



# State Development Assessment Provisions guideline

State code 17: Aquaculture

February 2022

## Version control

Version	Date	Comments
1.2	February 2022	Release aligned to SDAP 3.0

This publication has been compiled by Fisheries Queensland, Department of Agriculture and Fisheries.

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# 1 Overview

## 1.1 Introduction

State code 17: Aquaculture (the State code) in the *State Development Assessment Provisions* (SDAP) applies to a material change of use for a new or expanding **aquaculture** operation. It is intended to ensure **aquaculture** industry development and practices are ecologically sustainable.

The purpose of this code is to ensure **aquaculture** industry development and practices are ecologically sustainable. The code ensures that development:

1. maintains the health and productivity of **fisheries resources, fish habitat** and the natural environment;
2. maintains commercial, recreational, and indigenous **fishing** access; and
3. manages the health and productivity of **aquaculture fisheries resources**.

## 1.2 Purpose

The purpose of this guideline is to assist a prospective applicant considering development for new or expanding **aquaculture** farms. This guideline should be used when:

- Undertaking due diligence and identifying issues with the concept proposal before lodging a development application or investing in the proposal. Pre-lodgement advice should be sought at this time.
- Preparing a development application and responding to performance outcomes and acceptable outcomes of State code 17: Aquaculture.

This guideline should be interpreted as advice that only applies to a development application for a material change of use for **aquaculture**, applied for under the *Planning Act 2016*.

## 1.3 Using this guideline

This guideline consists of four parts:

- Part 1 provides an introduction to the State code and this guideline.
- Part 2 provides an overview of the development assessment process for **aquaculture**, an explanation of the types of development to which the code and this guideline apply, and advice about pre-lodgement processes.
- Part 3 provides a summary of information requirements for a development application.
- Part 4 provides context and advice on supporting actions and methodology to help the applicant demonstrate compliance with the performance outcomes and acceptable outcomes of the State code.

**Note:** The use of this guideline alone does not guarantee compliance with all planning and environmental management requirements for an **aquaculture** operation. Other development triggers, authorisation requirements and considerations may also apply.

## 2 Assessment framework

### 2.1 Development assessment process

#### 2.1.1 State Assessment and Referral Agency

The State Assessment and Referral Agency (SARA) is responsible for delivering a coordinated, whole-of-government approach to the State's assessment of development applications. SARA provides a single agency lodgement and assessment point for development applications where the State has jurisdiction.

Under the Planning Regulation 2017, **aquaculture** development is a material change of use and is assessable development, unless it meets the requirements for accepted development (see 2.1.4). Development applications for **aquaculture** require that the relevant code in SDAP ('State code 17: Aquaculture') be addressed prior to lodging with SARA.

#### 2.1.2 State development assessment provisions

SDAP is prescribed under the Planning Regulation 2017 and sets out the matters of State interest that the chief executive administering the *Planning Act 2016* must or may have regard to when assessing a development application (as either the assessment manager or a referral agency).

Assessment benchmarks for **aquaculture** development are contained in 'State code 17: Aquaculture' in SDAP. A material change of use development application for an **aquaculture** is required to be assessed against the provisions of the State code.

#### 2.1.3 Application of the aquaculture state code

State code 17: Aquaculture in SDAP applies to all **aquaculture** development unless it meets the requirements for accepted development (see 2.1.4). **Aquaculture** is defined in the *Fisheries Act 1994* as the cultivation of live **fisheries resources** for sale other than in circumstances prescribed by regulation.

#### 2.1.4 Code for accepted development

Accepted development is defined under the *Planning Act 2016* as development for which a development approval is not required. A range of **aquaculture** developments that are considered to have lower ecological, economic and social impacts and conditions of development that can be fully codified have been categorised to be accepted development. This development is detailed in the code *Accepted development requirements for material change of use that is aquaculture* (available at [fisheries.qld.gov.au](http://fisheries.qld.gov.au)). This code specifies limitations (e.g. size of **aquaculture** development) for each type of accepted development, beyond which that development is no longer considered to be accepted development. If development is not accepted development, it is assessable development, and a development application must be lodged with SARA to be assessed against 'State code 17: Aquaculture' in SDAP.

Accepted development is subject to standards detailed in the code *Accepted development requirements for material change of use that is aquaculture*.

**Aquaculture** development that is accepted development may still require the lodgement of a development application if other aspects of the development (not the **aquaculture** component) are assessable development.

### 2.1.5 Other approvals

**Aquaculture** is an industry managed by several government agencies across all levels of government, including local councils, and State and federal governments.

In addition to requiring assessment for a material change of use for **aquaculture** development, an applicant may be required to meet additional statutory requirements under the *Planning Act 2016* (and other legislation) for further aspects of the development (e.g. **marine plant** removal).

Further approvals may be required, including a **resource allocation authority** for access to tidal **land**, **marine park** permits and permits for **discharge**, depending on the type, scale and location of the development.

### 2.1.6 Pre-application

Pre-lodgement advice should be requested from SARA prior to lodging the development application. This advice can be provided in written form or via a meeting. Pre-lodgement advice will help the applicant understand the development assessment requirements under the Planning Regulation 2017. For information on how to request pre-lodgement advice, please contact your local SARA regional office (visit [dsdilgp.qld.gov.au](http://dsdilgp.qld.gov.au)).

## 3 Information requirements

The following information is required to be provided for a material change of use for **aquaculture**:

- nature of the proposed **aquaculture** on the premises (e.g. freshwater, **land**-based marine, hatchery)
- details of species, including scientific and common names, to be cultured for the proposed **aquaculture** operations
- total water surface area for ponds and/or tanks
- a survey plan or chart showing the location of the development (including GPS coordinates and zone reference—GDA94 preferred) and important features in the surrounding area
- a scaled site plan showing details of the structures and works associated with the proposed **aquaculture** operations—the site plan should describe any potential development constraints (such as flood-prone **land**, protected marine vegetation etc.) and must also indicate all proposed works, structures, excavations etc., including, but not be limited to:
  - for areas below the **highest astronomical tide** level or in Queensland waters
    - i. provide physical characteristics of the site including water depth, description of the substrate (sandy, muddy, rocky etc.), existence of **marine plants** (e.g. seagrass meadows, mangroves, salt marsh etc.) or coral
    - ii. indicate where any **aquaculture furniture** is to be placed on the area, including racks/trays, platforms, rafts, cages, buoys, pontoons, anchoring devices, service vessels

- for **land-based aquaculture** activities
  - i. physical characteristics of the site, including the nature and extent of any **marine plants**, the **highest astronomical tide** contour (if within or adjacent to the area), watercourses, etc.
  - ii. contour lines (showing the 1% annual exceedance probability flood event level) and other topographic features on the property like gullies and **waterways**
  - iii. depth of expected excavation in relation to the 5-metre Australian Height Datum (AHD) contour level (any works at or below the 5-metre AHD level may trigger referral for acid sulfate soils assessment and treatment)
  - iv. water intake and **discharge** structures, including water storage ponds and water distribution channels, nursery, brood stock and grow-out ponds, water treatment ponds and **aquaculture furniture** and hatchery facilities
- an **aquaculture** operations management plan that includes
  - details of the proposed **aquaculture** operating procedures, including
    - i. production ponds, tanks, aquaria or other **containers**
    - ii. water supply system
    - iii. water storage
    - iv. water distribution system
    - v. drainage
    - vi. water treatment
    - vii. **discharge** system
    - viii. storage and production of feed etc.
  - details of escape prevention practices to avoid or minimise escape of **aquaculture** resources, which may include, but is not limited to
    - i. fencing of ponds (a requirement for ponds that contain species that may move overland such as crayfish or eel)
    - ii. screening of outlet and intake pipes
    - iii. enclosed facilities
    - iv. treatment of water before discharging it
    - v. maintaining a freeboard on **pond** and **tank** walls
    - vi. predator exclusion systems
    - vii. daily monitoring of equipment
    - viii. surface water runoff management



- details of **disease** prevention and management practices to avoid or minimise **disease** impact on the **aquaculture** development, which should include
  - i. how you intend to monitor for **disease**
  - ii. what quarantine practices are proposed for new stock introduced to the farm
  - iii. veterinary monitoring of stock
  - iv. the control measures to be implemented both on a day-to-day basis and in the event of a natural disaster
- source of broodstock or culture stock.
- details of any structures proposed to be built on areas below the **highest astronomical tide**
- details of any proposed disturbance to wetlands within or adjacent to the proposed **aquaculture** operations
- details of any buffers proposed between the **aquaculture** activities and all freshwater or marine areas or systems
- details of any apparatus (e.g. aeration, irrigation) that will be used for **aquaculture** operations
- an **aquaculture** site management plan providing details of environmental management practices that are to be adopted to avoid or minimise environmental impact of the **aquaculture** development, which may include
  - rehabilitation of **fish habitats**, such as **marine plant** communities
  - restoration of the area following construction
  - feeding regimes to reduce nutrient loading
  - nutrient dispersal or disposal
  - controlled administration of chemicals
  - ensuring area is maintained and free of rubbish
  - ensuring **aquaculture furniture** is not placed in positions that would cause damage to **fisheries resources**
  - ensuring **aquaculture furniture** used for **aquaculture** would not cause a navigational or environmental hazard
  - settlement and/or wastewater treatment / **Bioremediation** ponds
  - overland **discharge** and **land**-based irrigation of **discharge** waters
  - nutrient stripping of effluent prior to **discharge**
- details of any boat or vessel to be used for the proposed **aquaculture** operations
- a statement addressing the relevant part(s) of ‘State code 17: Aquaculture’ in SDAP— where appropriate, the responses to the State code should reference information in other sections of the development application.

## 4 Assessment criteria

This part of the guideline provides additional information to help applicants demonstrate compliance with the performance outcomes or acceptable outcomes of 'State code 17: Aquaculture' in SDAP. Each section is written according to the relevant provision in the State code and provides context to the provision of supporting information and actions that may be required to demonstrate compliance with the State code.

The State code details 22 performance outcomes (POs) in Table 17.1 for **aquaculture** development, as well as acceptable outcomes (AOs). Not every PO in the table is applicable to all proposed developments, depending on the type of **aquaculture** and species to be cultured.

Applicants are reminded that the supporting actions contained in this section cover the minimum information required to respond to the criteria and additional assessments may be required dependent on individual project and site circumstances.

### 4.1 Meeting acceptable outcomes and performance outcomes

#### Location

##### 4.1.1 PO1: Type and scale of aquaculture activity

###### Context

**Aquaculture** activities may significantly differ depending on the farmed species, location of the development and the farming methods used. **Aquaculture** applicants are required to identify whether the proposed **aquaculture** facility is:

- **Land-based marine aquaculture—aquaculture** that uses seawater, diluted seawater or artesian water to grow Queensland marine and/or brackish water species such as prawns, estuary cod, barramundi, coral or shellfish in ponds or tanks, on **land** situated above the **highest astronomical tide** level (the type of system must be specified, e.g. ponds, tanks etc.)
- freshwater **aquaculture—aquaculture** that uses freshwater, brackish water or artesian water to grow freshwater species
- marine or freshwater **aquaculture** in Queensland waters or on unallocated **tidal land—aquaculture** that is undertaken in tidal areas below the level of **highest astronomical tide** or in Queensland waters, including freshwater streams or lakes, for example, oyster culture, pearl oyster culture, sea ranching and cage culture (provide details of the proposed methods and techniques you intend to use, e.g. cage culture, longlines, racks and trays, sea ranching)
- hatchery—facility where broodstock are kept and induced to spawn using natural and artificial propagation techniques (e.g. injection of hormones) to produce eggs, larvae and juveniles.

**Aquaculture** applicants are required to provide information regarding the scale of the operation. This information must include:

- the total water surface area for the **aquaculture** operation
- detailed information on the water surface area dedicated for production and for other activities, e.g. **Bioremediation**.

**Aquaculture** Development Areas (ADAs) have been identified across Queensland in accordance with the '*Methodology for the identification and selection of terrestrial aquaculture development areas in the coastal zone*' (ADA methodology) to help protect areas with potential for **land**-based marine **aquaculture** development. Investors are not limited to ADAs and may explore other areas of Queensland for **aquaculture** development. To assist in demonstrating sound site selection for new **land**-based marine **aquaculture**, applications should provide details on how any relevant provisions of the ADA methodology is addressed.

### Supporting actions

No acceptable outcome has been provided for PO1. Therefore, the application must demonstrate compliance with the performance outcome.

#### PO1

Demonstrating compliance with this performance outcome of the State code must include, but is not limited to, the following actions:

- Provide a survey plan or chart showing the location of the development (including GPS coordinates and zone reference—GDA94 preferred) and important features, such as a water courses, wetlands and mangroves, in the surrounding area.
- Demonstrate the **aquaculture** development is suitably located by providing information on the methods and techniques for the **aquaculture** facility, including information regarding the scale of the operation.
- Demonstrate that the construction and maintenance of the development does not result in adverse impacts to the natural environment, e.g. by implementing an acid sulfate soil management plan, include information about the use of chemicals, outline how waste will be disposed of, etc.
- Any works on or near **tidal land** should comply with the policy *Management and protection of marine plants and other tidal fish habitats*.
- All proposed marine sites, even if they are outside of the Great Sandy region, should have regard to the high level 'potential risks', 'management outcomes', 'planning principles' and 'specific management outcomes' in the *Great Sandy regional marine aquaculture plan*, which were developed through a whole-of-government process.
- Proposed pilot-scale projects in marine areas, even if they are outside of the Great Sandy region, should have regard to the high level 'potential risks', 'management outcomes', 'planning principles' and 'specific management outcomes' in the *Great Sandy regional marine aquaculture plan* specific to pilot-scale activities, which were developed through a whole-of-government process.

- Proposed marine sites should have regard to provisions in the *Policy for the allocation of marine aquaculture authorities*.
- Proposed marine sites within a **marine park** are located in a zone where **aquaculture** is supported as a use or entry with permission
- Proposed marine sites within the Great Sandy region should comply with the *Great Sandy regional marine aquaculture plan*.
- Proposed marine sites for oysters within Moreton Bay should comply with the *Oyster industry plan for Moreton Bay Marine Park*.

### **Suggested further information**

Department of Primary Industries and Fisheries, aquaculture policy, *Management arrangements for potentially high-risk activities in the context of ecologically sustainable development (ESD) for aquaculture facilities FAMOP001*, Version 1 Dec 2004.

Department of Employment, Economic Development and Innovation, *Great Sandy regional marine aquaculture plan*. 2011.

Department of Employment, Economic Development and Innovation, *Implementation guide for the Great Sandy regional marine aquaculture plan*, 2011.

Department of Agriculture and Fisheries, *Oyster industry plan for Moreton Bay Marine Park*, December 2015.

Department of Employment, Economic Development and Innovation, *Policy for the allocation of marine aquaculture authorities*, October 2010.

Visit the Department of Agriculture and Fisheries website at [fisheries.qld.gov.au](http://fisheries.qld.gov.au) for more information on site selection, and the environmental, operational and commercial factors that should influence site selection.

Visit the Business Queensland website at [business.qld.gov.au](http://business.qld.gov.au) for more information on Aquaculture Development Areas (ADAs), including the methodology for identifying ADAs.

Visit the Department of Environment and Science website at [des.qld.gov.au](http://des.qld.gov.au) for more information on the following **marine park** zoning plans: Marine Parks (Great Barrier Reef Coast) Zoning Plan 2004; Marine Parks (Great Sandy) Zoning Plan 2017; Marine Parks (Moreton Bay Marine) Zoning Plan 2019.

## 4.1.2 PO2: Impacts on fisheries resources, fish habitat, and the natural environment

### Context

The development or expansion of the **aquaculture** facility must be located to avoid or minimise impacts on the natural environment. **Aquaculture** inherently involves some infrastructure that can have an adverse impact on the natural environment.

**Aquaculture** applicants are required to determine if the proposed **aquaculture** facility will be located near or on the following:

- **land** below the **highest astronomical tide**
- **marine plants** such as mangroves, seagrass, saltmarsh and macroalgae
- wetlands
- watercourses
- riparian areas
- coral reefs
- sand dunes
- acid sulfate soils

### Supporting actions

#### AO2.1

The following actions will demonstrate compliance with this acceptable outcome of the State code:

- Provide information how the development will be constructed and maintained. If necessary, provide a construction environmental management plan.
- Provide a site plan (either a map or chart of suitable scale) to outline details of infrastructure, **aquaculture furniture**, or other structures that are to be placed on the site. The site plan must also identify any potential constraints (such as flood-prone **land**, protected marine vegetation etc.) and how adverse impacts on **fisheries resources, fish habitat**, and the natural environment will be avoided through the siting of the **aquaculture** development.
- The site plan must include, but is not limited to
  - for areas below the **highest astronomical tide** level or in Queensland waters
    - i. GPS coordinates and zone reference (GDA94 preferred)
    - ii. physical characteristics of the site, including water depth, description of the substrate (sandy, muddy, rocky etc.), and existence of coral or **marine plants** such as seagrass meadows
    - iii. Indicate any **aquaculture furniture** to be placed on the area, including racks/trays, platforms, rafts, cages, buoys, pontoons, anchoring devices, or service vessels.

- for **land-based aquaculture** activities
  - i. engineering drawings that indicate all proposed works, structures and excavations associated with the proposed **aquaculture** operation
  - ii. physical characteristics of the site, including the nature and extent of any **marine plants**, water course etc.
  - iii. contour lines (showing the 1% annual exceedance probability flood level) and other topographic features on the property like gullies and **waterways**
  - iv. depth of expected excavation in relation to the 5-metre Australian Height Datum (AHD) contour level (any works at or below the 5-metre AHD level may trigger referral for acid sulfate soils assessment and treatment).
- Any works on or near **tidal land** should comply with the policy *Management and protection of marine plants and other tidal fish habitats*.
- All proposed marine sites, even if they are outside of the Great Sandy region, should have regard to the high level 'potential risks', 'management outcomes', 'planning principles' and 'specific management outcomes' in the *Great Sandy regional marine aquaculture plan*, which were developed through a whole-of-government process.

## **PO2**

If compliance with AO2.1 cannot be achieved, the above information is required to demonstrate that the proposed development minimises adverse impacts to **fisheries resources, fish habitat** and the natural environment.

## **Suggested further information**

Refer to PO1 reference material.

### 4.1.3 PO3: Prevent escape or release of aquaculture fisheries resources

#### Context

The escape or release of **aquaculture fisheries resources** or hatchery-reared stock has the potential to impact on wild **fisheries resources**, either by direct competition with wild **fish** or by genetic mixing of populations.

To minimise impacts to the natural environment, **aquaculture** development must be designed, constructed and maintained to prevent the escape or release of **aquaculture fisheries resources**.

#### Supporting actions

No acceptable outcome has been provided. Therefore, the application must demonstrate compliance with the performance outcome.

#### PO3

Demonstrating compliance with this performance outcome of the State code must include, but is not limited to, the following actions:

- Provide drawings by a Registered Professional Engineer of Queensland certifying that any proposed construction works:
  - are structurally adequate for anticipated usage in all weather conditions;
  - are designed to prevent the escape of **aquaculture fisheries resources**; and
  - comply with all relevant codes, including the Department of Environment and Science operational policy, building and engineering standards for tidal works.
- Provide details of escape prevention practices to avoid or minimise escape of **aquaculture** resources. This may include:
  - predator exclusion plans; and
  - daily monitoring of equipment.
- Provide a maintenance schedule that outlines when and how infrastructure and equipment will be maintained so that the escape or release of **aquaculture fisheries resources** is prevented.
- All proposed marine sites, even if they are outside of the Great Sandy region, should have regard to the high level 'potential risks', 'management outcomes', 'planning principles' and 'specific management outcomes' in the *Great Sandy regional marine aquaculture plan*, which were developed through a whole-of-government process.

#### Suggested further information

Department of Environment and Heritage Protection, operational policy, *Building and engineering standards for tidal works*, Version 1 March 2013.

Refer to PO1 reference material.

### 4.1.4 PO4: Access to fisheries resources and fish habitat, PO5: Commercial fishing access, and PO6: Commercial fishery linkages

#### Context

Marine and freshwater **aquaculture** undertaken in Queensland waters or on unallocated **tidal land** does not give the holder any right to ownership or tenure over the **land**. Consequently, the **aquaculture** development must demonstrate it does not impact on community access to **fisheries resources** and **fish habitats**.

#### Supporting actions

##### AO4.1

The following actions will demonstrate compliance with these acceptable outcomes of the State code:

- Identify and provide information on any existing stakeholder/s in the area of the proposed **aquaculture** operation and include details on how the proposed operation will minimise conflict with other fisheries stakeholders. Existing stakeholders may include commercial fishers, recreational fishers and Traditional Owners.
- Include details and outcomes of any consultation regarding the proposal and any letters of support from industry and community groups.

##### PO4, PO5 and PO6

Demonstrating compliance with these performance outcomes of the State code must include, but is not limited to, the following actions:

- Identify and provide information on any existing commercial **fishing** activities in the area and how the proposed **aquaculture** operation will impact on existing commercial **fishing** access.
- Include details and outcomes of any consultation regarding the proposal and any letters of support from the commercial **fishing** industry.
- Any works on or near **tidal land** should comply with the policy *Management and protection of marine plants and other tidal fish habitats*.
- All proposed marine sites, even if they are outside of the Great Sandy region, should have regard to the high level 'potential risks', 'management outcomes', 'planning principles' and 'specific management outcomes' in the *Great Sandy regional marine aquaculture plan*, which were developed through a whole-of-government process.

#### Suggested further information

Refer to PO1 reference material.



### 4.1.5 PO7: Health and productivity of fisheries resources

#### Context

**Aquaculture** development and operation has the potential to impact on flora, fauna and associated ecological processes within and surrounding a development site. An applicant should outline what measures will be undertaken to ensure the health and productivity of **fisheries resources**. An **aquaculture** site management plan should address the impacts of the development and demonstrate how the applicant will avoid or minimise the impact of the **aquaculture** development.

#### Supporting actions

No acceptable outcome has been provided. Therefore, the application must demonstrate compliance with the performance outcome.

#### PO7

Demonstrating compliance with this performance outcome of the State code must include, but is not limited to, the following actions:

- Provide an **aquaculture** site management plan that includes details of environmental management practices that are to be adopted to avoid or minimise environmental impact of the **aquaculture** development. This document may include the following:
  - rehabilitation of **fish habitats**, such as **marine plant** communities
  - restoration of the area following construction
  - feeding regimes to reduce nutrient loading
  - nutrient dispersal or disposal
  - controlled administration of chemicals
  - ensuring the area is maintained and free of rubbish
  - processes to ensure the release of **fisheries resources**
  - ensuring **aquaculture furniture** is not placed in positions that would cause damage to the environment or **fisheries resources**
  - ensuring **aquaculture furniture** used for **aquaculture** would not cause a navigational hazard
  - settlement and/or wastewater treatment ponds
  - overland **discharge** and **land**-based irrigation of **discharge** waters
  - nutrient stripping of effluent prior to **discharge**.
- Provide a construction environmental management plan that outlines how the construction and maintenance of the development will prevent the risk of mortality, **disease**, injury, or compromise the health and productivity of, **fisheries resources**.
- Any works on or near **tidal land** should comply with the policy *Management and protection of marine plants and other tidal fish habitats*.

- All proposed marine sites, even if they are outside of the Great Sandy region, should have regard to the high level 'potential risks', 'management outcomes', 'planning principles' and 'specific management outcomes' in the *Great Sandy regional marine aquaculture plan*, which were developed through a whole-of-government process.

### **Suggested further information**

Refer to PO1 reference material.

## **4.1.6 PO8: Acid sulphate soils**

### **Context**

The development of an **aquaculture** facility has the potential to expose acid sulfate soil to oxidising conditions, which could impact soil and water by creating acidity that can also mobilise contaminants such as metals and metalloids from the soil. An applicant should outline measures that will identify, control and treat any acid sulfate soil that may be disturbed or drained as part of the development application process. An acid sulfate soil management plan should address the impact of development and demonstrate the quantity of acid sulfate soil and how it will be managed and treated.

### **Supporting actions**

No acceptable outcome has been provided. Therefore, the application must demonstrate compliance with the performance outcome.

### **PO8**

Demonstrating compliance with this performance outcome of the State code must include, but is not limited to, the following actions:

- Provide an acid sulfate soil management plan addressing the impacts of the development and demonstrate how the applicant will avoid or minimise the impact of the **aquaculture** development.
- Provide a site plan that identifies areas where acid sulfate soil is located within the development area.

Management of acid sulfate soil is consistent with the current *Queensland acid sulfate soil technical manual: Soil management guidelines v4.0*.

### **Suggested further information**

Department of Science, Information Technology, Innovation and the Arts, *Queensland acid sulfate soil technical manual: soil management guidelines, V4.0, 2014*.

## 4.1.7 PO9: Appropriate design, construction and maintenance for species to be cultured

### Context

The development and operation of an **aquaculture** facility is designed and constructed according to the type of species to be cultured on site.

An applicant should outline which species will be cultured as part of the application process. An operations management plan should address species, the design and construction of the **aquaculture** facility and the management of the operation.

### Supporting actions

No acceptable outcome has been provided. Therefore, the application must demonstrate compliance with the performance outcome.

### PO9

Demonstrating compliance with this performance outcome of the State code must include, but is not limited to, the following actions:

- Provide an operational management plan detailing
  - species, including scientific and common names, to be farmed
  - production ponds, tanks, aquaria or other **containers**
  - water supply system
  - water storage
  - water distribution system
  - drainage
  - water treatment
  - **discharge** system
  - storage of feed etc.
- Provide details of escape prevention practices to avoid or minimise escape of **aquaculture** resources, including, but not limited to
  - fencing of ponds (a requirement for crayfish, eel and other species that may move over **land**)
  - screening of outlet and intake pipes
  - enclosed facilities
  - treatment of water before discharging it
  - maintaining a freeboard on **pond** and **tank** walls
  - predator exclusion systems
  - daily monitoring of equipment
  - surface water runoff management.

- All proposed marine sites, even if they are outside of the Great Sandy region, should have regard to the high level 'potential risks', 'management outcomes', 'planning principles' and 'specific management outcomes' in the *Great Sandy regional marine aquaculture plan*, which were developed through a whole-of-government process.

### **Suggested further information**

Department of Primary Industries and Fisheries, aquaculture policy, *Management arrangements for potentially high-risk activities in the context of ecologically sustainable development (ESD) for aquaculture facilities FAMOP001*, Version 1 Dec 2004.

Refer to PO1 reference material.

## **4.1.8 PO10: Management of disease**

### **Context**

Intensively cultured **fish** and shellfish are naturally susceptible to bacterial, fungal and parasitic infections, particularly during times of stress. A health management program is one way to prevent **disease** and maintain **biosecurity** in **aquaculture** environments. When developing a health management program, the applicant should consider current industry practices, including planning and design, introducing new animals, dealing with sick animals, chemical usage and record management.

### **Supporting actions**

No acceptable outcome has been provided. Therefore, the application must demonstrate compliance with the performance outcome.

### **PO10**

Demonstrating compliance with this performance outcome of the State code must include, but is not limited to, the following actions:

- Provide details of a health management program that will be adopted to avoid or minimise **disease** impact of the **aquaculture** development. This should include
  - **Biosecurity** measures to be included in the design of the **aquaculture** facility
  - how the applicant intends to monitor for **disease**
  - what quarantine practices are proposed for new stock introduced to the farm
  - veterinary monitoring of stock
  - control measures implemented both on a day-to-day basis and in the event of a **disease** outbreak
  - for the culture of bivalve molluscs, provide details of quality assurance practices to ensure there are no public health risks associated with the operation.

The **aquaculture** development is to be designed such that any **fish** mortalities and processing wastes (including filter residues) are treated and disposed of in accordance with the Australian Government Department of Agriculture AQUAVETPLAN (as updated from time to time).

## Suggested further information

Visit the Biosecurity Queensland website at [biosecurity.qld.gov.au](http://biosecurity.qld.gov.au) for information on the general **biosecurity** obligation under the *Biosecurity Act 2014*, which applies to all Queenslanders.

Department of Primary Industries and Fisheries, aquaculture policy, *Health management technical guidelines for aquaculture*, Version February 2008.

Department of Agriculture and Fisheries, aquaculture protocol, *Health protocol for the movement of live prawns FAMPR001*, Version 5 August 2018.

Department of Agriculture, Fisheries and Forestry, aquaculture protocol, *Health protocol for the importation and movement of live barramundi FAMPR002*, Version 4 June 2011.

Department of Agriculture, Fisheries and Forestry, aquaculture protocol, *Health protocol for the movement of live bivalve molluscs FAMPR003*, Version 3 July 2018.

Department of Agriculture, Fisheries and Forestry, aquaculture protocol, *Health protocol for the movement of live marine crustaceans including crabs, lobsters and bugs FAMPR004*, Version 1 June 2011.

Department of Agriculture, Fisheries and Forestry, aquaculture protocol, *Health protocol for the movement of live eels FAMPR005*, Version 1 June 2011.

Department of Agriculture, Fisheries and Forestry, aquaculture protocol, *Health protocol for the movement of live freshwater crayfish and prawns FAMPR006*, Version 1 June 2011.

Department of Employment, Economic Development and Innovation, aquaculture protocol, *Health protocol for the movement of live freshwater native finfish (other than barramundi and eels) FAMPR007*, Version 1 June 2011.

Department of Agriculture and Fisheries, aquaculture protocol, *Health protocol for movement of aquatic animals for aquaculture in Queensland FAMPR008*. April 2017.

Department of Primary Industries and Fisheries, aquaculture policy, *Management arrangements for potentially high-risk activities in the context of ecologically sustainable development (ESD) for aquaculture facilities FAMOP001*, Version 1 Dec 2004.

## Land-based aquaculture development

### 4.1.9 PO11: Avoid leakage

#### Context

There are inherent risks in storing water in **aquaculture** containment structures as all earthen ponds have the capacity to leak and this can affect the groundwater or adjacent environments. Water stored in **aquaculture** containment structures is often characterised by biological and chemical properties that differ from those in natural surface or groundwater. Poor design, construction and maintenance of **aquaculture** containment structures may result in vertical or horizontal flow into soil and groundwater or embankment failure. This may cause:

- localised increases in the groundwater level
- impacts on groundwater quality (salinity or nutrients)
- waterlogging
- vegetation die-back.

**Aquaculture** containment structures may include intake reservoirs, supply channels, production ponds, **discharge** channels and water treatment ponds. Usually, **aquaculture** is undertaken in earthen ponds 1–2 metres in depth formed by a combination of cut and fill earthworks.

#### Supporting actions

No acceptable outcome has been provided. Therefore, the application must demonstrate compliance with the performance outcome.

#### PO11

Demonstrating compliance with this performance outcome of the State code must include, but is not limited to, the following actions:

- Provide an appropriate **aquaculture** containment management plan that provides in detail the earth works and/or materials used to construct the **aquaculture** containment structures.

The management plan should be based on outcomes of a risk assessment undertaken with regards to site and design options to avoid leakage.

#### Suggested further information

Department of Primary Industries and Fisheries, aquaculture policy, *Management arrangements for potentially high-risk activities in the context of ecologically sustainable development (ESD) for aquaculture facilities FAMOP001*, Version 1 Dec 2004.

Risk assessment considerations can be found in the *Guidelines for constructing and maintaining aquaculture containment structures* (Department of Primary Industries and Fisheries, 2007).

## 4.2.0 PO12: Biosecurity and disease risks on the natural environment

### Context

The development or expansion of an **aquaculture** facility near a **waterway** and wetland must be designed and constructed to minimise **biosecurity** and **disease** risks to the natural environment. These risks can be minimised by having buffers between the **aquaculture** activities and any **waterways** and wetlands and designed and constructed to avoid or minimise escape of **aquaculture** resources to Queensland waters.

### Supporting actions

#### AO12.1

The following actions will demonstrate compliance with this acceptable outcome of the State code:

- Provide a scaled site plan showing the location of the **aquaculture** facility in relation to any **waterways** or wetlands.
- Provide details of any buffers proposed between the **aquaculture** activities and all freshwater and marine areas or systems.
- For **land-based** freshwater **aquaculture**, provide details of measures to prevent the release of any waters or **aquaculture fisheries resources** from the **aquaculture** facility to Queensland waters, including bird mitigation.
- For marine **land-based aquaculture**, provide details of proposed screening to avoid or minimise escape of **aquaculture** resources into Queensland waters.

#### AO12.2

The following action will demonstrate compliance with this acceptable outcome of the State code:

- Provide a scaled site plan showing the design and location of each of the containment structures that are part of the **aquaculture** facility.
- Outline how the containment and release of water from all ponds, tanks and drainage systems from within the approved **aquaculture** area will be maintained.

### PO12

Demonstrating compliance with this performance outcome of the State code must include, but is not limited to, complying with AO12.1 and AO12.2.

### Suggested further information

Visit the Biosecurity Queensland website at [biosecurity.qld.gov.au](http://biosecurity.qld.gov.au) for information on the general **biosecurity** obligation under the *Biosecurity Act 2014*, which applies to all Queenslanders.

Department of Agriculture and Fisheries, aquaculture protocol, *Health protocol for the movement of live prawns FAMPR001*, Version 5 August 2018.

Department of Agriculture, Fisheries and Forestry, aquaculture protocol, *Health protocol for the importation and movement of live barramundi FAMPR002*, Version 4 June 2011.

Department of Agriculture, Fisheries and Forestry, aquaculture protocol, *Health protocol for the movement of live marine crustaceans including crabs, lobsters and bugs FAMPR004*, Version 1 June 2011.

Department of Agriculture, Fisheries and Forestry, aquaculture protocol, *Health protocol for the movement of live eels FAMPR005*, Version 1 June 2011.

Department of Agriculture, Fisheries and Forestry, aquaculture protocol, *Health protocol for the movement of live freshwater crayfish and prawns FAMPR006*, Version 1 June 2011.

Department of Employment, Economic Development and Innovation, aquaculture protocol, *Health protocol for the movement of live freshwater native finfish (other than barramundi and eels) FAMPR007*, Version 1 June 2011.

Department of Agriculture and Fisheries, aquaculture protocol, *Health protocol for movement of aquatic animals for aquaculture in Queensland FAMPR008*, April 2017.

Department of Primary Industries and Fisheries, aquaculture policy, *Management arrangements for potentially high-risk activities in the context of ecologically sustainable development (ESD) for aquaculture facilities FAMOP001*, Version 1 Dec 2004.

## 4.2.1 PO13: Immunity from flooding and inundation

### Context

Flood events have the potential for **aquaculture fisheries resources** to escape into the natural environment and potentially impact wild resources. **Aquaculture** applicants must ensure the containment structures used for **aquaculture** are not prone to flooding. **Aquaculture** containment structures used to cultivate **aquaculture fisheries resources** are required to be constructed so the lowest part of the top of the wall is above the 1% annual exceedance probability (AEP) flood level. If this information is not available, the top of the wall is to be no lower than the highest known or recorded flood level. **Aquaculture** containment structures that are used solely for treatment and settlement and do not contain **aquaculture fisheries resources** are required to be constructed so the lowest part of the top of the wall is above the 2% AEP flood level.

### Supporting actions

#### AO13.1, AO13.2 and AO13.3

The following actions will demonstrate compliance with these acceptable outcomes of the State code:

- Provide a scaled site plan showing the contour lines and the 1% AEP and 2% AEP flood level events.
- Provide engineering drawings depicting the front/side elevation of **aquaculture** containment structures. Show the location of the 1% AEP and 2% AEP flood levels in relation to the **pond wall**.
- If AEP flood levels are not available, provide evidence of the highest known or recorded flood level for the property.



#### AO13.4

The following actions will demonstrate compliance with this acceptable outcome of the State code:

- Provide information that farm dams comply with the requirements set down for assessable **aquaculture**.
- Provide a scaled site plan showing the contour lines and the 1% AEP and 2% AEP flood level events.
- Provide engineering drawings depicting the front/side elevation of **aquaculture** containments structures. Show the location of the 1% AEP and 2% AEP flood levels in relation to the **pond** wall.
- Provide information on measures to prevent the ingress of stormwater into all in-ground structures.

#### PO13

Demonstrating compliance with this performance outcome of the State code should aim to meet the requirements of AO13.1, AO13.2, AO13.3 and AO13.4 and the policy:

- *Management arrangements for potentially high-risk activities in the context of ecologically sustainable development (ESD) for aquaculture facilities*—note that the policy provides for assessment on a case-by-case basis in some circumstances.

#### Suggested further information

Visit the Biosecurity Queensland website at [biosecurity.qld.gov.au](http://biosecurity.qld.gov.au) for information on the general **biosecurity** obligation under the *Biosecurity Act 2014*, which applies to all Queenslanders.

Department of Primary Industries and Fisheries, aquaculture policy, *Management arrangements for potentially high-risk activities in the context of ecologically sustainable development (ESD) for aquaculture facilities FAMOP001*, Version 1 Dec 2004.

### 4.2.2 PO14: Exclusion of wild fauna

#### Context

The development or expansion of a **land-based aquaculture** facility must be designed, constructed and operated to exclude all juvenile or adult wild fauna (except zooplankton) from entering the facility. All juvenile or adult wild fauna (except zooplankton) are to be excluded from **land-based aquaculture** development through:

- Design, construction and operation to prevent entry
- Screening water that is to be introduced for **aquaculture**.

#### Supporting actions

No acceptable outcome has been provided. Therefore, the application must demonstrate compliance with the performance outcome.

## PO14

Demonstrating compliance with this performance outcome of the State code must include, but is not limited to, the following actions:

- Provide details about how wild fauna will be excluded from the **land-based aquaculture** development, including proposed screening of any incoming water.
- Provide engineering drawings depicting the structures and their location within the **aquaculture** facility that will be implemented to prevent the entry of wild fauna.

### Suggested further information

No further reference material is suggested.

## Tidal aquaculture developments

### Tidal aquaculture (applies to PO15–PO19)

#### Context

A person cannot commence **aquaculture** activities in Queensland waters or on unallocated **tidal land** without a **resource allocation authority** (RAA) issued under the *Fisheries Act 1994*—which allows access to, and interference with, **fish habitat** in Queensland waters or on unallocated **tidal land**. RAAs are issued for a specified period and provide approval from the State government to utilise an area for the purpose of conducting an **aquaculture** operation. RAAs are transferable and conditions are enforced under section 79A of the *Fisheries Act 1994*.

#### Supporting actions

Tidal **aquaculture** development must address, but is not limited to, the following actions:

- Proponents are required to obtain a relevant RAA before undertaking marine / tidal **aquaculture** development.
- Details required in a RAA application include
  - location details
  - species details
  - technical details
  - existing stakeholders of the area
  - business plan
  - bond requirement.
- All proposed marine sites, even if they are outside of the Great Sandy region, should have regard to the high level ‘potential risks’, ‘management outcomes’, ‘planning principles’ and ‘specific management outcomes’ in the *Great Sandy regional marine aquaculture plan*, which were developed through a whole-of-government process.

## Suggested further information

Visit the Business Queensland website at [business.qld.gov.au](http://business.qld.gov.au) for the RAA application form and instructions for making the application.

Refer to PO1 reference material.

### 4.2.3 PO15: Prevent stranding or entanglement of native fauna

#### Context

**Aquaculture** infrastructure or other structures associated with **aquaculture** development can include cages or other enclosures to hold the **aquaculture fisheries resources**, buoys for floatation, and mooring lines to secure infrastructure. Placement of these structures in the marine environment has the potential to impact on native fauna, including entrapment or stranding of animals, or collision with structures and entanglement in lines. Entanglement in lines is of a particular concern for marine megafauna (e.g. whales, dugongs, dolphins, turtles and sharks). **Aquaculture** infrastructure and other structures are to be designed and maintained to prevent stranding or entanglement of native fauna.

#### Supporting actions

No acceptable outcome has been provided. Therefore, the application must demonstrate compliance with the performance outcome.

#### PO15

Demonstrating compliance with this performance outcome of the State code must include, but is not limited to, the following actions:

- Provide an entanglement strategy identifying risks in relation to wildlife interactions or entangled animals and how these will be mitigated and managed. The entanglement strategy should also include reporting and corrective actions in relation to wildlife interactions or entangled animals. Examples of minimising risk of entanglement include ensuring any lines are kept taut and adequately spaced, sufficient floatation and only having one horizontal line between a single set of anchor points.
- Demonstrate the proposed **aquaculture** infrastructure is designed, constructed and maintained to not trap, or lead to the stranding of, animals.
- All proposed marine sites, even if they are outside of the Great Sandy region, should have regard to the high level 'potential risks', 'management outcomes', 'planning principles' and 'specific management outcomes' in the *Great Sandy regional marine aquaculture plan*, which were developed through a whole-of-government process.

## Suggested further information

Visit the Australian Government Environment Department website at [awe.gov.au](http://awe.gov.au) for information on entanglements and the *Threat Abatement Plan for the impacts of marine debris on the vertebrate wildlife of Australia's coasts and oceans*.

Refer to PO1 reference material.

## 4.2.4 PO16: Species to be cultured

### Context

Wild **fisheries resources** may be impacted by **aquaculture** operations through the introduction of **disease**, pest species and non-endemic organisms. To minimise the risk and impacts on wild fisheries, only species that are endemic to the location of the **aquaculture** development can be stocked.

### Supporting actions

#### AO16.1, AO16.2 and AO16.3

The following actions will demonstrate compliance with these acceptable outcomes of the State code:

- Provide details of the species to be farmed, including scientific and common names and evidence the species are endemic to the area where the **aquaculture** development is proposed.
- Demonstrate ability to comply with the relevant health protocol for the importation and movement of the species that are intended to be farmed. The health protocols are listed below in 'suggested further information'.

Further, applicants must comply with the *Biosecurity Act 2014* and their general **biosecurity** obligations under the Act.

### PO16

Demonstrating compliance with this performance outcome of the State code should aim to meet the requirements of AO16.1, AO16.2 and AO16.3. It is unlikely that compliance with PO16 can be demonstrated otherwise.

In addition, all proposed marine sites, even if they are outside of the Great Sandy region, should have regard to the high level 'potential risks', 'management outcomes', 'planning principles' and 'specific management outcomes' in the *Great Sandy regional marine aquaculture plan*, which were developed through a whole-of-government process.

### Suggested further information

Department of Agriculture, Fisheries and Forestry, aquaculture protocol, *Health protocol for the importation and movement of live barramundi FAMPR002*, Version 4 June 2011.

Department of Agriculture, Fisheries and Forestry, aquaculture protocol, *Health protocol for the movement of live bivalve molluscs FAMPR003*, Version 3 July 2019.

Department of Agriculture, Fisheries and Forestry, aquaculture protocol, *Health protocol for the movement of live marine crustaceans including crabs, lobsters and bugs FAMPR004*, Version 1 June 2011.

Department of Agriculture and Fisheries, aquaculture protocol, *Health protocol for movement of aquatic animals for aquaculture in Queensland FAMPR008*, April 2017.

Visit the Biosecurity Queensland website at [biosecurity.qld.gov.au](http://biosecurity.qld.gov.au) for information on the general **biosecurity** obligation under the *Biosecurity Act 2014*, which applies to all Queenslanders.

Refer to PO1 reference material.

## 4.2.5 PO17: Prevent movement of structures

### Context

The use of certain types of **aquaculture** structures may result in damage to natural ecosystems (e.g. seagrass and other **marine plants** or other **fisheries resources** such as coral). Movement of **aquaculture** structures may also result in collisions with other users and entanglement of megafauna (e.g. whales, dugongs, dolphins, turtles and sharks).

To minimise impacts to the marine environment, **aquaculture** structures must be designed, constructed and maintained to prevent any movement of infrastructure in all weather conditions.

### Supporting actions

No acceptable outcome has been provided. Therefore, the application must demonstrate compliance with the performance outcome.

### PO17

Demonstrating compliance with this performance outcome of the State code must include, but is not limited to, the following actions:

- Provide drawings by a Registered Professional Engineer of Queensland certifying that any proposed construction works
  - are structurally adequate for anticipated usage in all weather conditions
  - comply with all relevant codes, including the Department of Environment and Science operational policy, building and engineering standards for tidal works.
- Provide a maintenance program that outlines when and how infrastructure and equipment will be maintained so that movement is prevented.
- All proposed marine sites, even if they are outside of the Great Sandy region, should have regard to the high level 'potential risks', 'management outcomes', 'planning principles' and 'specific management outcomes' in the *Great Sandy regional marine aquaculture plan*, which were developed through a whole-of-government process.

### Suggested further information

Department of Agriculture and Fisheries, *Oyster industry plan for Moreton Bay Marine Park*, December 2015.

Department of Environment and Heritage Protection, operational policy, *Building and engineering standards for tidal works*, Version 1 March 2013.

Refer to PO1 reference material.

## 4.2.6 PO18: Avoid impacts on fisheries resources

### Context

**Aquaculture furniture** and other infrastructure associated with an **aquaculture** development have the potential to impact **fisheries resources**. Potential impacts can include direct disturbance to the substrate due to placement of structures, and seagrass dieback due to shading from the furniture. No hazardous items or materials are to be placed on, or in, the approved **aquaculture** area in a manner that endangers, or is likely to endanger, wild **fisheries resources** or the environment.

### Supporting actions

#### AO18.1, AO18.2, AO18.3, AO18.4 and AO18.5

The following actions will demonstrate compliance with these acceptable outcomes of the State code:

- Provide an **aquaculture** site management plan that demonstrates the environmental management practices to be adopted to avoid or minimise environmental impact of the **aquaculture** development. This site management plan may include the following
  - measures that will be implemented to ensure **aquaculture furniture** avoids or minimises interference or damage with natural ecosystems (e.g. seagrass communities, **marine plants** or other **fisheries resources** such as coral)
  - measures that will be implemented to ensure **aquaculture furniture** and other infrastructure will not cause an environmental hazard.
- The proposed **aquaculture furniture** and other infrastructure is temporary and does not include fixed structures (except for supporting posts).
- The proposed **aquaculture** development does not include break walls, fences, boat ramps or jetties.

### PO18

Demonstrating compliance with this performance outcome of the State code should aim to meet the requirements of AO18.1, AO18.2, AO18.3, AO18.4 and AO18.5.

In addition, all proposed marine sites, even if they are outside of the Great Sandy region, should have regard to the high level 'potential risks', 'management outcomes', 'planning principles' and 'specific management outcomes' in the *Great Sandy regional marine aquaculture plan*, which were developed through a whole-of-government process.

### Suggested further information

Department of Agriculture and Fisheries, *Oyster industry plan for Moreton Bay Marine Park*, December 2015.

Department of Environment and Heritage Protection, operational policy, *Building and engineering standards for tidal works*, Version 1 March 2013.

Refer to PO1 reference material.

## 4.2.7 PO19: Development in the Great Sandy Strait

### Context

The *Great Sandy regional marine aquaculture plan* is the first regional marine **aquaculture** management plan to be developed for Queensland. It establishes guidelines and identifies suitable sites for sustainable, non-intensive marine **aquaculture** development. It also streamlines and standardises the assessment process for future **aquaculture** applications within the boundaries of the Great Sandy **Marine Park**.

The plan identifies the most appropriate sites for rack, line and ranching **aquaculture** (but not sea cages) in line with provisions of the **marine park**. The sites were chosen to minimise conflict with other user groups, while considering the social and environmental value of the region, after extensive consultation between industry and government.

To further reduce the risk of impacts on these values, management controls were developed. They provide clear rules regarding approval of future **aquaculture** activities and the conditions under which **aquaculture** farms can operate. They include infrastructure design specifications, an environmental bond requirement, environmental monitoring programs and general **biosecurity** measures. Details are provided in the *Implementation guide for the Great Sandy regional marine aquaculture plan*

### Supporting actions

No acceptable outcome has been provided. Therefore, the application must demonstrate compliance with the performance outcome.

### PO19

Demonstrating compliance with this performance outcome of the State code must include, but is not limited to, the following actions:

- Provide a statement demonstrating how the proposed **aquaculture** activity complies with the assessment criteria and conditions of the *Great Sandy regional marine aquaculture plan*.
- Provide an environmental design and management strategy, addressing environmental matters likely to affect the operation. This may include
  - the spatial extent of the operation and the dimensions of all proposed equipment
  - any variation of the proposed equipment/farming systems from industry standards, and demonstration that the variation will ensure the same or greater environmental benefits as standard practices
  - a hatchery breeding protocol
  - a broodstock/culture stock sourcing strategy
  - a monitoring program
  - an entanglement strategy
  - the extent of intended disturbance to **marine plants**
  - a water quality and meat sampling program for edible shellfish.
- The *Great Sandy regional marine aquaculture plan* provides detailed descriptions of 'potential risks', 'management outcomes', 'planning principles' and 'specific management outcomes', as well as site-specific requirements for marine **aquaculture** in the Great Sandy region.

## Suggested further information

Department of Employment, Economic Development and Innovation, *Great Sandy regional marine aquaculture plan*, 2011.

Department of Employment, Economic Development and Innovation, *Implementation guide for the Great Sandy regional marine aquaculture plan*, 2011.

## High-risk activities

### 4.2.8 PO20: Ecological integrity of fauna in inland catchments

#### Context

Barramundi (*Lates calcarifer*) are non-indigenous to inland catchments west of the Great Dividing Range that Queensland shares with neighbouring states—specifically the Murray–Darling, Lake Eyre and Bulloo–Bancannia catchments. Cultivation of barramundi in these areas increases the risk of transmission of **disease** and escape of barramundi into catchments where this species does not naturally occur, resulting in establishment of a new **disease** agent or feral barramundi in these catchments.

Barramundi nodavirus is regarded as a significant **disease** risk to other freshwater species. At present, there are no records of nodavirus from any freshwater species in inland catchments, including the Murray–Darling (which spans three states and is the most economically significant catchment in Australia). Barramundi are not reported to be present in this system.

Introduced barramundi, while not able to reproduce in these systems due to environmental constraints, are an aggressive, high-order predator and may be harmful to the existing ecosystem.

In recognition of the potential for inter-species transmission of nodavirus, a higher level of **biosecurity** is required for **aquaculture** of barramundi in inland catchments.

#### Supporting actions

##### AO20.1

The following actions will demonstrate compliance with this acceptable outcome of the State code:

- Demonstrate that water from the **aquaculture** facility will not be released into Queensland waters.
- Provide details of screening to be utilised on **containers** holding barramundi to exclude vertebrate predators.
- Provide details of any buffers proposed between the **aquaculture** activities and all freshwater systems.
- Provide a scaled site plan showing the location of the **aquaculture** development in relation to:
  - any **waterways** or wetlands
  - a contour line showing the 1% annual exceedance probability flood level.



Note, aquacultured barramundi west of the Great Dividing Range (in inland catchments shared with other states) are not to be used for non-food purposes, including stocking Queensland waters or dams.

## **PO20**

Demonstrating compliance with this performance outcome of the State code should aim to meet the requirements of AO20.1. It is unlikely that compliance with PO20 can be demonstrated otherwise.

### **Suggested further information**

Department of Primary Industries and Fisheries, aquaculture policy, *Management arrangements for potentially high-risk activities in the context of ecologically sustainable development (ESD) for aquaculture facilities FAMOP001*, Version 1 Dec 2004.

Department of Agriculture, Fisheries and Forestry, aquaculture protocol, *Health protocol for the importation and movement of live barramundi FAMPR002*, Version 4 June 2011.

## **4.2.9 PO21: Water or organisms originating from the aquaculture of exotic fish**

### **Context**

Species that are non-indigenous to Australia have a higher associated risk of **translocation** and introduction of **disease**. There is a risk of introducing live aquatic organisms into waters where there is no existing population. In the worst-case scenario, a feral population could be established and have a significant impact on the natural flora and fauna of natural waters. Serious impacts on native freshwater fauna and habitat caused by the escape of exotics such as tilapia and carp are well documented. Introduced species often have competitive advantages over native Australian species and can establish pest populations (e.g. introduced carp, tilapia).

There is also a risk that imported **exotic fish** species may act as hosts to **disease** organisms not found in indigenous **fish** stocks, and against which indigenous species may have little or no natural resistance. The management of domestic cultivation of exotic species is important in reducing importation of potential pathogens.

To address these risks, the culture of **exotic fish** is not supported in in open or flow-through systems that allow **discharge** into natural **waterways**, and **containers** used to hold **exotic fish** must be screened to exclude vertebrate predators.

### **Supporting actions**

#### **AO21.1 and AO21.2**

The following actions will demonstrate compliance with these acceptable outcomes of the State code:

- Demonstrate that water from the **aquaculture** facility will not be released into Queensland waters.
- Provide details of screening to be utilised on **containers** holding **exotic fish** to exclude vertebrate predators.
- Provide details of any proposed buffers between the **aquaculture** activities and all freshwater systems.

- Provide a scaled site plan showing the location of the **aquaculture** development in relation to:
  - any **waterways** or wetlands
  - a contour line showing the 1% annual exceedance probability flood level.

#### **PO21**

Demonstrating compliance with this performance outcome of the State code should include complying with AO21.1 and AO21.2.

#### **Suggested further information**

No further reference material is suggested.

### **4.3.0 PO22: Threatened, endangered or critically endangered fisheries resources**

#### **Context**

Some species that are cultured are protected under fisheries legislation (e.g. no-take species). Others are listed species under the State *Nature Conservation Act 1992*, the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*, and/or recognised under international conventions (i.e. IUCN Red List of Threatened Species) as vulnerable, endangered or critically endangered. These species are vulnerable to exploitation and require particular regulation or protection, especially regarding any collection of broodstock required for the **aquaculture** development and the fate of **aquaculture** product. **Aquaculture** developments that propose to include such species will need to demonstrate benefits to the management of the species. A recovery plan for a particular species may also be relevant. To reduce the impact on protected and listed species, additional management arrangements may apply when collecting broodstock.

Examples of rare, threatened, or endangered species include, but not limited to, Queensland lungfish, Mary and Murray River cods, silver perch and Oxleyan pygmy perch.

#### **Supporting actions**

No acceptable outcome has been provided. Therefore, the application must demonstrate compliance with the performance outcome.

#### **PO22**

Demonstrating compliance with this performance outcome of the State code must include, but is not limited to, the following actions:

- Provide details on how the **aquaculture** development can provide a net benefit to the management of the proposed **aquaculture** species.
- Demonstrate how any intended collection of broodstock for the **aquaculture** development will minimise impacts on wild populations.
- Unnecessary collection of species of conservation interest should be avoided. Accordingly, evidence should be provided to support the feasibility of the proposed culture method (e.g. demonstrated history of successful rearing of these species, or species with similar culture requirements).

## **Suggested further information**

Department of Agriculture and Fisheries, *Guideline for broodstock and culture stock collection*, December 2014.

Refer to the *Fisheries Act 1994* and *Nature Conservation Act 1992* for fish protected under State legislation, and the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* for fish listed as threatened species.

International Union for Conservation of Nature (IUCN), IUCN Red List of Threatened Species.

## Abbreviations

ADA	aquaculture development area
AEP	annual exceedance probability
AHD	Australian Height Datum
AO	acceptable outcome
PO	performance outcome
RAA	resource allocation authority
SARA	State Assessment and Referral Agency
SDAP	State Development Assessment Provisions

## Glossary

### Aquaculture

See the *Fisheries Act 1994*.

**Aquaculture** means the cultivation of live **fisheries resources** for sale other than in circumstances prescribed by regulation.

### Aquaculture fisheries resources

See the *Fisheries Act 1994*.

**Aquaculture fisheries resources** means live **fish** and other **marine plants** cultivated in **aquaculture**.

### Aquaculture furniture

See the *Fisheries Act 1994*.

**Aquaculture Furniture** means a cage, rack, **tank**, tray or anything else used, or capable of being used, in **aquaculture** or to assist in **aquaculture**.

### Bioremediation

means the branch of biotechnology that uses biological processes to overcome environmental problems. For example, the culture of **fisheries resources** for the purpose of improving the quality of **discharge** water from treatment and settlement **ponds**)

### Biosecurity

means protection from the risks posed by organisms to the economy, environment and people's health.

### Container

See the *Fisheries Act 1994*.

Any structure used to hold **aquaculture fisheries resources** including a basket, case or tray.

### Discharge

means the release of wastewater into natural **waterways**.

### Disease

See the *Biosecurity Act 2014*.

**Disease** means:

1. the presence of a pathogenic agent in a host; or
2. the clinical manifestation of infection; or
3. a syndrome.

### Exotic fish

**Fish** originating from anywhere outside Queensland.

### Fish

See the *Fisheries Act 1994*.

**Fish** means:

1. An animal (whether living or dead) of a species that throughout its life cycle usually lives:
  - a. in water (whether freshwater or saltwater);
  - b. in or on foreshores; or
  - c. in or on **land** under water.
2. Includes:
  - a. prawns, crayfish, rock lobsters, crabs and other crustaceans;
  - b. scallops, oysters, pearl oysters and other molluscs;
  - c. sponges, annelid worms, bêche-de-mer and other holothurians;
  - d. trochus and green snails.
3. Does not include:
  - a. crocodiles;
  - b. protected animals under the *Nature Conservation Act 1992*;
  - c. pests under the *Pest Management Act 2001*; or
  - d. animals prescribed under a regulation not to be **fish**.

4. Also includes:
  - a. the spat, spawn and eggs of **fish**;
  - b. any part of **fish** or of spat, spawn or eggs of **fish**;
  - c. treated **fish**, including treated spat, spawn and eggs of **fish**;
  - d. coral, coral limestone, shell grit or star sand;
  - e. freshwater or saltwater products declared under a regulation to be **fish**.

**Fish habitat**

See the *Fisheries Act 1994*.

**Fish habitat** includes **land**, waters and plants associated with the life cycle of **fish**, and includes **land** and waters not presently occupied by **fisheries resources**.

**Fisheries resources**

See the *Fisheries Act 1994*.

Includes **fish** and **marine plants**

**Fishery**

See the *Fisheries Act 1994*.

**Fishery** includes activities by way of **fishing**, including, for example, activities specified by reference to all or any of the following:

- a. a species of **fish**;
- b. a type of **fish** by reference to sex, size or age or another characteristic;
- c. an area;
- d. a way of **fishing**;
- e. a type of boat;
- f. a class of person;
- g. the purpose of an activity;
- h. the effect of the activity on a **fish habitat**, whether or not the activity involves **fishing**;
- i. anything else prescribed by regulation.

**Fishing**

See the *Fisheries Act 1994*.

Includes:

1. searching for, or taking, **fish**
2. attempting to search for, or take, **fish**
3. engaging in other activities that can reasonably be expected to result in the locating, or taking, of **fish**
4. landing **fish** (from a boat or another way), bringing **fish** ashore or transshipping **fish**

**High Risk Activities**

mean activities involving **aquaculture** of **exotic fish** species, barramundi in inland catchments and species of conservation interest.

**Highest astronomical tide**

means the highest level of the tides that can be predicted to occur under average meteorological conditions and under any combination of astronomical conditions.

**Land**

See the *Fisheries Act 1994*.

Includes foreshores and tidal and non-**tidal land**

**Marine park**

A **marine park** declared, or taken to be declared, under the *Marine Parks Act 2004*.

<b>Marine plant</b>	<p>See the <i>Fisheries Act 1994</i>.</p> <p><b>Marine plant</b> means:</p> <ol style="list-style-type: none"> <li>1. A plant (a tidal plant) that usually grows on, or adjacent to, <b>tidal land</b>, whether it is living, dead, standing or fallen</li> <li>2. Material of a tidal plant, or other plant material on <b>tidal land</b></li> <li>3. A plant, or material of a plant, prescribed by regulation to be a <b>marine plant</b></li> </ol> <p>A <b>marine plant</b> does not include a plant that is prohibited matter or restricted matter under the <i>Biosecurity Act 2014</i>; or controlled <b>biosecurity</b> matter or regulated <b>biosecurity</b> matter under the <i>Biosecurity Act 2014</i>.</p>
<b>Pond</b>	An earthen in-ground <b>container</b> .
<b>Resource allocation authority</b>	means a current <b>resource allocation authority</b> issued under the <i>Fisheries Act 1994</i> .
<b>Tank</b>	An above-ground <b>container</b> used for intensive <b>aquaculture</b> within an enclosed facility.
<b>Tidal land</b>	<p>See the <i>Fisheries Act 1994</i>.</p> <p>Includes reefs, shoals and other <b>land</b> permanently or periodically submerged by waters subject to tidal influence.</p>
<b>Translocation</b>	<p>The movement of live aquatic organisms (including all stages of the organism's life cycle and any derived viable genetic material):</p> <ol style="list-style-type: none"> <li>1. beyond its accepted distribution, or</li> <li>2. to areas which contain genetically distinct populations, or</li> <li>3. to areas with superior parasite or <b>disease</b> status</li> </ol>
<b>Waterway</b>	<p>See the <i>Fisheries Act 1994</i>.</p> <p>Includes a river, creek, stream, watercourse, drainage feature or inlet of the sea.</p>

## References

### General

Department of Primary Industries and Fisheries, aquaculture policy, *Management arrangements for potentially high-risk activities in the context of ecologically sustainable development (ESD) for aquaculture facilities FAMOP001*, Version 1 December 2004.

### Location/construction

Department of Agriculture and Fisheries, *Methodology for the identification and selection of terrestrial aquaculture development areas in the coastal zone*, December 2018.

Department of Agriculture and Fisheries, *Oyster industry plan for Moreton Bay Marine Park*, December 2015.

Department of Employment, Economic Development and Innovation, *Great Sandy regional marine aquaculture plan*, 2011.

Department of Employment, Economic Development and Innovation, *Implementation guide for the Great Sandy regional marine aquaculture plan*, 2011.

Department of Employment, Economic Development and Innovation, *Policy for the allocation of marine aquaculture authorities*, October 2010

Department of Environment and Heritage Protection, operational policy, *Building and engineering standards for tidal works*, Version 1, March 2013.

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Department of Science, Information Technology, Innovation and the Arts, *Queensland acid sulfate soil technical manual: soil management guidelines*, V4.0, 2014.

### Species to be cultured

Department of Agriculture and Fisheries, *Broodstock and culture stock collection Policy*, August 2018.

### Health/translocation

Business Queensland, website, 'Pearl oyster quarantine', 2016, <[www.business.qld.gov.au/industries/farms-fishing-forestry/fisheries/aquaculture/managing-disease/pearl-oyster-quarantine](http://www.business.qld.gov.au/industries/farms-fishing-forestry/fisheries/aquaculture/managing-disease/pearl-oyster-quarantine)>.

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Department of Agriculture, Fisheries and Forestry, aquaculture protocol, *Health protocol for the importation and movement of live barramundi FAMPR002*, Version 4 June 2011.

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Department of Agriculture, Fisheries and Forestry, aquaculture protocol, *Health protocol for the movement of live freshwater crayfish and prawns FAMPR006*, Version 1 June 2011.

Department of Agriculture, Fisheries and Forestry, aquaculture protocol, *Health protocol for the movement of live marine crustaceans including crabs, lobsters and bugs FAMPR004*, Version 1 June 2011.

Department of Agriculture and Fisheries, aquaculture protocol, *Health protocol for the movement of live bivalve molluscs FAMPR003*, Version 3 July 2019.

Department of Employment, Economic Development and Innovation, aquaculture protocol, *Health protocol for the movement of live freshwater native finfish (other than barramundi and eels) FAMPR007*, Version 1 June 2011.

Department of Primary Industries and Fisheries, *Health management technical guidelines for aquaculture*, February 2008.