nick Savva AAGA – Response to Final Draft Plans
8. Appendix 8. Email from Bruce Zippel OA – Response to Final Draft Plans

Appendix 1. Attendance Record and Abalone Biosecurity Workshop Information Sheet, Abalone Workshop 8th-9th September 2016, Queenscliff, Victoria

Name	Representing	Sector
Nurul Amin	Abtas	Industry - TAS
Tracey Bradley	Department of Economic Development, Jobs, Transport and Resources	Government - VIC - **co-investigator**
Annette Brown	Department of Agriculture and Water Resources	Government – Commonwealth
Andrew Clarke	Department of Economic Development, Jobs, Transport and Resources	Government - VIC
Stephanie Clay	Southseas Abalone	Industry - VIC
David Connell	Southseas Abalone	Industry – SA
Cecile Dang	Department of Fisheries Western Australia	Government – WA - **co-investigator**
Cameron Davidson	Southseas Abalone	Industry
Hannah Davidson	Southseas Abalone	Industry – SA
Marty Deveney	South Australian Research and Development Institute (SARDI)	Research – SA - **co-investigator**
Hamish Ebery	Southern Ocean Mariculture	Industry - VIC
Mark Gervis	Southern Ocean Mariculture	Industry - VIC
Joel Gilby	Ocean Wave Seafoods	Industry - VIC
Jeffrey Go	New South Wales Department of Primary Industries	Government – NSW
Scott Hayes	Jade Tiger Abalone	Industry – VIC
Wayne Hutchinson	FRDC	Research - SA
Tom Hyde	Southseas Abalone	Industry - SA
Craig Kestel	888 Abalone	Industry - WA
Anton Krsinich	Jade Tiger Abalone	Industry – VIC
Camila Martens	Southseas Abalone	Industry - VIC
Luke McPherson	Jade Tiger Abalone	Industry – VIC
Tim Rudge	Southseas Abalone	Industry - VIC

Shane Roberts	Department of Primary Industries and Regions South Australia	Government – SA - – **principal investigator**
Nick Savva	Australian Abalone	Industry (Peak Body) - **co-investigator**
Lucy Saunders	Jade Tiger Abalone	Industry – VIC
Shane Snith	Jade Tiger Abalone	Industry – VIC
Ian Stewart	Jade Tiger Aba	Industry – VIC
Allison Webb	Department of Economic Development, Jobs, Transport and Resources	Government - VIC
Eileen Wronski	Department of Primary Industries, Parks, Water and Environment	Government - TAS - **co-investigator**

PRIMARY INDUSTRIES & REGIONS SA
PIRSA

Abalone Biosecurity Workshop

Information sheet

Part of FRDC / DAWR project: "*Development of sector-specific biosecurity plan templates and guidance documents for the abalone and oyster aquaculture industries*"

PREMIUM FOOD AND WINE FROM OUR CLEAN ENVIRONMENT

AUSTRALIAN ABALONE GROWERS ASSOCIATION

SOUTH AUSTRALIA

Government of South Australia
Primary Industries and Regions SA

Contents

1. Introduction

1.1 Background

Biosecurity plans describe the systems put in place to protect a farm from diseases. A biosecurity plan should describe and address in detail the pathways for introduction, spread and transmission of disease and describe training, records management and administration of the farm systems. Measures must be in place to mitigate disease exposure at each critical control point in association with animal movement, people, equipment, water, feed and waste.

Farm biosecurity plans provide the following:

1. Disease prevention measures;
2. Disease response measures;
3. Biosecurity requirements for movement and trade in live abalone;
4. Biosecurity requirements of Aquatic Emergency Disease Response Arrangements (AqEADRA);

A nationally agreed biosecurity plan guideline for the abalone sector will provide a bench mark (set of minimum requirements) to ensure nationally consistent farm biosecurity is implemented. That will greatly improve disease management and facilitate live trade.

In 2014, the aquatic animal industries and Commonwealth and state and territory governments endorsed Australia's third national strategic plan for aquatic animal health – AQUAPLAN 2014-2019. This project is a component of one of the key activities (Activity 1.1), to '*develop sector-specific biosecurity plan templates and guidance documents*'.

In 2015 the Commonwealth of Australia 'Agricultural Competitiveness White Paper' was released with strategic priority being: "improved market access underpinned by a strong biosecurity system". Also in 2015 the Abalone Health Accreditation Program (AHAP) was endorsed by the Animal Health Committee as a nationally agreed document (AHC27 OOS03 paper, April 2015). The AHAP provides technical guidance for demonstrating freedom from abalone viral ganglioneuritis (AVG) in a land-based abalone farm for the purpose of trade in livestock.

In 2016, the national 'Aquaculture Farm Biosecurity Plan – generic guidelines and template' was finalised. That document provides broad guidelines for developing biosecurity plans and can be used to develop a nationally agreed biosecurity plan guideline specific for the abalone sector (land-based).

1.2. Aim

The aim of the Abalone Biosecurity Workshop is:

- National agreement on content of a land-based abalone biosecurity plan

1.3. Objectives

- Discuss disease risks for land-based abalone farms
- Identify relevant existing guidelines, policy and other documents
- Discuss appropriate content of an abalone sector biosecurity plan
- Agree on best practice biosecurity management on a land-based abalone farm to mitigate disease risks

1.4. Expected outcomes

- Consensus around industry measures that need to be implemented to meet common levels of biosecurity risk management
- Industry-wide biosecurity plans will support conditions for movements of live animals within and between jurisdictions, for export and integrated breeding programs
- Increased knowledge of major abalone diseases of concern
- Greater industry disease prevention and preparedness measures
- A more profitable, secure and resilient abalone aquaculture industry

2. Workshop Conduct

2.1 Participants

The following organisations will participate in the workshop:

- Australian Abalone Growers Association
- Land-based abalone aquaculture farmers
- Primary Industries and Regions South Australia (PIRSA), Fisheries & Aquaculture Policy
- PIRSA, SARDI Aquatic Sciences
- Department of Economic Development, Jobs, Transport and Resources (Victoria) – Chief Veterinary Officers Unit
- Department of Primary Industries, Parks, Water and Environment (Tasmania) - Animal Biosecurity and Welfare Branch
- Department of Fisheries (Western Australia) – Fish Health Laboratory
- NSW Primary Industries - Animal Biosecurity & Welfare Branch
- Commonwealth Department of Agriculture and Water Resources

2.2 What to bring

Please bring the following items with you to the workshop:

- Notebook, pen
- A copy of your current biosecurity plan if available
- Other relevant documents as needed

2.3 Code of Conduct for Workshop

1. We start on time and finish on time.
2. We all participate and contribute - everyone is given opportunity to voice their opinions.
3. We actively listen to what others have to say, seeking first to understand, then to be understood
4. We participate in activities that are assigned and complete them on time
5. We participate in open and honest feedback in a constructive manner
6. We do not distract other participants from the workshop (including mobile phone)
7. We strive to continually improve our workshop process

3. Administration

3.1 Timing of activities

Activity 1: Farm visit
Thursday 8 September 2016, 4:15pm to 5:15pm – Jade Tiger Abalone farm, 366 Esplanade, Indented Head, Victoria.

Activity 2: Workshop
Friday 8 September 2016, 8:30am to 4:00pm – Queenscliff Centre.

3.2 Workshop venue

The workshop will be held at:

Swan Bay Room
Department of Economic Development, Jobs, Transport and Resources
Queenscliff Centre
2a Bellarine Highway, Queenscliff, Victoria

3.3 Travel & Accommodation

Please ensure that you arrange your own travel (including flights) so that you are at the workshop venue by the required time on the day.

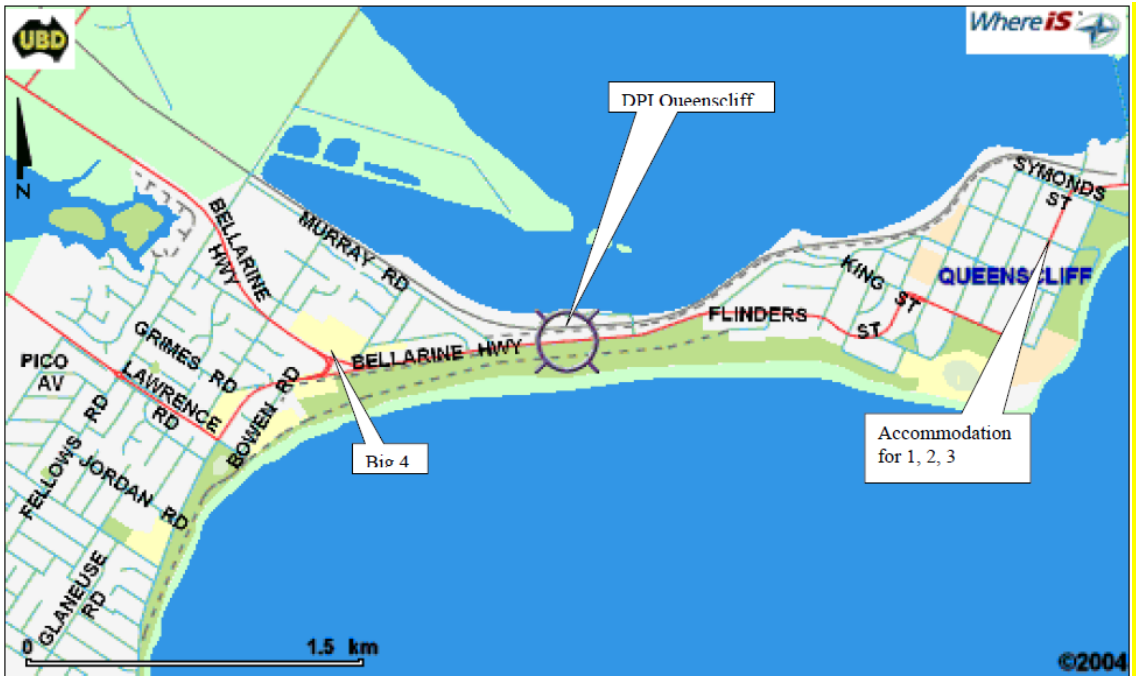
Note that travel time from Melbourne airport to Queenscliff is estimated at 1 hour and 30 minutes (109km).

All participants are responsible for booking and paying for their own travel and accommodation.

Accommodation options for Queenscliff:

Most accommodation is a pleasant 20 minute walk to the Queenscliff centre

1. Benambra B & B: http://www.benambraqueenscliff.com.au/
   Main street of Queenscliff
   Tel: 03 5258 2606
2. The Queenscliff Inn: http://www.queenscliffinn.com.au/
   Main street of Queenscliff
   Tel: 03 5258 3737
3. Athelstane House: http://www.athelstane.com.au/
   Main street of Queenscliff
   Tel: 03 5258 1024
4. Big 4 Beacon Resort: http://www.beaconresort.com.au
   Caravan park close to Queenscliff DPI.
   Tel 03 5258 1133



3.4 Catering

Tea/coffee, morning tea, lunch and afternoon tea will be provided during the workshop.

The dinner on the Thursday night, which will include workshop participants and AAGA seminar participants, will be jointly paid for by PIRSA and AAGA.

4. Agenda

Day 1, Thursday 8 September 2016 - Farm Visit

Time	Topic	Who
15:45	Leave Queenscliff, travel to Jade Tiger Abalone	All
16:15	Tour of Jade Tiger Abalone farm	Anton Krsinich
17:15	Travel back to Queenscliff	All
19:00	Drinks followed by dinner (TBA)	All

Day 2, Friday 9 September 2016 - Workshop

Time	Topic	Who
8:30	Welcome	Andrew Clarke (DPI, Victoria)
8:40	Introduction	Nick Savva
8:50	Generic Aquaculture Biosecurity Plan	Shane Roberts
9:10	Biosecurity Audits	Tracey Bradley
9:30	Tasmanian abalone translocation risk assessment	Eileen Wronski
9:50	Southseas abalone farm biosecurity plan	Tim Rudge
10:10	Jade Tiger abalone farm biosecurity plan	Anton Krsinich
10:30	***Break for Morning Tea***	
10:50	Facilitated discussion: Develop a Sector Specific Plan • Discussion: key disease risks for land-based abalone farms • Group task: identify main risk pathways for disease introduction and spread for an abalone farm	All Facilitator: Shane Roberts
12:50	***Lunch***	
13:50	Facilitated discussion: Develop a Sector Specific Plan • Discussion: key elements of a land-based abalone farm biosecurity plan, including - animal movement, people, equipment, water, feed and waste. • Group task: identify processes, records management (SOPs), infrastructure, staff training etc. to mitigate the disease risks identified in previous group task	All Facilitator: Shane Roberts
15:50	Close workshop.	Nick Savva
16:00	***Finish***	

Appendix 2. Attendance Record and Oyster Hatchery Biosecurity Workshop Information Sheet, Oyster Hatchery Biosecurity Workshop, 27th October 2016, Hobart, Tasmania

Name	Representing	Sector
Ken Bailey	Geordy River (Hatchery)	Industry - TAS
Jonathon Bilton	Twofold Bay Hatchery	Industry - WA
Tracey Bradley	Department of Economic Development, Jobs, Transport and Resources	Government – VIC – **co-investigator**
Annette Brown	Department of Agriculture and Water Resources	Government – Commonwealth
Ben Cameron	Cameron of Tasmania (Hatchery)/Oysters Tasmania	Industry – TAS & SA
Graeme Cameron	Cameron of Tasmania (Hatchery)	Industry – TAS & SA
Matt Cunningham	Australian Seafood Industries (Breeding Program)	Industry – TAS
Cecile Dang	Department of Fisheries Western Australia	Government – WA - **co-investigator**
Ian Duthie	SeaPerfect (Hatchery)/Oysters Tasmania	Industry – TAS
Anna Duthie	SeaPerfect (Hatchery)	Industry - TAS
Ingo Ernst	Department of Agriculture and Water Resources	Government – Commonwealth
Jeffrey Go	New South Wales Department of Primary Industries	Government - NSW
Phil Lamb	Spring Bay (Hatchery)	Industry - TAS
Kevin Lin	Aquafarms (Hatchery)	Industry - QLD
Elise Matthews	Department of Primary Industries and Regions South Australia	Government - SA
Trudy McGowan	South Australian Oyster Growers Association	Industry (South Australian Peak Body)
Stephen O'Connor	NSW Department of Primary Industries	Government - NSW
Scott Parkinson	Shellfish Culture	Industry - TAS
John Preston	Department of Primary Industries, Parks, Water and Environment	Government - TAS
Ben Rampano	New South Wales Department of Primary Industries	Government - NSW

Shane Roberts	Department of Primary Industries and Regions South Australia	Government – SA – **principal investigator**
Dan Roden	Southern Cross Shellfish (Hatchery)	Industry - NSW
Emma Wilke	Select Oyster Company – Sydney Rock Oyster breeding program	Industry - NSW
James Wood	SEAM Environmental – Food, Water, Waste	Private Auditor - TAS
Bruce Zippel	Oyster Australia	Industry (Peak Body) – **co-investigator**

Attendance Record Oyster Workshop #2 (for SA hatcheries unable to attend the Tasmania workshop) – 16 December 2016, Port Lincoln, South Australia

Name	Representing	Sector
Adam Butterworth	Sustainable Aquatic Industries	Industry - SA
Rod Grove-Jones	EP Shellfish	Industry - SA
Hatchery Technician	EP Shellfish	Industry - SA
Dan Wicks	Eyre Shellfish	Industry - SA
Darren Fisher	Eyre Shellfish	Industry – SA
Elise Matthews	Department of Primary Industries and Regions South Australia	Government –SA
Shane Roberts	Department of Primary Industries and Regions South Australia	Government – SA – **principal investigator**

PRIMARY INDUSTRIES & REGIONS SA
PIRSA

Oyster Hatchery Biosecurity Workshop

Information sheet

Hobart, Tasmania

27 October 2016

Australian Government
Fisheries Research and Development Corporation

Australian Government
Department of Agriculture and Water Resources

PREMIUM FOOD AND WINE FROM OUR CLEAN ENVIRONMENT

oysters australia

SOUTH AUSTRALIA

Government of South Australia
Primary Industries and Regions SA

Contents

1. Introduction

1.1 Background

Biosecurity plans describe the systems put in place to protect a farm from diseases. A biosecurity plan should describe and address in detail the pathways for introduction, spread and transmission of disease and describe training, records management and administration of the farm systems. Measures must be in place to mitigate disease exposure at each critical control point in association with animal movement, people, equipment, water, feed and waste.

Farm biosecurity plans provide the following:

1. Disease prevention measures;
2. Disease response measures;
3. Biosecurity requirements for movement and trade in oyster livestock for aquaculture;
4. Biosecurity requirements of Aquatic Emergency Disease Response Arrangements (AqEADRA);

A nationally agreed biosecurity plan guideline for the oyster sector will provide a bench mark (set of minimum requirements) to ensure nationally consistent farm biosecurity is implemented. That will greatly improve disease management and facilitate live trade (ie spat).

In 2014, the aquatic animal industries and Commonwealth and state and territory governments endorsed Australia's third national strategic plan for aquatic animal health – AQUAPLAN 2014-2019. This project is a component of one of the key activities (Activity 1.1), to '*develop sector-specific biosecurity plan templates and guidance documents*'.

In 2015 the Commonwealth of Australia 'Agricultural Competitiveness White Paper' was released with strategic priority being: "improved market access underpinned by a strong biosecurity system".

In 2016, the national 'Aquaculture Farm Biosecurity Plan – generic guidelines and template' was finalised. That document provides broad guidelines for developing biosecurity plans and can be used to develop a nationally agreed biosecurity plan guideline specific for the oyster sector (land-based).

For the above reasons, the Commonwealth Department of Agriculture and Water Resources (DAWR) have engaged PIRSA and Oysters Australia and committed funding to a project aimed at developing a nationally agreed biosecurity guidance document for the oyster industry. Co-investigators include representatives from each jurisdiction with oyster aquaculture.

This workshop forms part of FRDC / DAWR project: "Development of sector-specific biosecurity plan templates and guidance documents for the abalone and oyster aquaculture industries"

1.2. Aim

- National agreement on content of a land-based oyster biosecurity plan

1.3. Objectives

- Discuss disease risks for land-based oyster farms
- Identify relevant existing guidelines, policy, risk assessments and other documents
- Discuss appropriate content of an oyster sector biosecurity plan
- Agree on best practice biosecurity management on a land-based oyster farm to mitigate disease risks

1.4. Expected outcomes

- Consensus around industry measures that need to be implemented to meet common levels of biosecurity risk management
- Industry-wide biosecurity plans will support conditions for movements of live animals within and between jurisdictions, for export and integrated breeding programs
- Increased knowledge of major oyster diseases of concern
- Greater industry disease prevention and preparedness measures
- A more profitable, secure and resilient oyster aquaculture industry

2. Exercise Conduct

2.1 Participants

The following organisations will participate in the workshop:

- Oysters Australia
- Australian Oyster hatcheries
- Primary Industries and Regions South Australia (PIRSA), Fisheries & Aquaculture Policy
- PIRSA, SARDI Aquatic Sciences
- Department of Economic Development, Jobs, Transport and Resources (Victoria) – Chief Veterinary Officers Unit
- Department of Primary Industries, Parks, Water and Environment (Tasmania) - Animal Biosecurity and Welfare Branch
- Department of Fisheries (Western Australia) – Fish Health Laboratory
- NSW Primary Industries - Animal Biosecurity & Welfare Branch
- Commonwealth Department of Agriculture and Water Resources

2.2 What to bring

Please bring the following items with you to the workshop:

- Notebook, pen
- A copy of your current biosecurity plan if available
- Other relevant documents as needed

2.3 Code of Conduct for Workshop

1. We start on time and finish on time.
2. We all participate and contribute - everyone is given opportunity to voice their opinions.
3. We actively listen to what others have to say, seeking first to understand, then to be understood
4. We participate in activities that are assigned and complete them on time
5. We participate in open and honest feedback in a constructive manner
6. We do not distract other participants from the workshop (including mobile phone)
7. We strive to continually improve our workshop process

3. Administration

3.1 Timing of activities

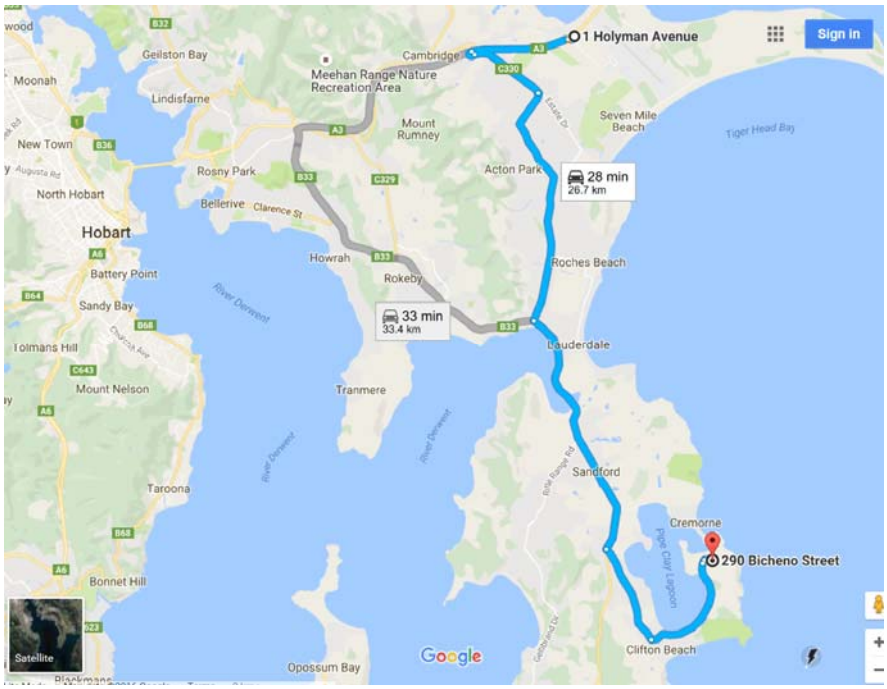
Activity 1: Shellfish Culture Hatchery visit
Thursday 27 October 2016

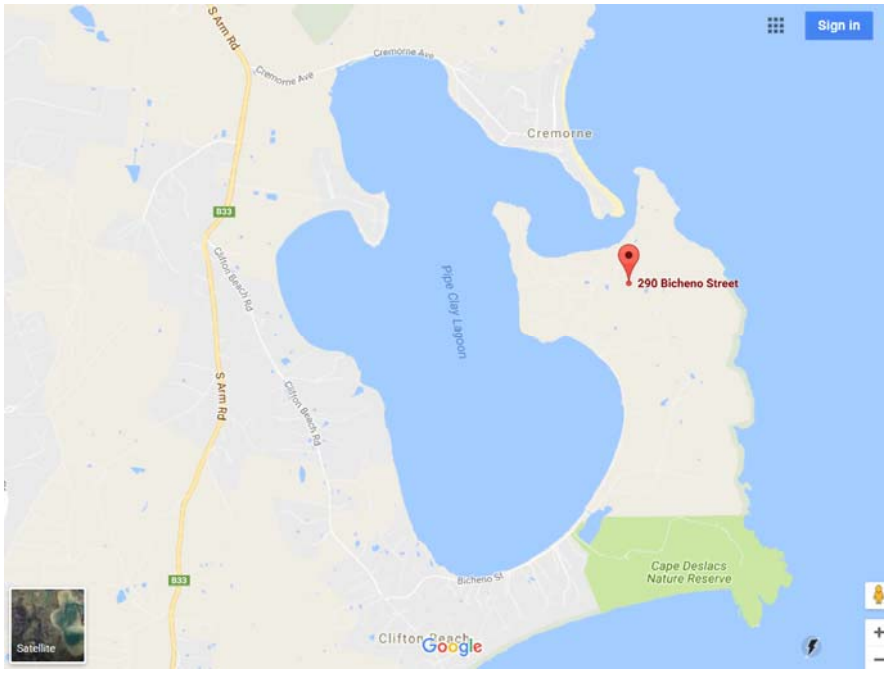
7:50am meet in front foyer of Travelodge Airport Hotel (1 Holyman Ave, Cambridge)

8:00am sharp, leave for Shellfish Culture (290 Bicheno St, Clifton Beach). Car pool.

8:30am – 9:30am tour of Shellfish Culture facility

10am arrive back at the Travelodge Hotel for workshop





Activity 2: Workshop
Thursday 27 October 2016, 10:00am to 5:00pm, Travelodge – Hobart Airport

3.2 Venue

The workshop will be held at:

Travelodge – Hobart Airport
1 Holyman Avenue Cambridge
Hobart, TAS, 7170
1300 886 886

3.3 Travel & Accommodation

Please ensure that you arrange your own travel (including flights) so that you are at the workshop venue by the required time on the day.

All participants are responsible for booking and paying for their own travel and accommodation.

If you wish to stay at the Travelodge Airport Hotel where the workshop will be held, please call them soon to secure your booking. They are holding 15 rooms for workshop participants.

Travelodge Hotels Reservations phone 1300 886 886

3.4 Catering

Tea/coffee, morning tea, lunch and afternoon tea will be provided during the workshop.

For those participants interested, PIRSA and Oysters Australia will host a dinner after the workshop at about 7pm.

4. Agenda

Thursday 27 October

Time	Topic	Who
8:00	Leave Travelodge for hatchery visit (Shellfish Culture)	All
10:00	Welcome & Introduction	Ingo Ernst
10:10	Generic Aquaculture Biosecurity Plan	Shane Roberts
10:30	Oyster Biosecurity Audit document template	TBA
10:50	*Break for Morning Tea*	
11:10	Diseases of Oysters	Marty Deveney / Jeffrey Go
11:30	Facilitated discussion: Development of an Oyster Biosecurity Plan • Group task: identify main risk pathways for disease introduction and spread for an oyster hatchery	All Facilitator: Shane Roberts
12:50	*Lunch*	
13:50	Facilitated discussion: Development of an Oyster Biosecurity Plan • Discussion: key elements of a land-based oyster hatchery biosecurity plan, including - animal movement, people, equipment, water, feed and waste. • Group task: identify processes, records management (SOPs), infrastructure, staff training etc to mitigate the disease risks identified in your previous group task	All Facilitator: Shane Roberts
15:15	Afternoon tea	
15:30	Continue Group task – groups share outcomes	All
16:00	Components of an Oyster sector biosecurity guidance document – discussion	All
16:30	Where to from here	Shane
17:00	*Finish*	

Appendix 3. Project References

1. Animal Health Australia, 2010. *Farm Biosecurity Manual for the Duck Meat Industry*. Animal Health Australia. ISBN 978 1 876714 94 9.
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4. Animal Health Australia, 2013. *National Farm Biosecurity Manual for Pig Production*. Animal Health Australia. ISBN: 978 1 921958 16 8.
5. Animal Health Australia, 2015. *National Farm Biosecurity Technical Manual for Egg Production.* Animal Health Australia. ISBN 978-1-921958-22-9.
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8. Australian Government Rural Industries Research Development Corporation. 2010. *National Farm Biosecurity Manual for Chicken Growers*. Australian Chicken Meat Federation Inc.
9. Department of Agriculture 2014, *AQUAPLAN 2014–2019: Australia's National Strategic Plan for Aquatic Animal Health*, Canberra. Commonwealth of Australia. ISBN 978-1-760030-77-3.
10. Department of Primary Industries and Water Tasmania, 2007. *Risk Assessment of Abalone Fishing and Farming Activities: Using Abalone Viral Ganglioneuritis as a Case Study*.
11. Gavine, F. M., Ingram, B. A., Hardy-Smith, P., and Doroudi, M, 2007. *Biosecurity Control Measures for Abalone Viral Ganglioneuritis: A Code of Practice*. Prepared as part of FRDC Project No. 2006/243. ISSN 1329-7287.
12. Government of Western Australia Department of Fisheries, 2013. *Abalone Aquaculture in Western Australia: Policy*.
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16. Reiss, A.E. and Woods, R.W., 2011. *National Zoo Biosecurity Manual*. Commonwealth of Australia. ISBN 978-1-921575-16-7.
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19. Wilson, S-J., 2014. *Developing an on-farm biosecurity plan for your grazing enterprise*. Livestock Biosecurity Network. Canberra.
20. Georgiades, E., Jones, B. and Fraser, R., 2016. *Options to Strengthen On-farm Biosecurity Management for Commercial and Non-Commercial Aquaculture*. Technical Paper. Ministry for Primary Industries. ISBN 978-1-77665-341-6 (o)

21. Ministry for Primary Industries, 2016. *Aquaculture Biosecurity Handbook*. Ministry for Primary Industries, Wellington.
22. Stevens R.N., 2012, *Disease Risk Assessment for Abalone Stock Enhancement*. West Australian Fishing Industry Council. Prepared as part of FRDC Project No. 2011/046. ISBN 978-0-9578834-0-6.

Appendix 4. Co-Investigators and other contributors

Name	Representing
Tracey Bradley	Department of Economic Development, Jobs, Transport and Resources
Cecile Dang	Department of Fisheries Western Australia
Marty Deveney	South Australian Research and Development Institute (SARDI)
Shane Roberts (principal investigator)	Department of Primary Industries and Regions South Australia
Elise Matthews	Department of Primary Industries and Regions South Australia
Nick Savva	Australian Abalone Growers Association
Eileen Wronski	Department of Primary Industries, Parks, Water and Environment
Bruce Zippel	Oysters Australia
A special thanks to Scott Parkinson of Shellfish Culture and Tom Hyde of Yumbah for their contribution to the completion of this project	

Appendix 5. National Biosecurity Plan Guidelines for the Australian Land Based Abalone Industry

National Biosecurity Plan Guidelines for the Australian Land Based Abalone Industry

FRDC Project 2016-245

2017

Contents

INTRODUCTION

These guidelines have been developed to assist Australian land based abalone farms with the tools and templates to create basic through to comprehensive, and fully auditable, biosecurity plans.

Depending on your farm's needs, biosecurity plans provide disease prevention and response measures and fulfill biosecurity requirements for movement and trade in "like" abalone.

In 2015 the Abalone Health Accreditation Program (AHAP) was endorsed by the Animal Health Committee (AHC) as a nationally agreed document to facilitate trade in abalone livestock. As part of the AHAP there is a requirement for an auditable farm biosecurity plan in addition to, in most states, targeted and sentinel surveillance.

These guidelines are part of the FRDC project "Development of sector-specific biosecurity plan templates and guidance documents for the abalone and oyster aquaculture industries (project number: 2016-245)" and have been developed:

- In accordance with the national "Aquaculture Farm Biosecurity Plan: generic guidelines and template' (www.agriculture.gov.au/fisheries/aquaculture/farm-biosecurity-plan); and,
- Based on input from a government/industry workshop held on 8th and 9th September 2016.

Essentially, biosecurity is a set of measures that help to prevent or reduce the risk of:

- Disease introduction onto your farm;
- Disease spread within your farm; and,
- Disease spread from your farm to the aquatic environment or to other aquatic enterprises.

Worldwide, there is increasing risk of significant known and unknown aquatic animal diseases and pests emerging and spreading. Although Australia currently has a favorable aquatic animal health status it is essential that farmers work towards implementing preventative biosecurity measures rather than a reactive approach in the face of a disease outbreak.

Effective biosecurity is integral to any successful production system as it helps minimise unnecessary costs, can improve production outcomes, and assists in maintaining trade and market access. A significant return on investment can be realised particularly by those measures aimed at preventing disease entering your farm in the first place.

Preventing disease not only protects your business, but also 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 the successful implementation and operation of farm biosecurity.

Staff must understand that by preventing disease introduction, or minimising disease spread, their jobs, and ultimately the industry, will be protected.

HOW TO USE THIS BIOSECURITY PLANNING MANUAL

This document has been developed to assist abalone farmers to either:

- Develop a farm biosecurity plan - for those with no current plan in place; or
- Strengthen an existing farm biosecurity plan.

When creating a farm biosecurity plan there is no need to duplicate existing documents, systems or records however, where appropriate, reference to these should be made within the plan.

These guidelines identify the major routes of disease transmission to incorporate into your farm biosecurity plan, including disease entry, spread within and spread from your farm. The guidelines assist in assessing:

- Risks associated with each route of disease transmission;
- On-farm measures to minimise the risk of disease transmission; and
- Supporting documentation needs such as Standard Operating Procedures (SOPs) for a comprehensive plan.

Risks common to land based abalone farms have been identified in these guidelines however you should consider any additional risks specific to your farm, and associated risk management measures, that may be required.

It is acknowledged that each farm will have a different spectrum of biosecurity challenges and operating environments due to the variation between factors such as:

- Operation size;
- Location and layout of the farm;
- Disease status of the region or state/territory;
- Proximity to wild abalone populations, fish processors and other aquaculture sites;
- Number and type of species farmed; and
- Available resources.

Individual farm biosecurity plans need to be developed taking your farms uniqueness into account. This ensures that the plan is practical for your operation and is as simple and as low cost as possible to achieve desired biosecurity outcomes.

Supporting documentation, including templates and example SOPs, have been provided as appendices to assist you in the development of your plan. Some documents (e.g. farm specific SOPs) will need to be written by you for your farm. A guideline document on how to write a SOP has been included as Appendix 8 to assist in this process.

Once you have navigated through these guidelines, and individual farm risks have been assessed, a farm biosecurity plan can be created. An electronic Biosecurity Plan Editable Template has been developed for this purpose should you wish to utilise it (Appendix 10).

A self-audit checklist (Appendix 9) has also been included for you to assess your completed plan. This checklist may be used to highlight any remaining gaps.

Symbols used in these guidelines:

Supporting details and other information to include in your farm biosecurity plan.

Risk management measures to implement and document. These measures are auditable.

Templates provided to assist in the development of individual farm biosecurity plans.

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

ABALONE DISEASES OF SIGNIFICANCE

There are currently three diseases listed as National Reportable Diseases of abalone:

Disease	Pathogen Type	Presence in Australia
Abalone Viral Ganglioneuritis (AVG)	Viral	Endemic (in Australia)
Xenohaliotis californiensis	Bacterial	Exotic (not in Australia)
Perkinsus olseni	Parasitic	Endemic (in Australia)

Table 1. National Reportable Diseases of Abalone

The full and current list of National Reportable Diseases of Aquatic Animals can be accessed at www.agriculture.gov.au/animal/aquatic/reporting/reportable-diseases.

These diseases are a threat to farm production and to market access and trade.

Under individual state and territory legislation these, plus any additional diseases specific to the jurisdiction, must be immediately reported to the relevant authority if suspected or detected. These diseases are commonly referred to as Notifiable Diseases by states and territories and lists of these are available on relevant jurisdiction websites.

The diseases, shown in table 1, include a range of pathogen types (viral, bacterial and parasitic). It is important that farm biosecurity planning considers these different pathogens and how they are spread when determining risk management measures such as appropriate decontamination.

Key Reportable Abalone Disease resources include:

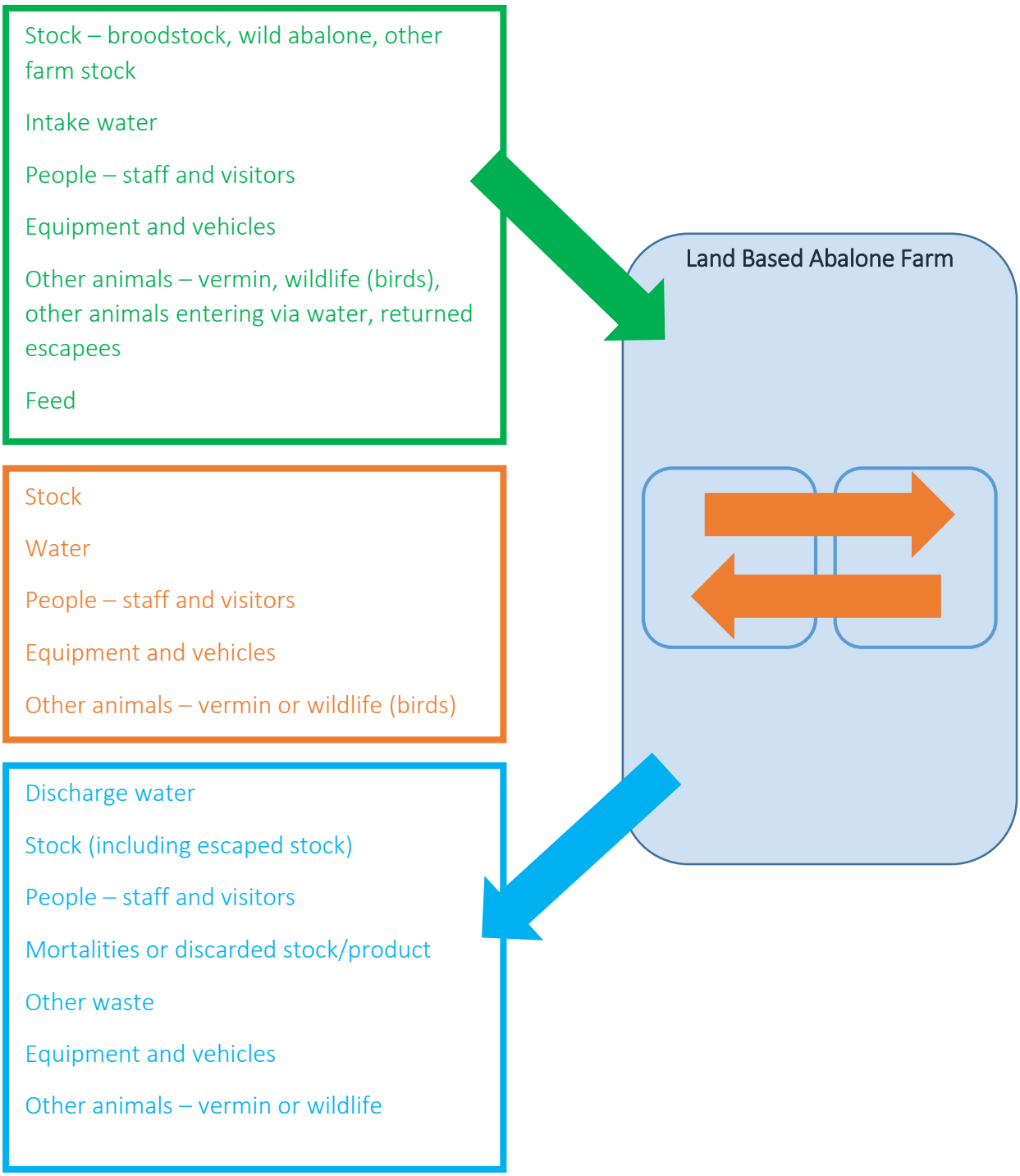
1. Aquatic Animal Diseases Significant to Australia: Identification Field Guide 4th Edition www.agriculture.gov.au/animal/aquatic/guidelines-and-resources/aquatic_animal_diseases_significant_to_australia_identification_field_guide. This guide is also available as a free App that can be downloaded from the App Store (Apple devices), Google Play (Android devices) and Microsoft Store (Windows devices). It is recommended that you and your staff have this installed on your mobile phones.
2. AQUAVETPLAN Disease Strategy Manuals www.agriculture.gov.au/animal/aquatic/aquavetplan. Manuals exist for Abalone Viral Ganglioneuritis and Withering Syndrome of Abalone.
3. OIE Disease Chapters – Diseases of Molluscs www.oie.int/international-standard-setting/aquatic-manual/access-online/.

In addition to known diseases of significance, or those listed as reportable, there are potentially 'other' diseases (e.g. emerging or unknown diseases) that may be a future risk to production. Good farm biosecurity should be aimed at preventing entry and spread of both known and unknown disease. An excellent resource available for emerging issues and latest

research is the **Fisheries Research and Development Corporation (FRDC)** website www.frdc.com.au.

MAJOR ROUTES FOR DISEASE TRANSMISSION

The following schematic outlines the major routes identified for disease transmission onto (green), within (orange) and from (blue) land based abalone farms.



Pathways that have the potential to place high levels of infection in close contact with susceptible hosts are the most likely to result in disease establishment and spread.

For farms the highest risk pathways are:

1. Stock (especially broodstock) and wild abalone;
2. Water; and,
3. Movement of equipment and people.

These pathways should be addressed as a priority.

BIOSECURITY PLAN – Suggested Layout and Inclusions

The following section outlines the suggested layout and inclusions considered essential for the development of a comprehensive yet concise biosecurity plan.

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

Section 1. ENTERPRISE INFORMATION

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

1.1 Production Details

Summarise detail of all relevant elements of farm production.

Relevant details include:

- Stock source/s
- Product produced - species, size and market
- Farm activities - all production and administrative activities
- Staff - number and areas of responsibility
- Any associated sites linked to the farm

1.2 Key Contacts

Document key details for internal and external contacts, relevant to farm management, biosecurity and stock health.

Relevant contacts include:

- Company, farm and specific area managers
- Consulting veterinarians/abalone health professionals
- Government aquatic animal health contacts
- Laboratories used
- Other industry representatives e.g. association representatives

Section 2. MAPS AND DIAGRAMS

Farm design and availability of infrastructure will determine how biosecurity can be managed and should be included in this section of the plan.

2.1 Farm Locality and Features

Provide a locality map and associated farm information.

Specific disease transmission risks, based on farm location, need to be assessed and documented.

Relevant details include:

- Status of state or territory, region and/or bay for known diseases or marine pests of concern (e.g. AVG).
- Proximity to other aquaculture production (e.g. marine based abalone farms, other aquaculture leases, fish processors etc.).
- Proximity to potential high risk sites (e.g. wild abalone populations).
- Presence and type of wildlife (birds), feral animals or vermin.
- Nearby roads, towns, boat ramps, marinas etc.

2.2 Farm Maps and Schematic Diagrams

It is likely that more than one farm map will be required within your farm biosecurity plan to cover different levels of detail.

Maps and diagrams should encompass the following information.

2.2.1 Facility Layout

Provide a farm layout map and associated access information.

A **Biosecurity Sign** has been provided as Appendix 1.

Relevant details include presence and location of:

- Perimeter fences
- Farm entry/exit points and gates (and if gates are lockable)
- Access/biosecurity sign location/s
- Access road/s
- Car park/s
- Reception point for farm visitors
- Sheds/storage areas, tanks and other infrastructure
- Water intake and discharge pipes/channels
- Water pumps and filtration equipment
- Vehicle loading/delivery area/s
- Wash down/disinfection area/s
- Mortality pit/s
- Sedimentation pond/s

- Emergency muster point/s

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

R2. *The main production area entrance can be closed to vehicle traffic in the event that the Emergency Response Plan is activated.*

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

R4. *Entry signage is clearly displayed, provides direction for visitors and includes company contact details.*

2.2.2 Production Areas and Biosecurity Zone Classifications

Provide a farm 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 e.g. disinfection/sanitisation points, boot change areas etc.
- The class of stock within each production area/zone (e.g. broodstock, juveniles, growout etc.).
- The number of tanks or raceways in each area (to give an indication of farm size).
- Typical stock and staff/visitor movements including those between farm production areas/zones and between sites (if applicable).

Ensure biosecurity zones shown in diagrams, and used in your farm biosecurity plan, are described in detail within supporting SOPs.

Summary of example farm biosecurity zones:

BIOSECURITY ZONE	ACCESS
Extreme (red)	• Highly restricted • Authorised personnel only • No entry to any other zones following access
High (amber)	• Limited access • Authorised personnel only
Moderate (yellow)	• Limited access • Authorised personnel only
Low (green)	• No access restrictions (staff or visitors)

R5. *The farm is divided into biosecurity zones with zone specific requirements relating to access, entry and exit procedures and dedicated equipment.*

R6. *Biosecurity zone signage, consistent with biosecurity zone definitions and familiar to all personnel, is clearly displayed.*

Section 3. ROUTINE MEASURES TO ADDRESS MAJOR DISEASE TRANSMISSION ROUTES

This section outlines routine risk management measures aimed at addressing major disease transmission routes identified as common to land based abalone farms (as per page 7). These routine measures are those implemented and followed as part of normal daily farm operations.

For each of these routine measures a risk category has been assigned. These categories have been included to assist in highlighting those measures that should be prioritised to provide the highest degree of assurance that disease will not be introduced or spread.

The risk rating categories, based on a risk assessment, are:

Category A	Failure to implement risk management measures may result in a **critical risk** of disease transfer.
Category B	Failure to implement risk management measures may result in a **high risk** of disease transfer.
Category C	Failure to implement risk management measures may result in a **moderate risk** of disease transfer.
Category D	Failure to implement risk management measures may result in a **low risk** of disease transfer.

Additional Farm Specific Risks - not covered by these guidelines

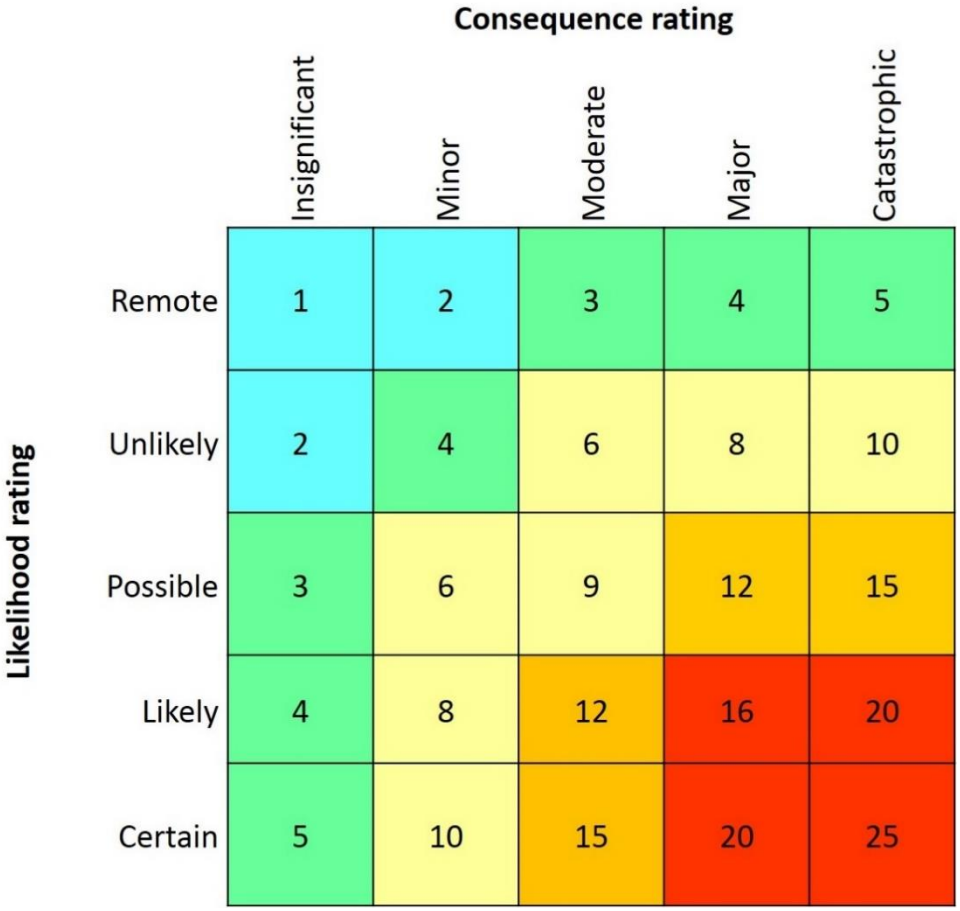
When developing your farm specific biosecurity plan **any additional risks associated with your specific farm, not covered in these guidelines**, should be assessed and risk management measures implemented as appropriate. Details of this process are outlined below.

1. Identify risks and perform a risk assessment

Identify any additional farm specific risks (or routes of disease transmission). Perform a risk assessment for each risk identified to consider the level of risk a hazard presents by:

- Estimating the likelihood of disease entering the farm by this route; and,
- Determining the consequence of disease entry by this route.

The level of risk posed is disease dependent however as your farm biosecurity plan is not targeted at a specific disease it is best practice to consider the worst case scenario i.e. an exotic or other emergency (or significant) abalone disease such as Withering Syndrome.



Risk level	Explanation and management response
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 1. Risk estimation matrix and assessment of disease consequences

Upon evaluating risks, those deemed to be medium, high or extreme are considered unacceptable and require the implementation of management measures. Risks identified as low should be monitored to ensure the risk profile does not change over time.

Detailed information on performing a risk assessment can be found in part 3 (pages 25 to 28) of the "Aquaculture Farm Biosecurity Plan - generic guidelines and template" (www.agriculture.gov.au/fisheries/aquaculture/farm-biosecurity-plan).

2. Identify appropriate risk management measures

Risks can be managed by a variety of measures including physical measures (e.g. infrastructure and equipment), procedural measures (e.g. production practices and training) or other supporting measures (e.g. signage).

To address any specific additional risks identified for your farm each of these measures should be considered as part of a standard approach.

3. Develop or identify associated supporting documentation

Risk management measures should be supported by appropriate documentation (SOPs, checklists, record keeping templates etc.) outlining detailed risk management measures.

For example the 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 further outlines, in detail, the type of disinfectant used, when it requires inspection and how regularly and by whom the disinfectant is to be changed. This detailed information is not required within the body of your farm biosecurity plan but rather referenced to where applicable. SOPs may be referenced by a document number, name or other relevant code.

SOPs should be accompanied by a date stamped checklist wherever possible to provide evidence that the procedure/s outlined in the SOP are being followed by an accountable staff member. Checklists can be readily monitored by supervisors, managers and/or auditors.

3.1 Animals

Objective: to minimise the risk of disease introduction and spread by stock and other animal movement.

Stock entering a farm present the most significant risk for bringing disease onto a farm, especially if the health status of the stock is unknown.

Introductions and movements should be managed carefully to minimise the risk of introducing and spreading disease.

RISK CATEGORY	RISK MANAGEMENT MEASURES
(A) Critical	 ***R7.*** *Health status information, and appropriate permits, are obtained for stock prior to farm entry. The health status of any introduced stock is equal to or better than that of stock already present. If this cannot be achieved stock are permanently quarantined.*  ***R8.*** *Introduced stock of unknown (e.g. wild) or lower health status are permanently quarantined. This includes isolation, in separate water from all other farm stock in separate production units/dedicated quarantine facilities with appropriate biosecurity measures.*  ***R9.*** *If multiple marine aquaculture species (e.g. oysters and abalone) are present on the farm they are housed separately with appropriate biosecurity measures and in water that is not shared across species.*
(B) High	 ***R10.*** *Stock are inspected on introduction and cleaned if required.*  ***R11.*** *Mortalities or unwanted stock are disposed of in an appropriate manner* that is approved by the relevant jurisdictional authority. No dead or unwanted stock is returned to the environment or accessible to scavengers (e.g. birds).*  ***R12.*** *Health problems (suspected diseases) are investigated with assistance from aquatic animal health professionals.*  ***R13.*** *Staff responsible for management of abalone husbandry are trained in, and aware of, their role and responsibility in reporting signs of disease and high mortality.*

	 ***R14.*** *In accordance with jurisdictional requirements relevant authorities are informed of any significant, unexplained mortality event or suspected reportable disease immediately.*  ***R15.*** *Stock stress is kept to a minimum by ensuring appropriate water quality, hygiene, stocking density, nutrition and handling.*  ***R16.*** *Escapees are prevented.*  ***R17.*** *Birds are appropriately controlled or excluded from production areas.*
(C) Moderate	 ***R18.*** *Abalone health, mortality and behavior inspections occur daily. This information is recorded.*  ***R19****. Mortalities are removed twice weekly (at a minimum).*
(D) Low	 ***R20****. Domestic animals (e.g. cats and dogs) do not have access to production areas at any time.*  ***R21****. Vermin baiting occurs as necessary (i.e. if live rodents, droppings or nests are observed).*

*Further disposal information can be found in the "AQAUAVETPLAN Operational Procedures Manual – Disposal" www.agriculture.gov.au/animal/aquatic/aquavetplan/disposal

3.2 People

Objective: to minimise the risk of disease introduction and spread by people movement.

The risk of disease introduction by people is greatest if other farms, or environments potentially containing diseases of concern, have been recently visited.

Contaminated skin, clothing and footwear can all potentially spread disease.

3.2.1 Staff

A **Pre-Employment Biosecurity Declaration** has been provided as Appendix 2.

RISK CATEGORY	RISK MANAGEMENT MEASURES
(B) High	***R22.*** *Staff are not permitted to visit other aquaculture sites or seafood processors prior to farm entry (unless appropriate decontamination has occurred).*
(D) Low	***R23.*** *Footbaths (or the ability to change into zone specific boots) and hand sanitation stations are located at the farm entrance/exit and between biosecurity zones so as to provide for effective disinfection at all times.* ***R24****. Boots worn in production areas must not be worn or taken outside the specific production area to which they are designated.* ***R25****. Staff must attend work in laundered, clean clothes each day.* ***R26****. Only designated staff are permitted to routinely enter farm quarantine areas.* ***R27.*** *Work flow is unidirectional (from low to high risk zones) when multiple zones are required to be accessed during a day. An appropriate procedure exists for when this is not possible.*

3.2.2 Visitors - Contractors, Suppliers and Other Service Personnel, Family and Neighbours

A **Visitor Biosecurity Declaration** template has been provided as Appendix 3.

A **Visitor Log** template has been provided as Appendix 4.

Suggested **Farm Entry Conditions for Visitors** have been provided as Appendix 5.

RISK CATEGORY	RISK MANAGEMENT MEASURES
(B) High	***R28****. All visitors must complete a biosecurity declaration upon arrival to ensure their risk to farm biosecurity has been assessed. Refusal of entry should be considered for high risk visitors.*
(C) Moderate	***R29****. Movement of people onto and through the farm is limited, in particular visitor access to quarantine zones is restricted.*

	R30. Appropriate disinfection of all visitors occurs on production area entry and exit via footbaths (or the ability to change into zone specific boots) and hand sanitation stations.
(D) Low	*R31. Visitors must sign-in on arrival (by completing the farm visitor log) and undergo a farm biosecurity induction.* *R32. Farm entry requirements are clearly displayed to visitors at the sign-in point.* *R33. Routine maintenance work required within quarantine area/s, where possible, is conducted by contractors between batches and prior to final disinfection.* *R34. All visitors must be approved by the farm manager and visits must be unidirectional from lowest to highest risk areas.* *R35. Visitors are accompanied at all times when on site.*

3.3 Equipment, Vehicles and Vessels

Objective: to minimise the risk of disease introduction and spread by equipment, vehicle or vessel movement.

Depending on the 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 off-site (e.g. dive equipment or vehicles returning from fish processors) or in association with stock or wild fish, especially if diseased.

RISK CATEGORY	RISK MANAGEMENT MEASURES
(B) High	*R36. Equipment, vehicles or vessels that have been in contact with off-site abalone or water used to hold or process off-site abalone are not permitted to enter the farm. In exceptional circumstances facilities are available to appropriately clean and disinfect* such equipment, vehicles or vessels, or those of unknown origin or status, prior to use.*
(C) Moderate	*R37. Specific equipment, labelled clearly as such, is used per zone.* *R38. No equipment is removed from its dedicated zone and used elsewhere on the farm.*

	 ***R39**. If multiple aquatic marine species (e.g. oysters and abalone) are kept on the farm equipment must be species specific and not shared.*  ***R40**. If movement of equipment between zones or species is required (e.g. an expensive item) appropriate cleaning and disinfection* occurs.*  ***R41**. Equipment is properly maintained and appropriately decontaminated* as required. Maintenance records are kept and maintained up to date.*
(D) Low	 ***R42**. Visitor vehicles must be parked in a dedicated parking area.*  ***R43**. The farm has a dedicated delivery and loading area.*  ***R44**. All farm areas are regularly cleaned and kept free of rubbish and clutter.*  ***R45**. Contractor tools are cleaned before entry and free of dust/organic matter.*

*appropriate cleaning and disinfection should be utilised where deemed necessary based on risk. This is outlined in the:

- "AQAUAVETPLAN Operational Procedures Manual – Decontamination" www.agriculture.gov.au/animal/aquatic/aquavetplan/decontamination
- APVMA permit to allow hypochlorite for disinfecting abalone harvesting equipment and for decontamination against AVG (permit number PER14917) permits.apvma.gov.au/PER14917.PDF

Additionally biofouling management guidelines, for the purpose of minimising the spread of marine pest species, can be found at www.marinepests.gov.au/marine_pests/publications/Documents/Aquaculture_guidelines.pdf

3.4 Water, Waste and Feed

Objective: to minimise the risk of disease introduction and spread by water, waste and feed.

Farm water supply can pose a significant risk of disease transfer depending on the disease status of the source water. This is particularly important if host animals are present in the water source, or if the source is in close proximity to water discharge from other aquatic enterprises or processors.

RISK CATEGORY	RISK MANAGEMENT MEASURES
(A) Critical	 ***R46.*** *Incoming water is appropriately treated (e.g. screens on intake pipes, filtration etc.) where appropriate to minimise the risk of disease/pest entry.*  ***R47.*** *Discharge water from dedicated quarantine facilities is appropriately treated to minimise the risk of disease/pest establishment in the marine environment.*
(B) High	 ***R48.*** *Water intake and outflow avoids cross contamination.*  ***R49.*** *Water flow within the farm minimises disease spread between biosecurity zones.*  ***R50.*** *Other waste is disposed of in an appropriate manner (e.g. used water filters, fouling, faeces etc.).*
(D) Low	 ***R51.*** *Regular servicing and maintenance of filtration equipment occurs and is recorded.*  ***R52.*** *Potable water is available for cleaning and disinfection procedures.*  ***R53.*** *Only manufactured or appropriately treated feeds are used.*

SECTION 4. ADDITIONAL SUPPORTING MEASURES

4.1 Training

Objective: to ensure all farm staff understand they share the responsibility of maintaining farm biosecurity and must practice good biosecurity in all the work they do.

A **Training Record Template** has been provided as Appendix 6.

It is essential that all staff are appropriately trained to ensure they understand both farm and role specific biosecurity requirements.

An understanding of the major routes of disease transmission and signs of abalone ill-health by staff is crucial.

The use of a training record ensures staff training is not overlooked and is refreshed both on a regular basis (annually at a minimum) and after any procedures or associated documents are updated.

Additional role specific training may also be recorded in the training record, for example the training of key staff on sample collection, packaging and submission.

***R54**. The farm has a Biosecurity Manager who is responsible for the creation, maintenance and review of the farm biosecurity plan, associated documents and activities including staff training.*

***R55**. The farm biosecurity plan and all associated documents are readily accessible to staff at all times.*

***R56.** All staff are provided with a farm biosecurity induction and ongoing biosecurity training relevant to their role. This training must be documented and encompass:*

- *The Farm Biosecurity Plan*
- *The Emergency Response Plan*
- *SOPs, associated documents including checklists and work practices that support these plans*

4.2 Record Keeping

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

Good record keeping is necessary for farm biosecurity plan auditing and to provide demonstrable proof that biosecurity protocols are being followed.

In the event of a disease outbreak records are used to trace the potential source of disease, identify breakdowns in adherence to biosecurity protocols and aid in the review and improvement of farming practices and protocols.

The minimum information that should be recorded is outlined below.

4.2.1 Stock Movements

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

Suggested minimum details include:

- Source of stock, including original and most recent source (if different).
- Movement of stock within the farm (for movement between different biosecurity zones e.g. nursery and grow out).
- Movement of stock from the farm, to other farms or to processors.

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

- Date of movement
- Batch or other identifier
- Number of individuals
- Buyer (for sales) or stock origin, including contact details

R57. *Detailed stock records, regarding stock movements and inventory, are maintained and readily accessible.*

4.2.2 Stock Health, Mortality and Water Quality Records

Health and performance records provide evidence that regular stock monitoring is occurring. Records, especially of mortalities, assist monitoring for unusual health problems.

Suggested minimum details include:

- Mortalities (including the method of disposal and if any samples have been archived)
- Details of any poorly performing abalone
- Water quality information
- Results of laboratory testing - associated with clinical disease or undertaken for the purpose of health certification or AHAP surveillance.

R58. *Detailed stock health, mortality and water quality records are maintained and readily accessible.*

Section 5. EMERGENCY PROCEDURES

Objective: to ensure emergency procedures are developed, and additional biosecurity measures identified, for implementation in the event of a suspected Emergency Animal Disease (EAD) or serious endemic disease either:

- On the farm; or,
- Due to an increased threat of a disease introduction if an outbreak is suspected in the state/territory or region.

An ***Emergency Response Plan Template*** has been provided as Appendix 7.

An Emergency Response Plan (ERP) is an essential document required for each farm and must provide clear guidelines as to the:

- Specific trigger/s for an EAD alert (e.g. mortality rate, abnormal stock behavior etc.).
- Key emergency contacts.
- Notification pathways and responsibilities including jurisdictional notification.
- High biosecurity risk management measures that must be immediately implemented upon ERP activation. This includes stock movement and farm access restrictions (examples of these are included within the ERP template).
- Sample collection, storage and submission guidelines.
- Disposal and quarantine protocols.
- The physical location and/or web link of key response or other resource documents (e.g. AQUAVETPLAN, jurisdiction disease response plan/s, farm disease response plan/s etc.)

This plan must be in line with 'AQUAVETPLAN' www.agriculture.gov.au/animal/aquatic/aquavetplan and other jurisdictional requirements.

Farm emergency plans should also include procedures to be followed in the event of a non-disease emergency that may influence farm biosecurity, for example a power failure, water treatment failure or natural disaster. This will ensure responsibilities, notification pathways and other procedures are clearly identified prior to such an event.

R59. *The farm has an Emergency Response Plan.*

Section 6. LEGISLATIVE AND JURISDICTIONAL REGULATORY REQUIREMENTS

Farm practices must comply with:

- Relevant agency and jurisdictional legislation (local, federal and state/territory);
- License conditions; and
- Requirements of the AHAP (for participating farms).

R60. *Applicable import requirements are adhered to, and translocation permits obtained, for all stock and equipment movement.*

R61. *Batch testing or surveillance requirements are undertaken in adherence with jurisdictional regulations or in accordance with the AHAP.*

R62. *Only commercially farmed species are kept on site in accordance with license conditions.*

R63. *Any veterinary medicines provided to stock occurs in accordance with relevant state and commonwealth legislation (including the commonwealth regulator APVMA).*

Other regulatory requirements have been covered in previous sections including:

R11. *Mortalities or unwanted stock are disposed of in an appropriate manner approved by the relevant jurisdictional authority. No dead or unwanted stock is returned to the environment or accessible to scavengers (e.g. birds).*

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

Section 7. DOCUMENT CONTROL AND REVISION RECORD

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

This ensures evidence is provided to demonstrate that 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 farm practices;
- Newly available risk management tools or information; and/or
- Audit recommendations.

R64. *The farm biosecurity plan is regularly reviewed (annually at a minimum).*

Section 8. AUDIT RECORD

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

Include audits both:

- Internal and external
- Scheduled and completed

Key outcomes/audit recommendations should be noted for reference and demonstration that your plan is being critically reviewed.

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

R65. *Regular auditing of the farm biosecurity plan occurs (annually at a minimum) to ensure it is being implemented effectively and improved upon 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 supporting documents are readily identified and accessible for review and audit purposes. These need not be included in the body of your plan but rather maintained elsewhere (to ensure version control is preserved) or included as appendices.

The following documents are suggested supporting documents however multiple topics may be incorporated into the same SOP depending on your farm. SOP requirements are likely to be influenced by farm size, number of staff and scale of production.

Checklists are essential supporting documents and should be utilised in association with SOPs wherever possible. Checklists provide the evidence that procedures outlined in a SOP are being followed by an accountable staff member at correct intervals.

Suggested Standard Operating Procedures and Checklists	Record Keeping Templates/Other Documents
1. New employee induction and training	1. Pre-employment biosecurity declaration
2. Farm visitors	2. Visitor biosecurity declaration
3. Stock arrivals, movement and dispatch	3. Visitor log
4. Escapee prevention, inspection and collection	4. Farm entry conditions for visitors

5. Collection and disposal of mortalities and other waste	5. Staff training record
6. Disinfection	
4. Farm biosecurity zones	
5. Emergency Response Plan	

R66. *Supporting documents (e.g. SOPs, checklists and templates) associated with the farm biosecurity plan are clearly identified and readily available.*

The ability of the abalone industry to withstand an outbreak of disease, and the cost of control, will be directly influenced by each individual farm's biosecurity plan, and its effective implementation and operation.

Appendix 1. BIOSECURITY SIGN

Corflute signs are available for purchase at 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 farm 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 prior to farm entry unless I have had a full head to toe shower and changed into clean, laundered clothes and shoes.
2. Wear or take boots worn in a specific production area outside the production area to which they are designated.
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 farm?

Yes ☐ No ☐

Go to question 2

2. Have you:

Been in contact with any aquaculture or the aquatic environment in the previous 24 hours, this includes: • recreational fishing • seafood processors • water sports/activities (including diving)	Yes ☐	No ☐
If yes, have you had a head to toe shower and changed into clean clothes and shoes?	Yes ☐	No ☐ – Postpone non-essential visit Or – Risk to be assessed by the Farm Manager before farm access is permitted

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

Signature: ……

Date: ……

Appendix 4. VISITOR LOG

Date	Name	Company	Contact Number	Visitor Biosecurity Declaration Completed	Time In	Time Out

Appendix 5. FARM ENTRY CONDITIONS FOR VISITORS

Entry to this farm 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 6. TRAINING RECORD

Employee Name: _____ Employee Position: _____

Minimum Training Requirements (for position): Farm Biosecurity Plan_____

Emergency Response Plan_____

Role specific SOPs: _____

Other: _____

Date	Subject/Topic/Document	Trainer	I understand the training delivered and have read and understand the associated document/s (signature of employee)	Due date of refresher

Appendix 7. EMERGENCY RESPONSE PLAN TEMPLATE

This document outlines the actions and responsibilities that are to be undertaken in the event that an emergency animal disease (EAD) is suspected on the farm.

A. Plan Trigger

Unusually high, unexplained mortality. *This needs to be defined for your farm e.g. a specific mortality rate, abnormal stock behaviour etc.*

B. Important Contacts

	Name	Contact Number
Company/General Manager	*Name*	*Mobile* *Phone* *Email*
Farm Manager		
District Veterinary Officer		
Aquatic Animal Health Officer		
Consultant Veterinarian		
"Fishwatch Hotline" (or equivalent)		
Laboratory		
…		
Emergency Animal Disease Watch Hotline		1800 675 888

C. Notifications and Responsibilities

Allocate responsibilities to relevant personnel.

The following practices must be immediately implemented when this plan is triggered.

Action	Responsibility	Completed/Date
1. Contact the relevant authority through the *District Veterinary Officer, Aquatic Animal Health Officer, the Emergency Animal Disease Watch Hotline or the "Fishwatch Hotline" (amend to reflect the reporting pathway for the state or territory in which your farm is located)*	*Insert name/position title of the person responsible for the action*	☐ __/__/____

2. Follow all instructions as directed by *the relevant authority.*		☐ __/__/____
3. Collect, package and submit samples for pathology as directed by *the relevant authority.*		☐ __/__/____
4. Do not dispatch any stock from the farm until authorised by *the relevant authority*.		☐ __/__/____
5. Isolate any suspected or known diseased stock.		☐ __/__/____
6. Cease all movements of stock between tanks and zones.		☐ __/__/____
7. Restrict farm access to visitors: • Secure the farm perimeter • Deny access of non-essential visitors • Postpone any routine repair/maintenance • Postpone any non-essential deliveries, including any stock		☐ __/__/____
8. Check for escapees.		☐ __/__/____
9. Check sentinel stock (if applicable).		☐ __/__/____
10. Personnel, equipment and machinery are not permitted to leave the farm until authorised by *the relevant authority.*		☐ __/__/____
11. Restrict staff access to farm production areas. Only essential stock management and husbandry procedures are to be carried out by authorised staff.		☐ __/__/____
12. Ensure all staff are made aware of the actions being taken and their individual responsibilities.		☐ __/__/____
13. Advise all customers/processors immediately affected.		☐ __/__/____
14. Compile a list of all movements over the preceding 2 weeks - including stock, personnel, equipment and machinery.		☐ __/__/____

15. Implement husbandry changes - reduce feeding, to reduce waste and uneaten food in tanks, and increase water flow.		☐ __/__/____
16. Arrange a dive inspection of nearby wild populations to check for signs of disease (as advised by *the relevant authority*).		☐ __/__/____

D. Sample Collection, Packaging and Dispatch

Samples are to be collected as advised by *the relevant authority.*

Document which staff members have been trained in sample collection and packaging.

1. Sample collection

The following guidelines are to be followed when submitting fresh samples:

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

2. Sample labelling

- All samples must be labelled with labels that will remain attached and legible.
- Unlabeled samples are unacceptable.
- Labels should include:
  - Farm descriptor e.g. name or license number
  - Contact details
  - Date
  - Descriptor - based on what has been requested (e.g. "abalone from affected tank")

3. Packaging samples

- Samples must be carefully packed 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 (e.g. a disposable poly box or foam esky) together with sufficient paper or other absorbent material to soak up any leakage. Secure the lid.

4. Sample submission

- Samples must be submitted as soon as possible following collection.
- Submission details are:

Name of state or territory laboratory

Address samples are to be submitted to

Contact number of laboratory liaison or case manager

Name and contact number of courier - transport may be arranged directly through the relevant authority or laboratory (ensure these arrangements are clear in this plan)

E. Disposal and Quarantine Protocols

Insert disposal protocol information e.g. "In the event that this plan is triggered mortalities are double bagged and disposed of in a mortality pit that is immediately covered over. No dead stock are returned to the environment or accessible to scavengers."

Disposal options need consideration in this plan as to the volume of stock that may be required to be disposed of. See 'AQUAVETPLAN – Operational procedures manual – Disposal' www.agriculture.gov.au/SiteCollectionDocuments/animal-plant/aquatic/aquavetplan/disposal-manual.pdf for further information.

Insert details of quarantine protocols including isolation, disinfection etc. or reference a farm specific SOP on the subject of quarantine.

F. Key Response Plans

If Abalone Viral Ganglioneuritis (AVG) is identified the farm will follow the:

- Requirements of 'AQUAVETPLAN – Disease Strategy Manual – Abalone Viral Ganglioneuritis' www.agriculture.gov.au/Style%20Library/Images/DAFF/__data/assets/pdffile/0020/2403371/abalone-aquavetplan.pdf *(include the electronic and/or physical location on site).*
- *Insert any state or territory specific emergency response documents (including their electronic and/or physical location on site).*
- Directions from the *relevant authority*.

If Withering Syndrome (infection with *Xenohaliotis californiesnsis*) is identified, the farm will follow the:

- Requirements of 'AQUAVETPLAN – Disease Strategy Manual – Withering Syndrome of Abalone' www.agriculture.gov.au/SiteCollectionDocuments/animal-plant/aquatic/aquavetplan/withering-abalone.pdf *(include the electronic and/or physical location on site).*
- *Insert any state or territory specific emergency response documents (including their electronic and/or physical location on site).*
- Directions from the *relevant authority*.

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

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 so that any employee can carry out the task/tasks correctly each and every time they are performed.

A well written SOP also helps facilitate training as having complete instructions assists trainers to ensure that nothing is missed.

Key considerations when writing a SOP

- Ensure the SOP is concise but contains all the necessary information required 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

1. Title

For example *Disposal of Biological Waste SOP (DBW1.0)*

Consider assigning a code or number that can be used as a brief reference in your farm biosecurity plan and other documents.

2. Purpose

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

For example: *This procedure aims to ensure biological waste, including abalone mortalities, are disposed of properly to ensure the risk of disease spread from the farm is minimised.*

Additional (non-biosecurity) reasons for having this procedure may exist and should be included where applicable - for example work health and safety or environmental protection requirements.

3. Responsibilities

List staff member/s and what they are required to do in accordance with the SOP.

For example:

Staff Member/s	Responsibility
All	*Understand and follow this procedure. Report any breach of this procedure to their supervisor or the farm manager immediately.*
Administration Officer	*Ensure replacement mortality bags are ordered when advised.*
Farm Manager	*Ensure this SOP is followed.* *Maintain and update this SOP.*

4. Definitions

Include definitions of any technical terms or acronyms used. This section may be omitted if not required.

5. Procedure

List the activities and tasks that make up this procedure and any checklists to be utilised. For example:

1. *Check tanks daily for mortalities.*
2. *Record any mortalities on the 'Daily Checklist'.*
3. *Immediately report any mortalities over x% to the farm manager. Do not remove mortalities until advised to do so by the farm manager in this instance as further observation and samples may be required.*
4. *Remove mortalities from tanks at the end of each day moving from lower to higher risk zones (e.g. grow out then nursery).*
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 into the mortality pit.*
8. *Do not return to any production area following disposal of mortalities.*
9. *Advise the Administration Officer when 'x' bags remain so more can be ordered.*

6. Document Control

Include document control information to ensure the SOP remains relevant and appropriately updated.

Document Control			
Version	*e.g. 1.0*	Approved by	*Name* *Position*
Status	*e.g. Approved, Draft*	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
12	R1, R2	Does the farm have a secure perimeter and can access be closed off to prevent vehicle entry when required?				
12	R3	Are access gates closed and locked during non-business hours?				
12	R4	Is there adequate signage to inform visitors of the Biosecure area and what action they should take upon arrival?				
13	R5	Do clear biosecurity zones exist on farm and are they supported by zone specific procedures?				
13	R6	Are staff familiar with the farms biosecurity zones and associated requirements?				
21	R46 to R48	Is water intake, discharge and flow throughout the farm suitable to ensure disease entry and spread is minimised?				
17	R16	Are escapees appropriately prevented?				
21	R51	Can evidence be provided to demonstrate water treatment/filtration is appropriately maintained?				
20, 21	R41, R44, R52	Can evidence be provided that farm infrastructure and equipment is appropriately maintained and cleaned? Is potable water available for cleaning?				
19, 20	R37 to R40	Is equipment used on the farm dedicated to a zone (or species) and clearly labelled as such?				

19, 29	R36, R45	Is any equipment brought onto the farm assessed for risk and treated (cleaned and/or disinfected) appropriately?				
20	R42, R43	Does the farm have dedicated areas for visitor parking and delivery/loading?				

Page ref.	Associated Req.	PERSONNEL STANDARDS	Yes	No	N/A	Corrective Action/Comments
18	R22, R24 to R27	Is there a signed *Pre-Employment Biosecurity Declaration* for each employee which specifies farm and role biosecurity requirements?				
18	R23	Are hand sanitisation stations and footbaths (or separate boots) available, and used, at production area entrance/exit and where required between biosecurity zones?				
19	R31	Is there a *Visitors' Log* and are all visitors required to complete this upon arrival?				
18	R28	Is there a signed *Visitor Biosecurity Declaration* for each visitor recorded in the Visitor Log?				
19	R32	Are the *Farm Entry Conditions for Visitors* prominently displayed near the *Visitors Log*?				
18, 19	R29, R30, R33 to R35	Are there appropriate (and documented) procedures in place to manage the risks posed by visitors to the farm?				
22	R54	Does the farm have a specified Biosecurity Manager?				

Page ref.	Associated Req.	PRODUCTION PRACTICES	Yes	No	N/A	Corrective Action/Comments
16	R8, R9,	Are stock of different disease risk housed and managed separately?				
16	R7, R10	Is there an appropriate procedure in place for stock introduction and stock movement within and from the farm?				
16, 17	R11, R19	Is there an appropriate procedure in place for the disposal of dead stock?				
17	R15	Are appropriate procedures in place to optimise stock health?				
16, 17, 23	R12, R18, R58	Can evidence be provided to demonstrate stock health is monitored regularly and that any health problems encountered are investigated?				
17	R17, R20, R21	Is farm access by wildlife, vermin or domestic animals effectively prevented and controlled?				
21	R53	Are only manufactured or appropriately treated feeds used?				
16, 17, 25	R11, R14, R60 to R63	Are all applicable legislative and/or jurisdictional requirements known by the farm and adhered to? Provide evidence of required documentation.				

Page ref.	Associated Req.	DOCUMENTATION AND TRAINING	Yes	No	N/A	Corrective Action/Comments
16	R13	Are farm production staff appropriately trained in reporting disease and mortality?				
24	R59	Does the farm have an Emergency Response Plan?				

22	R55, R56	Are all staff aware of the location, content and their role and responsibilities associated with the farm Emergency Response Plan, farm biosecurity plan and associated documents (e.g. SOPs)?				
22	R56	Does a current *Training Record* exist for each employee?				
23	R57	Is there a system in place to record stock inventory and movements and can this be readily interrogated for tracing purposes?				
25, 26	R64, R65	Can evidence be provided, through revision and audit records, that the biosecurity plan is being critically reviewed and improved upon as appropriate?				
27	R66	Can all supporting documents associated with the farm biosecurity plan be readily identified and provided on request?				

Appendix 10. BIOSECURITY PLAN TEMPLATE

HOW TO USE THIS FARM BIOSECURITY TEMPLATE

This template can be used to create a farm biosecurity plan for your farm. The *National Biosecurity Plan Guidelines for the Australian Land Based Abalone Industry* *insert web link when known* should be used in conjunction with this template to provide further detail and rationale for what should be included.

Some very brief explanatory text has been included in *green italics* which can be **deleted** following completion of your plan.

The text in ***red italics*** should be **replaced** with details specific to your farm.

Available templates are shown in *blue italics* next to the template symbol. Templates can be found as appendix documents in the *National Biosecurity Plan Guidelines for the Australian Land Based Abalone Industry* and can be modified for your farm.

Delete information or risk management measures that do not apply to your farm.

Add additional information or risk management measures applicable to your farm.

Delete this section upon completion of your plan.

SECTION 1. ENTERPRISE INFORMATION

1.1 Production Details

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

Broodstock and/or stock source	• …
Species/product produced	• *Species* • *Size of product produced* • *Market* • ….

Site activities	*For example* • *Broodstock quarantine, conditioning and spawning* • *Nursery and grow out* • *Company administration* • *….*
Staff	• *Farm production staff (number) *consider further break down of staff per zone* • *Administration staff (number)* • *Senior management (number)* • *….*
Associated sites	• *….*

1.2 Key Contacts

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

Internal Contacts		
Name	Position	Contact Details
Name	*General Manager*	*Phone* *Mobile* *Email*
	Farm Manager	
	Administration Manager	
	Operations Manager	
	…	
External Contacts		
Name	*Aquatic Animal Health Officer*	*Phone* *Mobile* *Email*
	District Veterinary Officer	
	Consulting Veterinarian	
	Laboratory	
	Industry Representative	
	Courier	
	…	

SECTION 2. MAPS AND DIAGRAMS

Maps can be readily obtained from google maps www.google.com.au/maps. Satellite images help to demonstrate the farm location relative to major towns, roads and other infrastructure in the area.

Diagrams can be easily created within this document by inserting shapes of various colour and size.

Ensure maps are large, clear and legible.

Some maps or diagrams may be able to be combined depending on the size and/or complexity of the farm.

2.1 Farm Locality and Features

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

Farm location and access	• *Address, state, region of state* • *Closest town name, distance from closest town* • *GPS co-ordinates* • *Road/s from which the farm can be accessed*
Disease status of state/region	• *Known diseases or marine pests of concern (e.g. AVG) for the state (or region)*
Proximity to other aquaculture production	• *Marine based abalone farms* • *Other aquaculture leases* • *Processors*
Proximity to high risk sites	• *Wild abalone populations, ports etc.*
Other	• *Presence and type of wildlife, feral animals or vermin* • *Significant natural features* • *Boat ramps, marinas etc.*

Insert a small map of the wider state area with the farm location marked ★

Insert a larger farm locality map with applicable additional information marked. For example use symbols to mark relevant features:

★ *Farm*

★ *Processor*

★ *Wild abalone population*

etc.

2.2 Farm Maps and Schematic Diagrams

2.2.1 Farm Layout

Biosecurity Sign

Insert a farm layout map/diagram and include details relating to the following risk management measures. These can be displayed as part of the map/diagram or listed as additional information.

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

***R2.** The main entrance to production area/s can be closed to vehicle traffic if the Emergency Response Plan is activated.*

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

***R4.** Entry signage is clearly displayed, provides direction for visitors and includes company contact details.*

2.2.2 Production Areas and Biosecurity Zone Classifications

Insert a diagram of farm production areas and their associated biosecurity zone classifications. Details relating to the following risk management measures, applicable to your hatchery, can be displayed as part of the map/diagram or as additional information.

***R5.** The farm is divided into biosecurity zones with zone specific requirements relating to access, entry and exit procedures and dedicated equipment.*

***R6.** Biosecurity zone signage, consistent with biosecurity zone definitions and familiar to all personnel, is clearly displayed.*

Example farm biosecurity zones:

BIOSECURITY ZONE	ACCESS
Extreme (red)	• Highly restricted • Authorised personnel only • No entry to any other zones following access
High (amber)	• Limited access • Authorised personnel only
Moderate (yellow)	• Limited access • Authorised personnel only
Low (green)	• No access restrictions (staff or visitors)

Ensure further detailed information relating to your biosecurity zone classifications is captured in supporting SOPs e.g. 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

3.1 Animals

Objective: to minimise the risk of disease introduction and spread by stock and other animal movement.

Amend the risk management measures outlined in the following sections to reflect actual farm practices. Specific detail should be added and any measures not applicable should be deleted.

E.g. amend "Mortalities or unwanted stock are disposed of in an appropriate manner." to reflect the actual procedure "Mortalities are placed in plastic bags, sealed with tape and placed in a mortality pit. The pit is covered every 'x' weeks."

RISK CATEGORY	RISK MANAGEMENT MEASURES	SUPPORTING DOCUMENTATION
(A) Critical	 ***R7.*** *Health status information, and appropriate permits, are obtained for stock prior to farm entry. The health status of any introduced stock is equal to or better than that of stock already present. If this cannot be achieved stock are permanently quarantined.*  ***R8.*** *Introduced stock of unknown (e.g. wild) or lower health status are permanently quarantined. This includes isolation, in separate water from all other farm stock in separate production units/dedicated quarantine facilities with appropriate biosecurity measures.*  ***R9.*** *If multiple marine aquaculture species (e.g. oysters and abalone) are present on the farm they are housed separately with appropriate biosecurity measures and in water that is not shared across species.*	*Add titles or codes of any associated SOPs, checklists or record keeping templates in this column*

(B) High	 ***R10.*** *Stock are inspected on introduction and cleaned if required.*  ***R11.*** *Mortalities or unwanted stock are disposed of in an appropriate manner that is approved by the relevant jurisdictional authority. No dead or unwanted stock is returned to the environment or accessible to scavengers (e.g. birds).*  ***R12.*** *Health problems (suspected diseases) are investigated with assistance from aquatic animal health professionals.*  ***R13.*** *Staff responsible for management of abalone husbandry are trained in, and aware of, their role and responsibility in reporting signs of disease and high mortality.*  ***R14.*** *In accordance with jurisdictional requirements relevant authorities are informed of any significant, unexplained mortality event or suspected reportable disease immediately.*  ***R15.*** *Stock stress is kept to a minimum by ensuring appropriate water quality, hygiene, stocking density, nutrition and handling.*  ***R16.*** *Escapees are prevented.*  ***R17.*** *Birds are appropriately controlled or excluded from production areas.*	
(C) Moderate	 ***R18.*** *Abalone health, mortality and behavior inspections occur daily. This information is recorded.*  ***R19.*** *Mortalities are removed twice weekly (at a minimum).*	

(D) Low	***R20.*** *Domestic animals (e.g. cats and dogs) do not have access to production areas at any time.* ***R21.*** *Vermin baiting occurs as necessary (i.e. if live rodents, droppings or nests are observed).*	

3.2 People

Objective: to minimise the risk of disease introduction and spread by people movement.

3.2.1 Staff

RISK CATEGORY	RISK MANAGEMENT MEASURES	SUPPORTING DOCUMENTATION
(B) High	***R22.*** *Staff are not permitted to visit other aquaculture sites or seafood processors prior to farm entry (unless appropriate decontamination has occurred).*	*Add titles or codes of any associated SOPs, checklists or record keeping templates in this column* *Pre-Employment Biosecurity Declaration*
(D) Low	***R23.*** *Footbaths (or the ability to change into zone specific boots) and hand sanitation stations are located at the farm entrance/exit and between biosecurity zones so as to provide for effective disinfection at all times.*	

	R24. Boots worn in production areas must not be worn or taken outside the specific production area to which they are designated. *R25. Staff must attend work in laundered, clean clothes each day.* *R26. Only designated staff are permitted to routinely enter farm quarantine areas.* *R27. Work flow is unidirectional (from low to high risk zones) when multiple zones are required to be accessed during a day. An appropriate procedure exists for when this is not possible.*	

3.2.2 Visitors - Contractors, Suppliers and Other Service Personnel, Family and Neighbours

RISK CATEGORY	RISK MANAGEMENT MEASURES	SUPPORTING DOCUMENTATION
(B) High	*R28. All visitors must complete a biosecurity declaration upon arrival to ensure their risk to farm biosecurity has been assessed. Refusal of entry should be considered for high risk visitors.*	*Add titles or codes of any associated SOPs, checklists or record keeping templates in this column* *Visitor Biosecurity Declaration*
(C) Moderate	*R29. Movement of people onto and through the farm is limited, in particular visitor access to quarantine zones is restricted.*	

	R30. Appropriate disinfection of all visitors occurs on production area entry and exit via footbaths (or the ability to change into zone specific boots) and hand sanitation stations.	
(D) Low	*R31. Visitors must sign-in on arrival (by completing the farm visitor log) and undergo a farm biosecurity induction.* *R32. Farm entry requirements are clearly displayed to visitors at the sign-in point.* *R33. Routine maintenance work required within quarantine area/s, where possible, is conducted by contractors between batches and prior to final disinfection.* *R34. All visitors must be approved by the farm manager and visits must be unidirectional from lowest to highest risk areas.* *R35. Visitors are accompanied at all times when on site.*	*Visitor Log* *Entry Conditions for Visitors*

3.3 Equipment, Vehicles and Vessels

Objective: to minimise the risk of disease introduction and spread by equipment, vehicle or vessel movement.

RISK CATEGORY	RISK MANAGEMENT MEASURES	SUPPORTING DOCUMENTATION

(B) High	*R36. Equipment, vehicles or vessels that have been in contact with off-site abalone or water used to hold or process off-site abalone are not permitted to enter the farm. In exceptional circumstances facilities are available to appropriately clean and disinfect such equipment, vehicles or vessels, or those of unknown origin or status, prior to use.*	*Add titles or codes of any associated SOPs, checklists or record keeping templates in this column*
(C) Moderate	*R37. Specific equipment, labelled clearly as such, is used per zone.* *R38. No equipment is removed from its dedicated zone and used elsewhere on the farm.* *R39. If multiple aquatic marine species (e.g. oysters and abalone) are kept on the farm equipment must be species specific and not shared.* *R40. If movement of equipment between zones or species is required (e.g. an expensive item) appropriate cleaning and disinfection* occurs.* *R41. Equipment is properly maintained and appropriately decontaminated* as required. Maintenance records are kept and maintained up to date.*	
(D) Low	*R42. Visitor vehicles must be parked in a dedicated parking area.* *R43. The farm has a dedicated delivery and loading area.* *R44. All farm areas are regularly cleaned and kept free of rubbish and clutter.* *R45. Contractor tools are cleaned before entry and free of dust/organic matter.*	

3.4 Water, Waste and Feed

Objective: to minimise the risk of disease introduction and spread by water, waste and feed.

RISK CATEGORY	RISK MANAGEMENT MEASURES	SUPPORTING DOCUMENTATION
(A) Critical	 ***R46.*** *Incoming water is appropriately treated (e.g. screens on intake pipes, filtration etc.) where appropriate to minimise the risk of disease/pest entry.*  ***R47.*** *Discharge water from dedicated quarantine facilities is appropriately treated to minimise the risk of disease/pest establishment in the marine environment.*	*Add titles or codes of any associated SOPs, checklists or record keeping templates in this column*
(B) High	 ***R48.*** *Water intake and outflow avoids cross contamination.*  ***R49.*** *Water flow within the farm minimises disease spread between biosecurity zones.*  ***R50.*** *Other waste is disposed of in an appropriate manner (e.g. used water filters, fouling, faeces etc.).*	
(D) Low	 ***R51.*** *Regular servicing and maintenance of filtration equipment occurs and is recorded.*  ***R52.*** *Potable water is available for cleaning and disinfection procedures.*  ***R53.*** *Only manufactured or appropriately treated feeds are used.*	

SECTION 4. ADDITIONAL SUPPORTING MEASURES

Objective: to ensure all farm staff understand they share the responsibility of maintaining farm biosecurity and must practice good biosecurity in all the work they do.

4.1 Training

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

Training Record Template

***R54**. The farm has a Biosecurity Manager who is responsible for the creation, maintenance and review of the farm biosecurity plan, associated documents and activities including staff training.*

***R55**. The farm biosecurity plan and all associated documents are readily accessible to staff at all times.*

***R56.** All staff are provided with a farm biosecurity induction and ongoing biosecurity training relevant to their role. This training must be documented and encompass:*

- *The Farm Biosecurity Plan*
- *The Emergency Response Plan*
- *SOPs, associated documents including checklists and work practices that support these plans*

Site Biosecurity Manager	
Name	*Phone* *Mobile* *Email*
The site biosecurity manager has responsibility for….	

4.2 Record Keeping

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

4.2.1 Stock Movements

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

R57. *Detailed stock records, regarding stock movements and inventory, are maintained and readily accessible.*

4.2.2 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.

R58. *Detailed stock health, mortality and water quality records are maintained and readily accessible.*

Section 5. EMERGENCY PROCEDURES

Objective: to ensure emergency procedures are developed and additional biosecurity measures identified for implementation in the event of a suspected Emergency Animal Disease (EAD) or serious endemic disease either:

- On the farm; or,
- Due to an increased threat of a disease introduction if an outbreak is suspected in the state or region.

Emergency Response Plan Template

Reference the site Emergency Response Plan (ERP) here, ensure it is clear as to where this document can be found (electronic and physical location).

Outline the trigger as to when the ERP is to be enacted e.g. a specific mortality rate, abnormal stock behaviour etc.

R59. *The farm has an Emergency Response Plan.*

Section 6. LEGISLATIVE AND JURISDICTIONAL REGULATORY REQUIREMENTS

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

R60. *Applicable import requirements are adhered to, and translocation permits obtained, for all stock and equipment movement.*

R61. *Batch testing or surveillance requirements are undertaken in adherence with jurisdictional regulations or in accordance with the AHAP.*

R62. *Only commercially farmed species are kept on site in accordance with license conditions.*

R63. *Any veterinary medicines provided to stock occurs in accordance with relevant state and commonwealth legislation (including the commonwealth regulator APVMA).*

Section 7. DOCUMENT CONTROL AND REVISION RECORD

Document Control			
Version	*e.g. 1.0*	Approved by	*Name* *Position*
Status	*e.g. Approved, Draft*	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" etc.*
…	…	…

R64. *The farm biosecurity plan is regularly reviewed (annually at a minimum).*

Section 8. AUDIT RECORD

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" but rather provide details or reference to a full audit report*	*Date of next audit*
…	…	…	…	…

R65. *Regular auditing of the farm biosecurity plan occurs (annually at a minimum) to ensure it is being implemented effectively and improved upon 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*
Farm visitors	*Visitor biosecurity declaration*
Stock arrivals, movement and dispatch	*Visitor log*
Escapee prevention, inspection and collection	*Farm entry requirements for visitors*
Collection and disposal of mortalities and other waste	*Staff training record*
Disinfection	…
Farm biosecurity zones	
Emergency Response Plan	
…	

R66. *Supporting documents (e.g. SOPs, checklists and templates) associated with the farm biosecurity plan are clearly identified and readily available.*

Appendix 6. National Biosecurity Plan Guidelines for Australian Oyster Hatcheries

National Biosecurity Plan Guidelines for Australian Oyster Hatcheries

FRDC Project 2016-245

2017

Contents

INTRODUCTION

These guidelines have been developed to assist Australian oyster hatcheries with the tools and templates to create basic through to comprehensive, and fully auditable, farm biosecurity plans.

These guidelines are part of the FRDC project "Development of sector-specific biosecurity plan templates and guidance documents for the abalone and oyster aquaculture industries (project number: 2016-245)" and have been developed:

- In accordance with the national "Aquaculture Farm Biosecurity Plan: generic guidelines and template" (www.agriculture.gov.au/fisheries/aquaculture/farm-biosecurity-plan); and,
- Based on input from a government/industry workshop held on 27th October 2016.

Essentially, biosecurity is a set of measures that help to prevent or reduce the risk of:

- Disease introduction into your hatchery;
- Disease spread within your hatchery; and,
- Disease spread from your hatchery to the aquatic environment or to other aquatic enterprises.

Most recently Pacific Oyster Mortality Syndrome (POMS) has highlighted the essential need for enhanced hatchery biosecurity. It is important to appreciate however that biosecurity planning is not disease specific. Worldwide, there is increasing risk of significant known and unknown aquatic animal diseases and pests 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 assists in maintaining trade and market access. A significant return on investment can be realised particularly by those measures aimed at preventing disease entering your hatchery in the first place.

Preventing disease not only protects your business, but also 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 the successful implementation and operation of farm biosecurity.

Staff must understand that by preventing disease introduction, or minimising disease spread, their jobs, and ultimately the industry, will be protected.

HOW TO USE THESE BIOSECURITY PLANNING GUIDELINES

These guidelines have been developed to assist hatcheries to either:

- Develop a farm biosecurity plan – for those with no current plan in place; or,
- Strengthen an existing farm biosecurity plan.

When creating a farm biosecurity plan there is no need to duplicate existing documents, systems or records however, where appropriate, reference to these should be made within your plan.

These guidelines identify the major routes of disease transmission to incorporate into your farm biosecurity plan, including disease entry, spread within and spread from your hatchery. The guidelines assist in assessing:

- Risks associated with each route of disease transmission;
- On-farm measures to minimise the risk of disease transmission; and
- Supporting documentation needs such as Standard Operating Procedures (SOPs) for a comprehensive plan.

Risks common to oyster hatcheries have been identified in these guidelines however you should consider any additional risks specific to your hatchery, and associated risk management measures, that may be required.

It is acknowledged that each hatchery will have a different spectrum of biosecurity challenges and operating environments due to the variation between factors such as:

- Operation size;
- Location and layout of the hatchery;
- Disease status of the region or state/territory;
- Proximity to other oyster populations, aquaculture sites or seafood enterprises (e.g. processors);
- Number and type of species farmed; and,
- Available resources.

Individual farm biosecurity plans need to be developed taking your hatcheries uniqueness into account. This ensures that the plan is practical for your operation and is as simple and as low cost as possible to achieve desired biosecurity outcomes.

Supporting documentation, including templates and example SOPs, have been provided as appendices to assist you in the development of your plan. Some documents (e.g. hatchery specific SOPs) will need to be written by you for your hatchery. A guideline document on how to write a SOP has been included as Appendix 8 to assist in this process.

Once you have navigated through these guidelines, and individual hatchery risks have been assessed, a farm biosecurity plan can be created. An electronic Biosecurity Plan Editable Template has been created for this purpose should you wish to utilise it (Appendix 10).

A self-audit checklist (Appendix 9) has also been included for you to assess your completed plan. This checklist may be used to highlight any remaining gaps.

Symbols used in these guidelines:

Supporting details and other information to include in your farm biosecurity plan.

Risk management measures to implement and document. These measures are auditable.

Templates provided to assist in the development of individual farm biosecurity plans.

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

OYSTER DISEASES OF SIGNIFICANCE

There are currently 11 diseases listed as National Reportable Diseases for oysters:

Disease	Pathogen Type	Presence in Australia
Ostreid herpes virus 1 microvariant (OsHV-1 µvar)	Viral	Endemic (in Australia)
Iridovirosis	Viral	Exotic (not in Australia)
Bonamia exitiosa	Parasitic	Endemic (in Australia)
Bonamia ostreae	Parasitic	Exotic (not in Australia)
Bonamia spp.	Parasitic	Status to be clarified
Marteilia refringens	Parasitic	Exotic (not in Australia)
Marteilia sydneyi	Parasitic	Endemic (in Australia)
Marteiliodes chungmuensis	Parasitic	Exotic (not in Australia)
Mikrocytos mackini	Parasitic	Exotic (not in Australia)
Perkinsus marinus	Parasitic	Exotic (not in Australia)
Perkinsus olseni	Parasitic	Endemic (in Australia)

Table 1. National Reportable Diseases of Oysters

The full and current list of National Reportable Diseases of Aquatic Animals can be accessed at www.agriculture.gov.au/animal/aquatic/reporting/reportable-diseases.

These diseases are a threat to hatchery production and to market access and trade.

Under individual state and territory legislation these, plus any additional diseases specific to the jurisdiction, must be immediately reported to the relevant authority if suspected or detected. These diseases are commonly referred to as Notifiable Diseases by states and territories and lists of these are available on relevant jurisdiction websites.

The diseases, shown in table 1, includes more than one pathogen type (viral and parasitic). It is important that biosecurity planning considers these different disease agents, and how they are spread, when determining risk management measures such as appropriate decontamination.

Key Reportable Oyster Disease resources include:

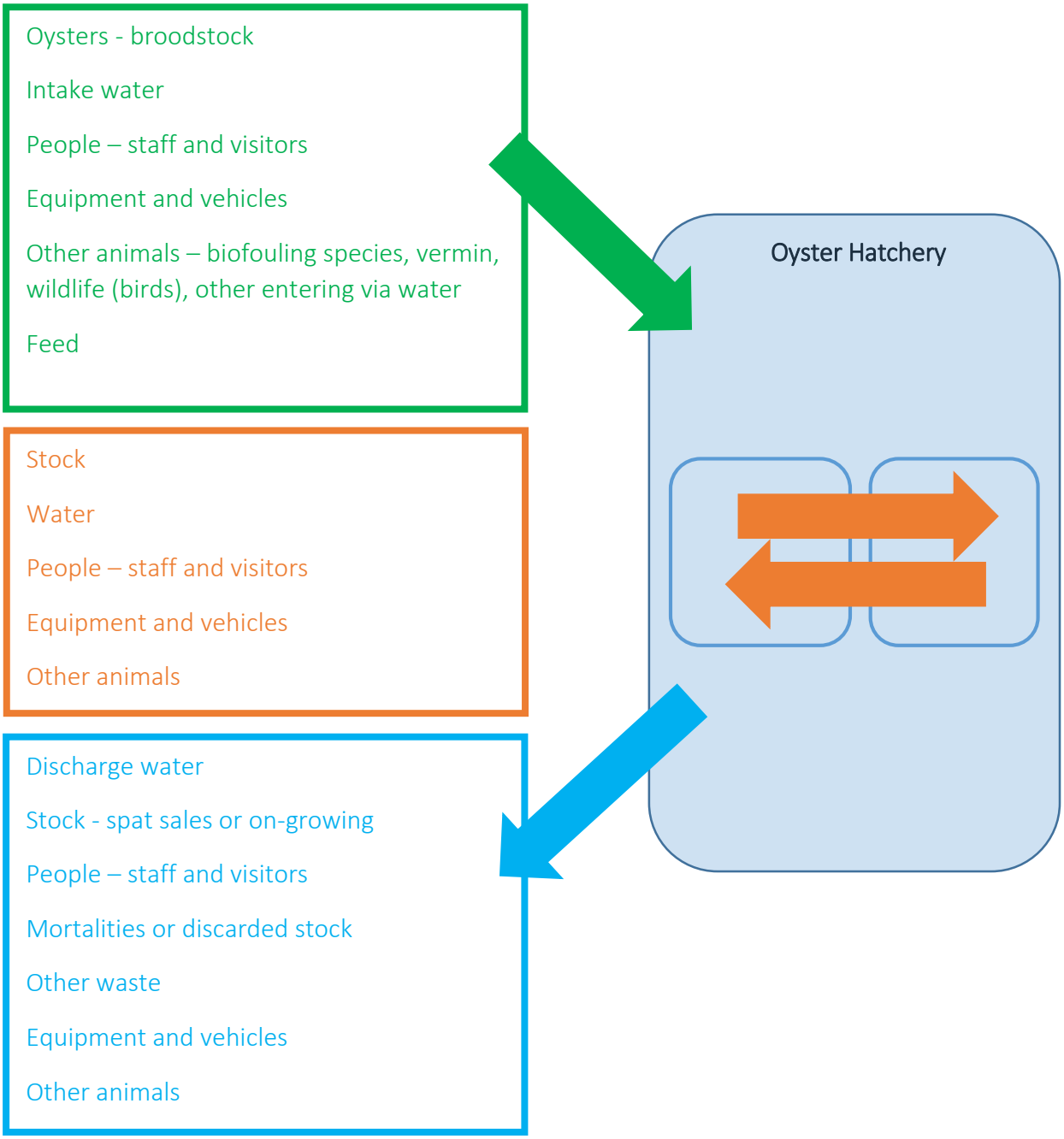
1. Aquatic Animal Diseases Significant to Australia: Identification Field Guide 4th Edition available at www.agriculture.gov.au/animal/aquatic/guidelines-and-resources/aquatic_animal_diseases_significant_to_australia_identification_field_guide. This guide is also available as a free App that can be downloaded from the App Store (Apple devices), Google Play (Android devices) and Microsoft Store (Windows devices). It is recommended that you and your staff have this installed on your mobile phones.

2. AQUAVETPLAN Disease Strategy Manuals available at www.agriculture.gov.au/animal/aquatic/aquavetplan.
   A manual exists for Pacific Oyster Mortality Syndrome (Ostreid herpes virus 1 microvariant).
3. OIE Disease Chapters – Diseases of Molluscs www.oie.int/international-standard-setting/aquatic-manual/access-online/.

In addition to known diseases of significance, or those listed as reportable, there are potentially 'other' diseases (e.g. emerging or unknown diseases) that may be a future risk to production. Good farm biosecurity should be aimed at preventing entry and spread of both known and unknown disease. An excellent resource available for emerging issues and latest research is the Fisheries Research and Development Corporation (FRDC) website www.frdc.com.au.

MAJOR ROUTES FOR DISEASE TRANSMISSION

The following schematic outlines the major routes identified for disease transmission onto (green), within (orange) and from (blue) oyster hatcheries.



Pathways that have the potential to place high levels of infection in close contact with susceptible hosts are the most likely to result in disease establishment and spread.

For oyster hatcheries the highest risk pathways are:

1. Broodstock;
2. Water; and,
3. Movement of equipment and people.

These pathways should be addressed as a priority.

BIOSECURITY PLAN – Suggested Layout and Inclusions

The following section outlines the suggested layout and inclusions considered essential for the development of a comprehensive yet concise biosecurity plan.

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

Section 1. ENTERPRISE INFORMATION

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

1.1 Production Details

Summarise detail of all relevant elements of hatchery production.

Relevant details include:

- Broodstock source/s
- Product produced - 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

1.2 Key Contacts

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

Relevant contacts include:

- Company, site and specific area managers
- Consulting veterinarians/oyster health professionals
- Government aquatic animal health contacts
- Laboratories used
- Other industry representatives e.g. bay representatives

Section 2. MAPS AND DIAGRAMS

Hatchery design and availability of infrastructure will determine how biosecurity can be managed and should be included in this section of the plan.

2.1 Hatchery Locality and Features

Provide a locality map and associated site information.

Specific disease transmission risks, based on hatchery location, need to be assessed and documented.

Relevant locality details include:

- Disease status of state, region and bay for known diseases or marine pests of concern (e.g. POMS).
- Proximity to other aquaculture production in the bay or region (e.g. oysters or other aquaculture leases).
- Proximity to potential high risk sites (e.g. ports, processors or wild oyster populations).
- Presence and type of wildlife, feral animals or vermin.
- Nearby roads, towns, boat ramps, marinas etc.

2.2 Property Maps and Schematic Diagrams

It is likely that more than one property map will be required within your farm biosecurity plan to cover different levels of detail.

Maps and diagrams should encompass the following information.

2.2.1 Hatchery Layout

Provide a hatchery layout map and associated access information.

A **Biosecurity Sign** has been provided as Appendix 1.

Relevant details include:

- Perimeter fence
- Site entry/exit points and gates (and if gates are lockable)
- Access/biosecurity sign location/s
- Access road/s
- Car park/s
- Reception points for hatchery visitors
- Sheds/storage areas, tanks and other infrastructure
- Algae production areas
- Sedimentation ponds
- 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. *The main production area entrance can be closed to vehicle traffic in the event that the Emergency Response Plan is activated.*

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

R4. *Entry signage is clearly displayed, provides direction for visitors and includes company contact details.*

2.2.2 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 and/or zones e.g. disinfection/sanitisation points, boot change areas etc.
- The class of stock within each production area/zone (e.g. broodstock, larvae or spat etc.).
- Typical stock and staff/visitor movements including those between hatchery production areas/zones and between sites (if applicable).

Ensure biosecurity zones shown in diagrams, and used in your farm biosecurity plan, are described in detail within supporting SOPs.

Summary of example farm biosecurity zones:

BIOSECURITY ZONE	ACCESS
Extreme (red)	• Highly restricted. • Authorised personnel only. • No entry to any other zone following access.
High (amber)	• Limited access. • Authorised personnel only.
Moderate (yellow)	• Limited access. • Authorised personnel only.
Low (green)	• No access restrictions (staff or visitors).

R5. *The hatchery is divided into biosecurity zones with zone specific requirements relating to access, entry and exit procedures and dedicated equipment.*

R6. *Biosecurity zone signage, consistent with biosecurity zone definitions and familiar to all personnel, is clearly displayed.*

Section 3. ROUTINE MEASURES TO ADDRESS MAJOR DISEASE TRANSMISSION ROUTES

This section outlines routine risk management measures aimed at addressing major disease transmission routes identified as common to oyster hatcheries (as per page 7). These routine measures are those implemented and followed as part of normal daily hatchery operations.

For each of these routine measures a risk category has been assigned. These categories have been included to assist in highlighting those measures that should be prioritised to provide the highest degree of assurance that disease will not be introduced or spread.

The risk rating categories are:

Category A	Failure to implement risk management measures may result in a **critical risk** of disease transfer.
Category B	Failure to implement risk management measures may result in a **high risk** of disease transfer.
Category C	Failure to implement risk management measures may result in a **moderate risk** of disease transfer.
Category D	Failure to implement risk management measures may result in a **low risk** of disease transfer.

Additional Farm Specific Risks - not covered by these guidelines

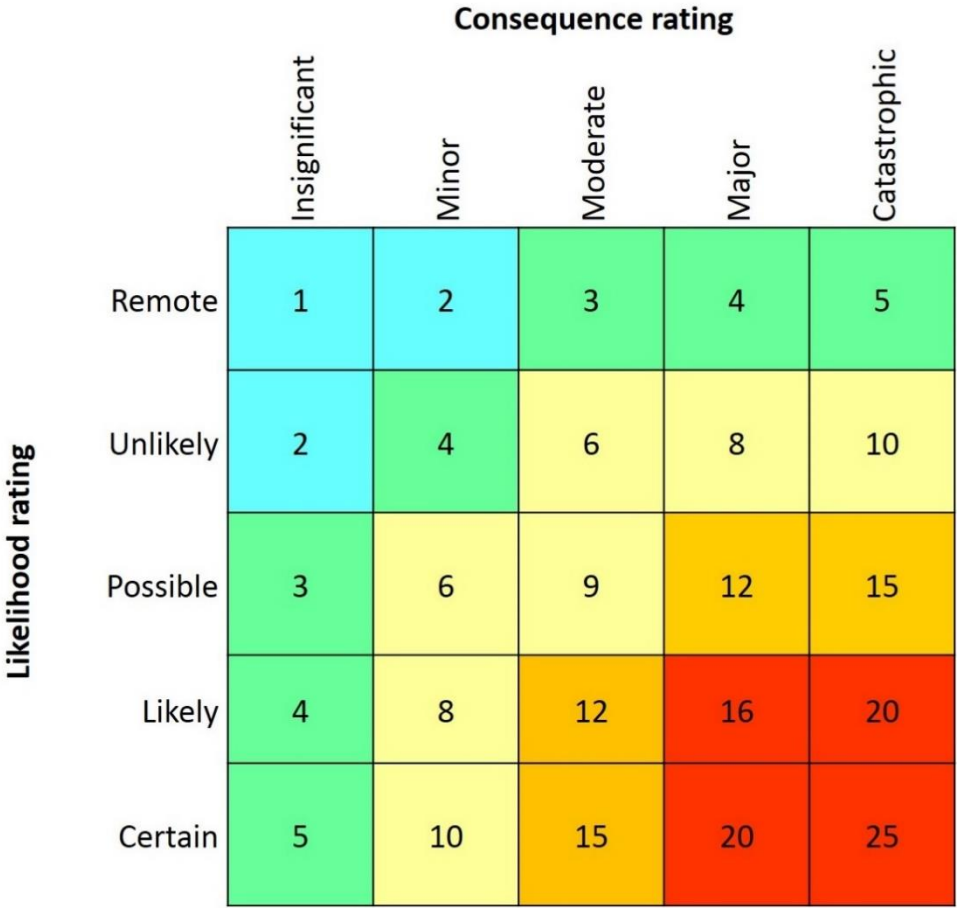
When developing your farm biosecurity plan **any additional risks associated with your specific hatchery, not covered in these guidelines**, should be assessed and risk management measures implemented as appropriate. Details of this process are outlined below.

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 to consider the level of risk a hazard presents by:

- Estimating the likelihood of disease entering the hatchery by this route; and,
- Determining the consequence of disease entry by this route.

The level of risk posed is disease dependent however as your farm biosecurity plan is not targeted at a specific disease it is best practice to consider the worst case scenario i.e. an exotic or other emergency (or significant) oyster disease such as POMS.



Risk level	Explanation and management response
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 1. Risk estimation matrix and assessment of disease consequences

Upon evaluating risks, those deemed to be medium, high or extreme are considered unacceptable and require the implementation of management measures. Risks identified as low should be monitored to ensure the risk profile does not change over time.

Detailed information on performing a risk assessment can be found in part 3 (pages 25 to 28) of the "Aquaculture Farm Biosecurity Plan - generic guidelines and template" (www.agriculture.gov.au/fisheries/aquaculture/farm-biosecurity-plan).

2. Identify appropriate risk management measures

Risks can be managed by a variety of measures including physical measures (e.g. infrastructure and equipment), procedural measures (e.g. production practices and training) or other supporting measures (e.g. signage).

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

3. Develop or identify associated supporting documentation

Risk management measures should be supported by appropriate documentation (SOPs, checklists, record keeping templates etc.) outlining detailed risk management measures.

For example your farm 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 further outlines, in detail, the type of disinfectant used, when it requires inspection and how regularly and by whom the disinfectant is to be changed. This detailed information is not required within the body of your farm biosecurity plan but rather referenced to where applicable. SOPs may be referenced by a document number, name or other relevant code.

SOPs should be accompanied by a date stamped checklist wherever possible to provide evidence that the procedure/s outlined in the SOP are being followed by an accountable staff member. Checklists can be readily monitored by supervisors, managers and/or auditors.

3.1 Animals

Objective: to minimise the risk of disease introduction and spread by stock and other animal movement.

Broodstock entering a hatchery present the most significant risk of bringing disease into the hatchery, particularly if the health status of the broodstock is unknown.

Introductions and movements should be managed carefully to minimise this risks of introducing and spreading disease.

RISK CATEGORY	RISK MANAGEMENT MEASURES
(A) Critical	 ***R7.*** *Health status information, and appropriate permits, are obtained for broodstock prior to hatchery entry. The health status of any introduced stock is equal to or better than that of stock already present. If this cannot be achieved stock are permanently quarantined.*  ***R8.*** *Broodstock are kept in isolation, in separate water from all other farm stock in separate production units/dedicated quarantine facilities with appropriate biosecurity measures.*  ***R9.*** *If multiple marine aquaculture species (e.g. oysters and abalone) are present on site they are housed separately with appropriate biosecurity measures and in water that is not shared across species.*
(B) High	 ***R10.*** *Broodstock are inspected on introduction and cleaned if required.*  ***R11.*** *Mortalities or unwanted stock are disposed of in an appropriate manner* that is approved by the relevant jurisdictional authority. No dead or unwanted stock is returned to the environment or accessible to scavengers (e.g. birds).*  ***R12.*** *Health problems (suspected diseases) are investigated with assistance from aquatic animal health professionals.*  ***R13.*** *Staff responsible for management of oyster husbandry are trained in, and aware of, their role and responsibility in reporting signs of disease and high mortality.*

	 ***R14.*** *In accordance with jurisdictional requirements relevant authorities are informed of any significant, unexplained mortality event or suspected reportable disease immediately.*  ***R15.*** *Stock stress is kept to a minimum by ensuring appropriate water quality, hygiene, stocking density, nutrition and handling.*
(C) Moderate	 ***R16.*** *Oyster health, mortality and behavior inspections occur daily. This information is recorded.*  ***R17.*** *Mortalities are removed daily.*
(D) Low	 ***R18.*** *Domestic animals (e.g. cats and dogs) do not have access to production areas at any time.*  ***R19.*** *Vermin baiting occurs as necessary (i.e. if live rodents, droppings or nests are observed).*  ***R20.*** *All building entrances are kept closed when not in use to prevent access of vermin and/or wildlife.*

3.2 People

Objective: to minimise the risk of disease introduction and spread by people movement.

This risk of disease introduction by people is greatest if other farms, or environments potentially containing diseases of concern, have been recently visited.

Contaminated skin, clothing and footwear can all potentially spread disease.

3.2.1 Staff

A **Pre-Employment Biosecurity Declaration** has been provided as Appendix 2.

RISK CATEGORY	RISK MANAGEMENT MEASURES
(B) High	 ***R21.*** *Staff are not permitted to visit other aquaculture sites or seafood processors prior to hatchery entry (unless appropriate decontamination has occurred).*

(D) Low	*R22. Footbaths (or ability to change into zone specific boots) and hand sanitation stations are located at the hatchery entrance/exit and between biosecurity zones so as to provide for effective disinfection at all times.* *R23. Boots worn in production areas must not be worn or taken outside the specific production area to which they are designated.* *R24. Staff must attend work in laundered, clean clothes each day.* *R25. Only designated staff are permitted to routinely enter farm quarantine areas.* *R26. Work flow is unidirectional (from low to high risk zones) when multiple zones are required to be worked in during a day. An appropriate procedure exists for when this is not possible.*

3.2.2 Visitors - Contractors, Suppliers and Other Service Personnel, Family and Neighbours

A **Visitor Biosecurity Declaration** template has been provided as Appendix 3.

A **Visitor Log** template has been provided as Appendix 4.

Suggested **Hatchery Entry Conditions for Visitors** have been provided as Appendix 5.

RISK CATEGORY	RISK MANAGEMENT MEASURES
(A) High	*R27. All visitors must complete a biosecurity declaration upon arrival to ensure their risk to hatchery biosecurity has been assessed. Refusal of entry should be considered for high risk visitors.*
(C) Moderate	*R28. Movement of people onto and through the hatchery is limited, in particular visitor access to quarantine zones is restricted.* *R29. Appropriate disinfection of all visitors occurs prior to production area entry and exit via footbaths (or the ability to change into zone specific boots) and hand sanitisation stations.*

(D) Low	 ***R30.*** *Visitors must sign-in on arrival (by completing the hatchery visitor log) and undergo a hatchery biosecurity induction.*  ***R31.*** *Hatchery entry requirements are clearly displayed to visitors at the sign-in point.*  ***R32.*** *Routine maintenance work required, where possible, is conducted by contractors between batches and prior to final disinfection.*  ***R33.*** *All visitors must be approved by the site manager and visits must be unidirectional from lowest to highest risk areas.*  ***R34.*** *Visitors are accompanied at all times when on site.*  ***R35.*** *The hatchery uses approved contractors for routine services.*

3.3 Equipment, Vehicles and Vessels

Objective: to minimise the risk of disease introduction and spread by equipment, vehicle or vessel movement.

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

Equipment, vehicles and vessels pose the greatest risk of disease transfer if used for off-site aquaculture purposes or in association with stock or broodstock, especially if diseases.

RISK CATEGORY	RISK MANAGEMENT MEASURES
(B) High	 ***R36.*** *Equipment, vehicles or vessels that have been in contact with off-site oysters or water used to hold off-site oysters are not permitted to enter the hatchery. In exceptional circumstances facilities are available to appropriately clean and disinfect* such equipment, vehicles or vessels, or those of unknown origin or status, prior to use.*
(C) Moderate	 ***R37.*** *Specific equipment, labelled clearly as such, is used per zone.*  ***R38.*** *No equipment is to be removed from its dedicated zone and used elsewhere in the hatchery.*  ***R39.*** *If multiple aquatic marine species (e.g. oysters and abalone) are kept on site equipment must be species specific and not shared.*

	 ***R40.*** *If movement of equipment between zones or species is required (e.g. an expensive item) appropriate cleaning and disinfection* occurs.*  ***R41.*** *Equipment is properly maintained and appropriately decontaminated* as required. Maintenance records are maintained and kept up to date.*
(D) Low	 ***R42.*** *Visitor vehicles must be parked in a dedicated parking area.*  ***R43.*** *The hatchery has a dedicated delivery and loading area.*  ***R44.*** *All hatchery areas are regularly cleaned and kept free of rubbish and clutter.*  ***R45.*** *Contractor tools are cleaned before entry and free of dust/organic matter.*  ***R46.*** *All equipment and surfaces are disinfected and dried out between runs.*

*appropriate cleaning and disinfection should be utilised when deemed necessary based on risk. This is outlined in the:

- NSW Department of Primary Industries primefact Pacific Oyster Mortality Syndrome Movement Protocol www.dpi.nsw.gov.au/__data/assets/pdf_file/0011/637679/POMS-oyster-equipment-movement-protocol-primefact-1287.pdf.
- APVMA permit to allow emergency use of sodium hypochlorite for decontamination in aquatic quarantine situations (permit number – PER14029) permits.apvma.gov.au/PER14029.PDF.
- APVMA permit to allow emergency use of a range of registered decontaminant products for use in decontamination and control of oyster pathogens (permit number – PER82160) permits.apvma.gov.au/PER82160.PDF.

Additionally biofouling management guidelines, for the purpose of minimising the spread of marine pest species, can be found at www.marinepests.gov.au/marine_pests/publications/Documents/Aquaculture_guidelines.pdf

3.4 Water, Waste and Feed

Objective: to minimise the risk of disease introduction and spread by water, waste and feed.

Hatchery water supply can pose a significant risk of disease transfer depending on the disease status of the source water. This is particularly important if host animals are present in the water source, or if the source is in close proximity to water discharge from other aquatic enterprises or processors.

RISK CATEGORY	RISK MANAGEMENT MEASURES
(A) Critical	 ***R47.*** *Incoming water is appropriately treated (e.g. screening, ageing, filtration, ultra-violet light, ozone etc.) where appropriate to minimise the risk of disease/pest entry.*  ***R48.*** *Discharge water from dedicated quarantine facilities is appropriately treated to minimise the risk of disease/pest establishment in the marine environment.*
(B) High	 ***R49.*** *Water intake and outflow avoids cross contamination.*  ***R50.*** *Screens are installed on discharge pipes.*  ***R51.*** *Other waste is disposed of in an appropriate manner (e.g. used water filters).*  ***R52.*** *High risk wastewater is directed down drains away from foot traffic.*  ***R53.*** *Water flow within the hatchery is designed to prevent disease spread between biosecurity zones.*  ***R54.*** *Contact with untreated water (e.g. inspection or maintenance of water treatment equipment) occurs at the end of the day.*  ***R55.*** *Regular servicing and maintenance of water treatment infrastructure occurs and is recorded.*  ***R56.*** *Water treatment is adequately monitored to ensure it remains effective.*

(D) Low	 ***R57.*** *Potable water is available for cleaning and disinfection procedures.*  ***R58.*** *Nutrient media and starter culture is sourced from a reputable supplier to ensure assurances for quality and content.*

SECTION 4. ADDITIONAL SUPPORTING MEASURES

4.1 Training

Objective: to ensure all hatchery staff understand they share the responsibility of maintaining hatchery biosecurity and must practice good biosecurity in all the work they do.

 A **Training Record Template** has been provided as Appendix 6.

It is essential that all staff are appropriately trained to ensure they understand both site and role specific biosecurity requirements.

An understanding of the major routes of disease transmission and signs of oyster ill-health by staff is crucial.

A training record ensures training is not overlooked and is refreshed both on a regular basis (annually at a minimum) and after any procedures or associated documents are updated.

Additional role specific training may also be recorded in the training record, for example the training of key staff on sample collection, packaging and submission.

 ***R59.*** *The hatchery has a Biosecurity Manager who is responsible for the creation, maintenance and review of the biosecurity plan, associated documents and activities including staff training.*

 ***R60.*** *The farm biosecurity plan and all associated documents are readily accessible to staff at all times.*

 ***R61.*** *All staff are provided with a hatchery biosecurity induction and ongoing biosecurity training relevant to their role. This training must be documented and encompass:*

- *The hatchery biosecurity plan*
- *The Emergency Response Plan*
- *SOPs, associated documents including checklists and work practices that support these plans*

4.2 Record Keeping

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

Good record keeping is necessary for farm biosecurity plan auditing and to provide demonstrable proof that biosecurity protocols are being followed.

In the event of a disease outbreak records are used to trace the potential source of disease, identify breakdowns in adherence to biosecurity protocols and aid in the review and improvement of hatchery practices and protocols.

The minimum information that should be recorded is outlined below.

4.2.1 Stock Movements

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

Suggested minimum details 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. *Detailed stock records, regarding stock movements and inventory, are maintained and readily accessible.*

4.2.2 Stock Health, Mortality and Water Quality Records

Health and performance records provide evidence that regular stock monitoring is occurring. Records, especially of mortalities, assist monitoring for unusual health problems.

Suggested minimum details include:

- Mortalities/failed batches (including the method of disposal and if any samples have been archived)
- Details of any poorly performing spat

- Water quality information
- Results of laboratory testing - associated with clinical disease or for the purpose of health certification or other surveillance.

R63. *Detailed stock health, mortality and water quality records are maintained and readily accessible.*

Section 5. EMERGENCY PROCEDURES

Objective: to ensure emergency procedures are developed and additional biosecurity measures identified for implementation in the event of a suspected Emergency Animal Disease (EAD) or serious endemic disease either:

- Within the hatchery; or,
- Due to an increased threat of a disease introduction if an outbreak is suspected in the state/territory or region.

An ***Emergency Response Plan Template*** has been provided as Appendix 7.

An Emergency Response Plan (ERP) is an essential document required for each site and must provide clear guidelines as to the:

- Specific trigger/s for an EAD alert (e.g. mortality rate, abnormal stock behavior etc.).
- Key emergency contacts.
- Notification pathways and responsibilities including jurisdictional notification.
- High biosecurity risk management measures that must be immediately implemented upon ERP activation. This includes stock movement and hatchery access restrictions (examples of these are included within the ERP template).
- Sample collection, storage and submission guidelines. A number of oysters may be specified for broodstock or a volume (e.g. 20ml container) for spat.
- Disposal and quarantine protocols.
- The physical location and/or web link of key response or other resource documents (e.g. AQUAVETPLAN, state jurisdiction disease response plan/s, site disease response plan/s etc.)

This plan must be in line with 'AQUAVETPLAN' www.agriculture.gov.au/animal/aquatic/aquavetplan and jurisdictional requirements.

Hatchery emergency plans should also include procedures to be followed 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 responsibilities, notification pathways and other procedures are clearly identified prior to such an event.

R64. *The hatchery has an Emergency Response Plan.*

Section 6. LEGISLATIVE OR JURISDICTIONAL REGULATORY REQUIREMENTS

Hatchery practices must comply with:

- Relevant agency and jurisdictional legislation (local, federal and state/territory); and,
- License conditions.

R65. *Applicable import requirements are adhered to, and translocation permits obtained, for all stock and equipment movement.*

R66. *Batch testing or surveillance requirements are undertaken in adherence with jurisdictional regulatory requirements.*

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

R68. *Any veterinary medicines provided to stock occurs in accordance with relevant state and commonwealth legislation (including the commonwealth regulator APVMA).*

Other regulatory requirements have been covered in previous sections including:

R11. *Mortalities or unwanted stock are disposed of in an appropriate manner that is approved by the relevant jurisdictional authority. No dead or unwanted stock is returned to the environment or accessible to scavengers (e.g. birds).*

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

Section 7. DOCUMENT CONTROL AND REVISION RECORD

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

This ensures evidence is provided to demonstrate that 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 farm practices;
- Newly available risk management tools or information; and/or
- Audit recommendations.

R69. *The farm biosecurity plan is regularly reviewed (annually at a minimum).*

Section 8. AUDIT RECORD

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

Include audits both:

- Internal and external
- Scheduled and completed

Key outcomes/audit recommendations should be noted for reference and demonstration that the plan is being critically reviewed.

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

R70. *Regular auditing of the farm biosecurity plan occurs (annually at a minimum) to ensure it is being implemented effectively and improved upon 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 supporting documents are readily identified and accessible for review and audit purposes. These need not be included in the body of your plan but rather maintained elsewhere (to ensure version control is preserved) or included as appendices.

The following documents are suggested supporting documents however multiple topics may be incorporated into the same SOP depending on your hatchery. SOP requirements are likely to be influenced by hatchery size, number of staff and scale of production.

Checklists are essential supporting documents and should be utilised in association with SOPs wherever possible. Checklists provide the evidence that procedures outlined in a SOP are being followed by an accountable staff member at correct intervals.

SUGGESTED STANDARD OPERATING PROCEDURES AND CHECKLISTS	RECORD KEEPING TEMPLATES / OTHER DOCUMENTS
1. New employee induction and training	1. Pre-employment biosecurity declaration
2. Hatchery visitors	2. Visitor biosecurity declaration
3. Stock arrivals, movement and dispatch	3. Visitor log
4. Collection and disposal of mortalities and other waste	4. Hatchery entry conditions for visitors
5. Disinfection	5. Staff training record

6. Farm biosecurity zones	
4. Emergency Response Plan	

R71. *Supporting documents (e.g. SOPs, checklists and templates) associated with the farm biosecurity plan are clearly identified and readily available.*

The ability of the oyster industry to withstand an outbreak of disease, and the cost of control, will be directly influenced by each individual hatchery's biosecurity plan, and its effective implementation and operation.

Appendix 1. BIOSECURITY SIGN

Corflute signs are available for purchase at 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 the 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 prior to hatchery entry unless I have had a full head to toe shower and changed into clean, laundered clothes and shoes.
2. Wear or take boots worn in a specific production area outside the production area to which they are designated.
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 ☐

Go to question 2

2. Have you:

Been in contact with any aquaculture or the aquatic environment in the previous 24 hours, this includes: • recreational fishing • seafood processors • water sports/activities	Yes ☐	No ☐
If yes, have you had a head to toe shower and changed into clean clothes and shoes?	Yes ☐	No ☐ Postpone a non-essential visit Or Risk to be assessed by the Farm Manager before hatchery access is permitted

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

Signature: ……

Date: ……

Appendix 4. VISITOR LOG

Date	Name	Company	Contact Number	Visitor Biosecurity Declaration Completed	Time In	Time Out

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 6. TRAINING RECORD

Employee Name: _____ Employee Position: _____

Minimum Training Requirements (for position): Site Biosecurity Plan_____

Emergency Response Plan_____

Role specific SOPs:_____

Other: _____

Date	Subject/Topic/Document	Trainer	I understand the training delivered and have read and understand the associated document/s (signature of employee)	Due date of refresher

Appendix 7. EMERGENCY RESPONSE PLAN TEMPLATE

This document outlines the actions and responsibilities that are to be undertaken in the event that an emergency animal disease is suspected in the hatchery.

A. Plan Trigger

Unusually high, unexplained mortality. *This needs to be defined for the individual hatchery e.g. specific mortality rate, abnormal stock behaviour etc.*

B. Important Contacts

	Name	Contact Number
Company/General Manager	*Name*	*Mobile* *Phone* *Email*
Hatchery Manager		
District Veterinary Officer		
Aquatic Animal Health Officer		
Consultant Veterinarian		
"Fishwatch Hotline" (or equivalent)		
Laboratory		
…		
Emergency Animal Disease Watch Hotline		1800 675 888

C. Notifications and Responsibilities

Allocate responsibilities to relevant personnel.

The following practices must be immediately implemented when this plan is triggered.

Action	Responsibility	Completed/Date
1. Contact the relevant authority through the *District Veterinary Officer, Aquatic Animal Health Officer, the Emergency Animal Disease Watch Hotline or the "Fishwatch Hotline" (amend to reflect the reporting pathway for the state in which your hatchery is located)*	*Insert name/position title of those responsible for the action*	☐ __/__/____

2. Follow all instructions as directed by *the relevant authority.*		☐ __/__/____
3. Collect, package and submit samples for pathology as directed by *the relevant authority.*		☐ __/__/____
4. Do not dispatch any spat from the hatchery until authorised by *the relevant authority*.		☐ __/__/____
5. Isolate any suspected diseased stock.		☐ __/__/____
6. Restrict hatchery site access to visitors: • Secure the hatchery perimeter • Deny access of non-essential visitors • Postpone any routine repair/maintenance • Postpone any non-essential deliveries, including any broodstock		☐ __/__/____
7. Personnel, equipment and machinery are not permitted to leave the hatchery until authorised by *the relevant authority*		☐ __/__/____
8. Restrict staff access to hatchery production areas. Only essential stock management and husbandry procedures should be carried out by authorised staff.		☐ __/__/____
9. Ensure all staff are made aware of the actions being taken and their individual responsibilities		☐ __/__/____
10. Advise all customers immediately affected by a potential delay in spat supply.		☐ __/__/____
11. Compile a list of all movements over the preceding 2 weeks – including stock, personnel, equipment and machinery.		☐ __/__/____

D. Sample Collection, Packaging and Dispatch

Samples are to be collected as advised by *the relevant authority.*

Document which staff members have been trained in sample collection and packaging.

1. Sample collection

The following guidelines are to be followed 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 (i.e. do not mix 'healthy' specimens with those from affected upwellers or tanks if asked to submit both).
- Keep refrigerated or on ice, ensure sufficient ice will keep samples cool throughout transport.

2. Sample labelling

- All samples must be labelled with labels that will remain attached and legible.
- Unlabeled samples are unacceptable.
- Include the following information:
  - Site
  - Contact details
  - Date
  - Descriptor - based on what has been requested (e.g. "spat from affected upweller")

3. Packaging samples

- Samples must be carefully packed 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 (e.g. a disposable poly box or foam esky) together with sufficient paper or absorbent material to soak up any leakage. Secure the lid.

4. Sample submission

- Samples must be submitted as soon as possible following collection and kept cool to prevent decomposition. Submission details are:

  Name of state laboratory

  Address samples are to be submitted to

  Contact number of laboratory liaison or case manager

  Name and contact number of courier - transport may be arranged directly through the relevant authority or laboratory (ensure these arrangements are clear in this plan)

E. Disposal and Quarantine Protocols

Insert disposal protocol information e.g. "In the event that this plan is triggered mortalities are double bagged and disposed of in a closed skip bin. No dead stock are returned to the environment or accessible to scavengers". Disposal options need consideration in this plan as to the volume of stock, based on hatchery size, which may be required to be disposed of. See AQUAVETPLAN – Operational procedures manual – Disposal www.*agriculture.gov.au/SiteCollectionDocuments/animal-plant/aquatic/aquavetplan/disposal-manual.pdf for further information.*

Insert details of quarantine protocols including isolation, disinfection etc. or reference a site specific SOP on the subject of quarantine.

F. Key Response Plans

If Ostreid herpesvirus-1 microvariant is identified, the hatchery will follow:

- Requirements of AQUAVETPLAN – Disease Strategy Manual – Ostreid herpesvirus-1 microvariant www.agriculture.gov.au/SiteCollectionDocuments/animal-plant-health/aquatic/aquavetplan/aquavetplan-dsm-ostreid-herpes.pdf *(include the electronic and/or physical location on site)*
- *Insert any state specific emergency response documents (including their electronic and/or physical location in site)*
- Directions from the *relevant authority*.

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

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/s so that any employee can carry out the task/s correctly each and every time they are performed.

A well written SOP also helps facilitate training as having complete instructions helps trainers to ensure that nothing is missed.

Key considerations when writing a SOP

- Ensure SOP is concise but contains all the necessary information to perform the procedure.
- Keep SOPs short, consider breaking longer SOPs into multiple shorter SOPs.
- As appropriate use tables, lists, flow diagrams, photos, icons and/or other graphics rather than large blocks of text. These can be more effective than just using text.
- Write for the target audience (those using the procedure) in plain English.
- Avoid vague statements. Ensure steps are clear – 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

1. Title

For example *Disposal of Biological Waste SOP (DBW1.0)*

Consider also assigning codes or numbers that can be used as a brief reference in your farm biosecurity plan and other documents.

2. Purpose

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

For example: *This procedure aims to ensure biological waste, including oyster mortalities, are disposed of properly. This will ensure the risk of disease spread from the hatchery is minimised.*

Additional (non-biosecurity) reasons for having this procedure may exist and should be included where applicable - for example work health and safety or environmental protection requirements.

3. Responsibilities

List staff member/s and what they are required to do in accordance with the SOP.

For example:

Staff Member/s	Responsibility
All	*Understand this procedure. Report any breach of this procedure to their supervisor or the hatchery manager.*
Administration	*Ensure replacement skip bin is ordered when advised.*
Hatchery manager	*Ensure this SOP is followed.* *Maintain and update this SOP.*

4. Definitions

Include definitions of any technical terms or acronyms used. This section may be omitted if not required.

5. Procedure

List the activities and tasks or steps that make up this procedure. 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 until advised to do so by the hatchery manager in this instance as further observation and samples may be required.*
4. *Remove mortalities from upwellers and tanks at the end of the day moving from lower to higher risk zones (e.g. spat then broodstock).*
5. *Sanitize hands and feet 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 areas following mortalities disposal.*
9. *Advise administration when the skip bin is ¾ full so delivery of a replacement can be arranged.*

6. Document Control

Include document control information to ensure SOPs remain relevant and appropriately updated.

Document Control			
Version	*e.g. 1.0*	Approved by	*Name* *Position*
Status	*e.g. Approved, Draft*	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
12	R1, R2	Does the hatchery have a secure perimeter and can access be closed off to prevent vehicle entry when required?				
12	R3	Are access gates closed and locked during non-business hours?				
12	R4	Is there adequate signage to inform visitors of the Biosecure area and what action they should take upon arrival?				
13	R5	Do clear biosecurity zones exist in the hatchery and are they supported by zone specific procedures?				
13	R6	Are staff familiar with the hatchery's biosecurity zones and associated requirements?				
21	R47 to R53	Is water intake, discharge and flow throughout the hatchery suitable to ensure disease entry and spread is minimised?				
21	R54 to R56	Can evidence be provided to demonstrate water treatment is appropriately maintained and assessed for effectiveness?				
20, 22	R40, R41, R44, R46, R57	Can evidence be provided that hatchery infrastructure and equipment is appropriately maintained and cleaned? Is potable water available for cleaning?				
19, 20	R37 to R40	Is equipment dedicated to a zone (or species) and clearly labelled as such?				
19, 20	R36, R45	Is any equipment brought into the hatchery assessed for risk and treated (cleaned and/or disinfected) appropriately?				
20	R42, R43	Does the hatchery have dedicated visitor parking, delivery and loading areas?				

Page ref.	Associated Req.	PERSONNEL STANDARDS	Yes	No	N/A	Corrective Action / Comments
17, 18	R21, R23 to R26	Is there a signed *Pre-Employment Biosecurity Declaration* for each employee which specifies site and role biosecurity requirements?				
18	R22, R29	Are hand sanitisation stations and footbaths (or separate boots) available, and used, at hatchery entrance/exit points and where required between biosecurity zones?				
19	R30	Does the hatchery have a *Visitors' Log* and are all visitors required to complete this upon arrival?				
18	R27	Is there a signed *Visitor* Biosecurity *Declaration* for each visitor recorded in the Visitor Log?				
19	R31	Are the *Hatchery Entry Conditions for Visitors* prominently displayed near the *Visitors Log*?				
18, 19	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
16	R8, R9	Are stock of different disease risk housed and managed separately?				
16	R7, R10	Is there an appropriate procedure in place for stock introduction and stock movement within and from the hatchery?				
16, 17	R11, R17	Is there an appropriate procedure in place for the disposal of dead stock?				
17	R15	Are appropriate procedures in place to optimise stock health?				

16, 17, 24	R12, R16, R63	Can evidence be provided to demonstrate stock health is monitored regularly and that any health problems encountered are investigated?				
17	R18 to R20	Is hatchery access by wildlife, vermin or domestic animals effectively prevented and controlled?				
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?				
22	R58	Is nutrient media and starter culture sourced from a reputable supplier?				

Page ref.	Associated Req.	DOCUMENTATION AND TRAINING	Yes	No	N/A	Corrective Action / Comments
16	R13	Are hatchery production staff appropriately trained in reporting disease and mortality?				
24	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, farm biosecurity plan and associated documents (e.g. SOPs)?				
22	R61	Does a current *Training Record* exist for each employee?				
23	R62	Is there a system in place to record stock inventory and movements and can this be readily interrogated for tracing purposes?				
16, 17, 25	R11, R14, R65 to R68	Can evidence be provided to demonstrate applicable legislative and jurisdictional requirements are being adhered to?				

26	R69, R70	Can evidence be provided, through revision and audit records, that the biosecurity plan is being critically reviewed and improved upon as appropriate?				
27	R71	Can all supporting documents associated with the biosecurity plan be readily identified and provided on request?				

Appendix 9. BIOSECURITY PLAN TEMPLATE

HOW TO USE THIS TEMPLATE

This template can be used to create a farm biosecurity plan for your hatchery. The *National Biosecurity Guidelines for Australian Oyster Hatcheries* insert web link when known should be used in conjunction with this template to provide further detail and rationale for what should be included.

Some very brief explanatory text has been included in *green italics* which can be **deleted** following completion of your plan.

The text in ***red italics*** should be **replaced** with details specific to your hatchery.

Available templates are shown in *blue italics* next to the template symbol. Templates can be found as appendix documents in the *National Biosecurity Guidelines for Australian Oyster Hatcheries* and can be modified for your hatchery.

Delete information or risk management measures that do not apply to your hatchery.

Add additional information or risk management strategies applicable to your hatchery.

Delete this section upon completion of your plan.

SECTION 1. ENTERPRISE INFORMATION

1.1 Production Details

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

Species/product produced	• *Crassostrea gigas, other species* • *Size of spat produced* • *Family line(s)* • *Spat for sale to on-growers, spat for on-growing by company, spat exported* • *….*
Site activities	• *Broodstock quarantine, conditioning and spawning*

	• *Larval and early spat production* • *Microalgae production* • *Company administration* • *….*
Staff	• *Hatchery production staff (number). Consider further break down of staff per zone for large hatcheries* • *Administration staff (number)* • *Senior management (number)* • *….*
Associated sites	1. *Grading facility (location)* 2. *Sea-based nurseries (location)* 3. *….*

1.2 Key Contacts

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

Internal Contacts		
Name	Position	Contact Details
Name	*General Manager*	*Phone* *Mobile* *Email*
	Hatchery Manager	
	Administration Manager	
	Operations Manager	
	…	
External Contacts		
Name	*Aquatic Biosecurity Officer*	*Phone* *Mobile* *Email*
	District Veterinary Officer	
	Consulting Veterinarian	
	Laboratory	
	Bay/Other Industry Representative	
	Courier	
	…	

SECTION 2. MAPS AND DIAGRAMS

Maps can be readily obtained from google maps www.google.com.au/maps. Satellite images help to demonstrate the hatchery location relative to major towns, roads and other infrastructure in the area.

Diagrams can be easily created within this document by inserting shapes of various colour and size.

Ensure maps are large, clear and legible.

Some maps/diagrams may be able to be combined depending on the size and/or complexity of the hatchery.

2.1 Hatchery Locality and Features

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

Hatchery location and access	• *Address, State, region of state* • *Closest town, distance from closest town* • *GPS Co-ordinates* • *Road from which the hatchery can be accessed*
Disease status of state/territory	• *Known diseases or marine pests of concern (e.g. POMS) for the state/territory (or region)*
Proximity to other aquaculture production	• *Oyster leases* • *Other aquaculture leases* • *Processors*
Proximity to high risk sites	• *Wild oyster populations, ports etc.*
Other	• *Presence and type of wildlife, feral animals or vermin* • *Significant natural features* • *Boat ramps, marinas etc.*

Insert a small map of the wider state area with the hatchery location marked ★

Insert a larger site locality map with applicable additional information marked. For example use symbols to mark relevant features such as:

★ *Hatchery site*

★ *Oyster lease sites*

★ *Wild oyster population*

etc.

2.2 Property Maps and Schematic Diagrams

2.2.1 Hatchery Layout

Biosecurity Sign

Insert a hatchery layout map/diagram and include details relating to the following risk management measures. These can be displayed as part of the map/diagram or listed as additional information.

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

***R2.** The main production area entrance can be closed to vehicle traffic in the event that the Emergency Response Plan is activated.*

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

***R4.** Entry signage is clearly displayed, provides direction for visitors and included company contact details.*

2.2.2 Production Areas and Biosecurity Zone Classifications

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

***R5.** The hatchery is divided into biosecurity zones with zone specific requirements relating to access, entry and exit procedures and dedicated equipment.*

***R6.** Biosecurity zone signage, consistent with biosecurity zone definitions and familiar to all personnel, is clearly displayed.*

Example farm biosecurity zones:

BIOSECURITY ZONE	ACCESS
Extreme (red)	• Highly restricted. • Authorised personnel only. • No entry to any other zone following access.
High (amber)	• Limited access. • Authorised personnel only.
Moderate (yellow)	• Limited access. • Authorised personnel only.
Low (green)	• No access restrictions (staff or visitors).

Ensure further detailed information relating to your biosecurity zone classifications is captured in supporting SOPs e.g. 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

3.1 Animals

Objective: to minimise the risk of disease introduction and spread by stock and other animal movement.

Amend the risk management measures outlined in the following sections to reflect actual hatchery practices. Specific detail should be added and any measures not applicable should be deleted.

E.g. amend "Mortalities or unwanted stock are disposed of in an appropriate manner…" to reflect the actual procedure "Mortalities are placed in plastic bags, sealed with tape and placed in a skip bin (with a lid). The skip is emptied each fortnight."

RISK CATEGORY	RISK MANAGEMENT MEASURES	SUPPORTING DOCUMENTATION
(A) Critical	 ***R7.*** *Health status information, and appropriate permits, are obtained for broodstock prior to hatchery entry. The health status of any introduced stock is equal to or better than that of stock already present. If this cannot be achieved stock are permanently quarantined.*  ***R8.*** *Broodstock are kept in isolation, in separate water from all other farm stock in separate production units/dedicated quarantine facilities with appropriate biosecurity measures.*	*Add titles or codes of any associated SOPs, checklists or record keeping templates in this column*

	 ***R9.*** *If multiple marine aquaculture species (e.g. oysters and abalone) are present on site they are housed separately with appropriate biosecurity measures and in water that is not shared across species.*	
(B) High	 ***R10.*** *Broodstock are inspected and cleaned on introduction if required.*  ***R11.*** *Mortalities or unwanted stock are disposed of in an appropriate manner that is approved by the relevant jurisdictional authority. No dead or unwanted stock is returned to the environment or accessible to scavengers (e.g. birds).*  ***R12.*** *Health problems (suspected diseases) are investigated with assistance from aquatic animal health professionals.*  ***R13.*** *Staff responsible for management of oyster husbandry are trained in, and aware of, their role and responsibility in reporting signs of disease and high mortality.*  ***R14.*** *In accordance with jurisdictional requirements relevant authorities are informed of any significant, unexplained mortality event or suspected reportable disease immediately.*  ***R15.*** *Stock stress is kept to a minimum by ensuring appropriate water quality, hygiene, stocking density, nutrition and handling.*	
(C) Moderate	 ***R16.*** *Oyster health, mortality and behavior inspections occur daily. This information is recorded.*  ***R17.*** *Mortalities are removed daily.*	

(D) Low	***R18.*** *Domestic animals (e.g. cats and dogs) do not have access to production areas at any time.* ***R19.*** *Vermin baiting occurs as necessary (i.e. if live rodents, droppings or nests are observed).* ***R20.*** *All building entrances are kept closed when not in use to prevent access of vermin and/or wildlife.*	

3.2 People

Objective: to minimise the risk of disease introduction and spread by people movement.

3.2.1 Staff

RISK CATEGORY	RISK MANAGEMENT MEASURES	SUPPORTING DOCUMENTATION
(B) High	***R21.*** *Staff are not permitted to visit other aquaculture sites or seafood processors prior to hatchery entry (unless appropriate decontamination has occurred).*	*Add titles or codes of any associated SOPs, checklists or record keeping templates in this column* *Pre-Employment Biosecurity Declaration*

(D) Low	*R22. Footbaths (or ability to change into zone specific boots) and hand sanitation stations are located at the hatchery entrance/exit and between biosecurity zones so as to provide for effective disinfection at all times.* *R23. Boots worn in production areas must not be worn or taken outside the specific production area to which they are designated.* *R24. Staff must attend work in laundered, clean clothes each day.* *R25. Only designated staff are permitted to routinely enter farm quarantine areas.* *R26. Work flow is unidirectional (from low to high risk zones) when multiple zones are required to be worked in during a day. An appropriate procedure exists for when this is not possible.*	

3.2.2 Visitors - Contractors, Suppliers and Other Service Personnel, Family and Neighbours

RISK CATEGORY	RISK MANAGEMENT MEASURES	SUPPORTING DOCUMENTATION
(B) High	*R27. All visitors must complete a biosecurity declaration upon arrival to ensure their risk to hatchery biosecurity has been assessed. Refusal of entry should be considered for high risk visitors.*	*Add titles or codes of any associated SOPs, checklists or record keeping templates in this column* *Visitor Biosecurity Declaration*

(C) Moderate	***R28.*** *Movement of people onto and through the hatchery is limited, in particular visitor access to quarantine zones is restricted.* ***R29.*** *Appropriate disinfection of all visitors occurs prior to production area entry and exit via footbaths (or the ability to change into zone specific boots) and hand sanitisation stations.*	
(D) Low	***R30.*** *Visitors must sign-in on arrival (by completing the hatchery visitor log) and undergo a hatchery biosecurity induction.* ***R31.*** *Hatchery entry requirements are clearly displayed to visitors at the sign-in point.* ***R32.*** *Routine maintenance work required, where possible, is conducted by contractors between batches and prior to final disinfection.* ***R33.*** *All visitors must be approved by the site manager and visits must be unidirectional from lowest to highest risk areas.* ***R34.*** *Visitors are accompanied at all times when on site.* ***R35.*** *The hatchery uses approved contractors for routine services.*	*Visitor Log* *Entry Conditions for Visitors*

3.3 Equipment, Vehicles and Vessels

Objective: to minimise the risk of disease introduction and spread by equipment, vehicle or vessel movement.

RISK CATEGORY	RISK MANAGEMENT MEASURES	SUPPORTING DOCUMENTATION
(B) High	 ***R36.*** *Equipment, vehicles or vessels that have been in contact with off-site oysters or water used to hold off-site oysters are not permitted to enter the hatchery. In exceptional circumstances facilities are available to appropriately clean and disinfect such equipment, vehicles or vessels, or those of unknown origin or status, prior to use.*	*Add titles or codes of any associated SOPs, checklists or record keeping templates in this column*
(C) Moderate	 ***R37.*** *Specific equipment, labelled clearly as such, is used per zone.*  ***R38.*** *No equipment is to be removed from its dedicated zone and used elsewhere in the hatchery.*  ***R39.*** *If multiple aquatic marine species (e.g. oysters and abalone) are kept on site equipment must be species specific and not shared.*  ***R40.*** *If movement of equipment between zones or species is required (e.g. an expensive item) appropriate cleaning and disinfection occurs.*  ***R41.*** *Equipment is properly maintained and appropriately decontaminated as required. Maintenance records are maintained and kept up to date.*	

(D) Low	 *R42. Visitor vehicles must be parked in a dedicated parking area.*  *R43. The hatchery has a dedicated delivery and loading area.*  *R44. All hatchery areas are regularly cleaned and kept free of rubbish and clutter.*  *R45. Contractor tools are cleaned before entry and free of dust/organic matter.*  *R46. All equipment and surfaces are disinfected and dried out between runs.*	

3.4 Water, Waste and Feed

Objective: to minimise the risk of disease introduction and spread by water, waste and feed.

RISK CATEGORY	RISK MANAGEMENT MEASURES	SUPPORTING DOCUMENTATION
(A) Critical	 *R47. Incoming water is appropriately treated (e.g. screening, ageing, filtration, ultra-violet light, ozone etc.) where appropriate to minimise the risk of disease/pest entry.*  *R48. Discharge water from dedicated quarantine facilities is appropriately treated to minimise the risk of disease/pest establishment in the marine environment.*	*Add titles or codes of any associated SOPs, checklists or record keeping templates in this column*
(B) High	 *R49. Water intake and outflow avoids cross contamination.*  *R50. Screens are installed on discharge pipes.*	

	 ***R51.*** *Other waste is disposed of in an appropriate manner (e.g. used water filters).*  ***R52.*** *High risk wastewater is directed down drains away from foot traffic.*  ***R53.*** *Water flow within the hatchery is designed to prevent disease spread between biosecurity zones.*  ***R54.*** *Contact with untreated water (e.g. inspection or maintenance of water treatment equipment) occurs at the end of the day.*  ***R55.*** *Regular servicing and maintenance of water treatment infrastructure occurs and is recorded.*  ***R56.*** *Water treatment is adequately monitored to ensure it remains effective.*	
(D) Low	 ***R57.*** *Potable water is available for cleaning and disinfection procedures.*  ***R58.*** *Nutrient media and starter culture is sourced from a reputable supplier to ensure assurances for quality and content.*	

SECTION 4. ADDITIONAL SUPPORTING MEASURES

Objective: to ensure all hatchery staff understand they share the responsibility of maintaining farm biosecurity and must practice good biosecurity in all the work they do.

4.1 Training

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

Training Record Template

R59. *The hatchery has a Biosecurity Manager who is responsible for the creation, maintenance and review of the biosecurity plan, associated documents and activities including staff training.*

R60. *The farm biosecurity plan and all associated documents are readily accessible to staff at all times.*

R61. *All staff are provided with a hatchery biosecurity induction and ongoing biosecurity training relevant to their role. This training must be documented and encompass:*

- *The hatchery biosecurity plan*
- *The Emergency Response Plan*
- *SOPs, associated documents including checklists and work practices that support these plans*

Site Biosecurity Manager	
Name	*Phone* *Mobile* *Email*
The site biosecurity manager has responsibility for….	

4.1 Record Keeping

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

4.1.1 Stock Movements

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

R62. *Detailed stock records, regarding stock movements and inventory, are maintained and readily accessible.*

4.1.2 Health, Mortality and Water Quality Records

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

R63. *Detailed stock health, mortality and water quality records are maintained and readily accessible.*

Section 5. EMERGENCY PROCEDURES

Objective: to ensure emergency procedures are developed and additional biosecurity measures identified for implementation in the event of a suspected Emergency Animal Disease (EAD) or serious endemic disease either:

- Within the hatchery; or
- Due to an increased threat of a disease introduction if an outbreak is suspected in the state or region.

Emergency Response Plan Template

Reference the site Emergency Response Plan (ERP) here, ensure it is clear as to where this document can be found (electronic and physical location).

Outline the trigger as to when the ERP is to be enacted e.g. a specific mortality rate, abnormal stock behaviour etc.

R64. *The hatchery has an Emergency Response Plan.*

Section 6. LEGISLATIVE OR JURISDICTIONAL REGULATORY REQUIREMENTS

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

R65. *Applicable import requirements are adhered to, and translocation permits obtained, for all stock and equipment movement.*

R66. *Batch testing or surveillance requirements are undertaken in adherence with jurisdictional regulatory requirements.*

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

R68. *Any veterinary medicines provided to stock occurs in accordance with relevant state and commonwealth legislation (including the commonwealth regulator APVMA).*

Section 7. DOCUMENT CONTROL AND REVISION RECORD

Document Control			
Version	*e.g. 1.0*	Approved by	*Name* *Position*
Status	*e.g. Approved, Draft*	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 statements like "plan updated" but rather state "SOP XXXX added", "Key contact details amended" etc.*
…	…	…

R69. *The farm biosecurity plan is regularly reviewed (annually at a minimum).*

Section 8. AUDIT RECORD

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" but rather provide details or reference to a full audit report*	*Date of next audit*
…	…	…	…	…

R70. *Regular auditing of the farm biosecurity plan occurs (annually at a minimum) to ensure it is being implemented effectively and improved upon as appropriate.*

Section 9. SUPPORTING DOCUMENTS

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

STANDARD OPERATING PROCEDURES	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*
Collection and disposal of mortalities and other waste	*Hatchery entry conditions for visitors*
Disinfection	*Staff training record*
Hatchery biosecurity zones	…
Emergency Response Plan	
…	

R71. *Supporting documents (e.g. SOPs, checklists and templates) associated with the farm biosecurity plan are clearly identified and readily available.*

Appendix 7. Letter from Nick Savva AAGA – Response to Final Draft Plans

AUSTRALIAN ABALONE GROWERS ASSOCIATION INC.
ABN: 98 225 665 336

Nicholas Savva, Executive Officer
PO Box 216 BEACONSFIELD Tasmania 7270. Australia
Phone +61 3 6383 4115 Fax +61 3 6383 4117
Email nick@abtas.com.au

7th July 2017

Elise Matthews
Aquatic Animal Health Project Officer
Fisheries and Aquaculture
Primary Industries and Regions SA - PIRSA
Government of South Australia
Level 14 25 Grenfell Street Adelaide
GPO Box 1671 Adelaide SA 5001

Dear Elise

Thank you for the final draft of the FRDC 2016-245 National Biosecurity Plan Guidelines for the Australian Land Based Abalone Industry.

AAGA an AAGA members are very pleased to have invested in the project. The cooperative participation of farmers, researchers, and veterinarians and administrators in this project from the initial workshop, subsequent farm visits and feedback and final drafting sessions has resulted in an excellent document.

AAGA looks forward to implementing and co-ordinating improved biosecurity with surveillance, (AHAP) to underpin the ongoing expansion and resilience of our industry. These measures are of great importance for disease prevention and responses and to fulfil biosecurity requirements for movement and trade in “like” abalone.

Yours sincerely

Nicholas Savva
Executive Officer

Appendix 8. Email from Bruce Zippel OA – Response to Final Draft Plans

From:	Bruce Zippel
To:	Matthews, Elise (PIRSA)
Cc:	Roberts, Shane (PIRSA)
Subject:	Project to develop an Oyster Industry Biosecurity Plan.
Date:	Monday, 10 July 2017 9:31:06 PM

Dear Elise,

On behalf of Oysters Australia, I would like to congratulate PIRSA Fisheries and Aquaculture for taking the lead for the project to develop an Oyster Industry Biosecurity Plan for enclosed systems.

I am also pleased that we had such a high level of participation and cooperation from key industry players including Oysters Australia in developing this important plan to assist Oyster Hatcheries in particular to achieve a formalized level of biosecurity status, acceptable by regulators and the broader industry alike.

The participation of the oyster hatchery sector in this important project was good to see and has helped to achieve an relative quick outcome that acceptable to all critical stakeholders.

Kind Regards

Bruce Zippel
President
Oysters Australia