

Sector-based aquaculture strategy

Oysters

**Provisions for best-practice environmental management
and other matters**



**Government
of South Australia**

Department of Primary
Industries and Regions

Sector-based aquaculture strategy: Oysters

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Enquiries

Department of Primary Industries and Regions
Fisheries and Aquaculture Division
2 Hamra Avenue
West Beach SA 5024
T 08 8207 5332
E pirsa.aquaculture@sa.gov.au



Oysters South Australia (South Australian Oyster Growers Association)
PO Box 10
Smoky Bay SA 5680
T 0427 003 346
E hello@oystersssa.com.au



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Glossary

The definitions below apply unless the contrary has been specified.

Word or term

Meaning

Adverse interaction

An interaction between farming structures or other aquaculture equipment with a large marine vertebrate or a seabird in a manner which results in the animal becoming entangled or otherwise confined.

Aquaculture

Farming of aquatic organisms for the purposes of trade, business or research but does not include an activity declared by regulation not to be aquaculture.

Aquaculture equipment

A farming structure; or equipment used to anchor or indicate the presence of farming structures; or a barge used to feed aquatic organisms; or equipment used to mark-off or indicate the boundaries of a licence area; or other equipment used for the purposes of aquaculture.

Aquaculture waste

Waste generated in the course of carrying on aquaculture but does not include waste created by living aquatic organisms.

Aquaculture zone

An area of State waters identified in an aquaculture policy, within which aquaculture or specified classes of aquaculture is permitted.

Aquatic organism

An aquatic organism of any species and includes the reproductive products and body parts of an aquatic organism.

Biofouling

Accumulation of aquatic organisms (micro-organisms, plants and animals) on surfaces and structures immersed in or exposed to the aquatic environment.

Fouling becomes tertiary in nature when structures immersed in or exposed to the aquatic environment become colonised by larger multi-celled organisms like barnacles and algae.

Council

A council constituted under the *Local Government Act 1999*.

Culture unit

Any structure used to contain aquatic organisms in the course of farming those organisms and includes, without limitation, a basket, bag, rack or tray.

Department

The administrative unit of the public service responsible for assisting the Minister in the administration of the *Aquaculture Act 2001* (currently this is PIRSA).

Disease

Clinical or non-clinical infection with one or more pathogenic agents.

Ecologically sustainable

See section 4 of the *Aquaculture Act 2001*.

Environmental harm

See section 5 of the *Environment Protection Act 1993* and clause 5 of the *Environment Protection (Water Quality) Policy 2015*.

Farming of aquatic organisms	An organised rearing process involving propagation or regular stocking or feeding of the organisms or protection of the organisms from predators or other similar intervention in the organisms' natural life cycles.
Farming structures	Structures used for the farming of aquatic organisms and includes, without limitation, racks, longlines and submerged lines, floating systems or hybrid systems, together with their associated baskets, bags, racks, trays and other culture units.
Intertidal zone	The zone between mean high water and mean low water, subject to regular submersions and emersions, important for species zonation.
Large marine vertebrate	A shark, seal, sea lion, turtle, dolphin or whale.
Licensee	The holder of an aquaculture licence.
Licence area	The area of a licence described on the public register under section 80 of the <i>Aquaculture Act 2001</i> (being the location at which the licence authorises aquaculture operations).
Low water	The lowest level reached by the water during one tidal cycle.
Minister's website	A website determined by the Minister (www.pir.sa.gov.au).
Marine mammal	A seal or sea lion (order Pinnipedia) or a dolphin or whale (order Cetacea).
Mean High Water	A tidal level. The average of all high waters observed over a sufficiently long period.
Oyster sector	A class of licensee, inclusive of other persons carrying on aquaculture under a licence on behalf of the licensee, whose licence authorises the primary aquaculture of oyster species.
Pathogenic agent	An organism that causes or contributes to the development of a disease.
PIRSA	The Department of Primary Industries and Regions.
Protected animal	See regulation 27(3) of the <i>Aquaculture Regulations 2016</i> .
Reporting year	A period of 12 months commencing on 1 July.
Public authority	A Minister, statutory authority or council.
Shallow waters	Water of such depth that surface waves are noticeably affected by bottom topography.
Oyster spat	Juvenile oyster species, typically with a shell length of 15 mm or less in any dimension.
Stocking density	Number of aquatic organisms per given area or culture unit.
Subtidal zone	The zone below the low water mark, that is continuously submerged.
The Minister	The Minister responsible for the administration of the <i>Aquaculture Act 2001</i> .

Unusually high mortality rate	See regulation 3(2) of the <i>Aquaculture Regulations 2016</i> .
Waste management hierarchy	A reference to an order of priority for the management of waste, as described under section 4B of the <i>Environment Protection Act 1993</i> .

Introduction

The South Australian aquaculture industry is one of the largest aquaculture production sectors in Australia. South Australia is well placed to meet growing demand for seafood, with locally farmed species including Native and Pacific Oysters, Blue Mussels, Southern Bluefin Tuna, Yellowtail Kingfish and Greenlip Abalone, all highly sought after by domestic and international markets. South Australia is also home to a diverse and innovative range of aquaculture production systems for subtidal and intertidal mollusc farming, sea-cage farming of finfish and various land-based systems.

The Fisheries and Aquaculture Division of the Department of Primary Industries and Regions (the Department) supports the ecologically sustainable development of the aquaculture industry through the administration of dedicated aquaculture legislation. The *Aquaculture Act 2001* provides a robust regulatory framework for aquaculture, supporting continued sustainable growth and development of the industry. The *Aquaculture Act 2001* is supported by the *Aquaculture Regulations 2016* and aquaculture policies which incorporate valuable regulatory reforms and have been developed to support the preservation and future growth of the aquaculture industry through productive, commercially competitive and ecologically sustainable development principles.

The objects of the *Aquaculture Act 2001* are—

- (a) to promote ecologically sustainable development of marine and inland aquaculture;
- (b) to maximise the benefits to the community from the state's aquaculture resources; and
- (c) otherwise ensure the efficient and effective regulation of the aquaculture industry.

Under the *Aquaculture Act 2001*, aquaculture development is ecologically sustainable if it is managed to ensure communities provide for their economic, social and physical well-being while—

- (a) natural and physical resources are maintained to meet the reasonably foreseeable needs of future generations;
- (b) biological diversity and ecological processes and systems are protected; and
- (c) adverse effects on the environment are avoided, remedied or mitigated.

Further, in making decisions as to whether development is ecologically sustainable, or to ensure development is ecologically sustainable, long-term and short-term economic, environmental, social (including social licence issues) and equity considerations are effectively integrated.

Aquaculture zone policies under the *Aquaculture Act 2001* serve as multi-use spatial planning tools designed to balance the diverse needs of the state's aquatic resource users. These policies emphasise the importance of minimising impacts across all sectors and encourage collaboration among stakeholders to address concerns effectively.

To further the principles of ecologically sustainable development and the Objects of the *Aquaculture Act 2001*, licence holders should always consider relationships with fellow farmers and other users of the State's aquaculture resources. A cooperative approach is crucial to prevent or mitigate potential conflicts occurring between all resource users.

By adhering to standardised strategies, the oyster sector will not only support the broader aquaculture community but also contribute to the sustainable development of South Australia's aquatic resources. Building and maintaining respectful relationships with all stakeholders will foster a cooperative environment, reduce the likelihood of conflicts, and enhance the overall success of the oyster sector.

Scope

For the purposes of regulations 18 and 19 of the *Aquaculture Regulations 2016*, this sector-based aquaculture strategy applies to the industry sector whose licence issued under the *Aquaculture Act 2001* authorises the primary farming of oyster species, hereafter referred to as the oyster sector.

The requirements set out in this strategy are in addition to – and do not limit or derogate from – the provisions of any other Act or legislative instrument applicable to aquaculture carried on under a licence.

These requirements are not repeated in this document. As such, licence holders are encouraged to regularly familiarise themselves with other Acts and associated legislative instruments applicable to aquaculture activities. This includes but is not limited to those of the *Aquaculture Act 2001*, the *Aquaculture Regulations 2016*, the *Aquaculture (Standard Lease and Licence Conditions) Policy 2023*, the *Environment Protection Act 1993*, the *Fisheries Management Act 2007*, the *Livestock Act 1997*, and the *National Parks and Wildlife Act 1972*.

Further information relating to existing marine aquaculture licence holder responsibilities can be found on the Minister's website.

Purpose

This sector-based aquaculture strategy aims to ensure potential adverse effects on the environment resulting from day-to-day farming practices and other aquaculture-related conduct by the oyster sector are avoided, remedied, or mitigated where possible. It supersedes individual aquaculture strategies which were in place for licence holders of the oyster sector immediately prior to the publication of this strategy. A licensee who belongs to the oyster sector must adopt this sector-based aquaculture strategy and ensure activities undertaken under their individual aquaculture licence area(s) conform with it.

The strategies prescribed within this document are divided into two parts delineated by the terms 'should' and 'must' but not all strategies have both parts. For clarity:

- (1) **SHOULD** is a term used to indicate recommended practices the oyster sector may consider in supporting the objects of the *Aquaculture Act 2001* (including but not limited to ecologically sustainable development).
- (2) **MUST** is a term used to indicate mandatory requirements which if ignored, is likely to lead to a breach of legislation relating to aquaculture, fisheries management, environment protection or protected wildlife conservation.

Failing to follow a 'should' provision of a strategy would not result in enforcement action, as these are recommended practices which oyster farmers are simply encouraged to follow (i.e. best practice). However, failure to follow a 'must' provision may result in some form of enforcement action (e.g. an expiation notice, carry out work order, etc.).

The 'must' provisions therefore relate to existing rules or legislative requirements put in place for licence holders in some form. For example, the requirement of licensees under regulation 25(b) of the *Aquaculture Regulations 2016*, to ensure farming structures used for aquaculture are anchored in a way that minimises the impact on the sea floor, remain wholly within the licence area, and are maintained in good working condition.

Alignment with the National Aquaculture Strategy

In September 2017, the Federal Department of Agriculture Fisheries and Forestry (DAFF) released a National Aquaculture Strategy (NAS) which was developed with – and supported by – state and territory jurisdictions and industry.

The NAS is a national document designed to complement policy priorities and activities underway in jurisdictions, aimed at supporting growth of the aquaculture industry while streamlining regulatory frameworks and enhancing research, development and extension for aquaculture across Australia.

Without limitation, this sector-based aquaculture strategy aligns with the NAS through provision of:

- **Efficient and transparent regulatory practices** by minimising unnecessary burden on aquaculture businesses in the oyster sector – consistent with the desired outcome of policy priority 1 of the NAS.
- **Improved public understanding and perception** of the South Australian oyster sector as a professional industry producing safe and healthy products by promoting industry best-practice approaches to aquaculture activities undertaken by the oyster sector – consistent with the desired outcome of policy priority 5 of the NAS.
- **Improved environmental performance** of the oyster sector by adoption of a sector-based strategy which provides a suite of best-practice farming activities, including site use and waste management – consistent with the desired outcome of policy priority 6 of the NAS.

Oyster aquaculture in South Australia

The South Australian oyster sector focuses on the production of the Pacific Oyster (*Magallana gigas*) which was introduced into South Australia in the 1960s and has been farmed in the State since the late 1980s. These are rapidly growing oysters that can reach market size in 12 months in some regions. Native Oysters (*Ostrea angasi*) are also being trialled for farming. The oyster sector is well established in the waters of Coffin Bay, Streaky Bay, Smoky Bay, Cowell, Denial Bay, Ceduna, Kangaroo Island and the Yorke Peninsula. It was the second most valuable aquaculture sector in South Australia in 2024/25, valued at \$62.7 million. In South Australia, oysters are grown in both the subtidal and intertidal zones.

The oyster sector obtains oyster spat from commercial hatcheries based in South Australia, with some farmers now developing new and/or expanding existing facilities to access locally grown stock. Typically, spat are placed into culture units when between 5-15 mm shell length and on-grown for about 12 - 24 months. During this time, oysters are removed from culture units and graded several times before they are sold. Grading the oysters minimises shell fouling and helps the development of optimal shell quality for marketing.

Methods of oyster farming include racking (rack and rail / contained racks) and the Baker-Schutz-Turner (BST) style of adjustable longline. Until recently, South Australian oysters have been grown using these two traditional methods which were originally designed to best suit the physical characteristics of given site within the State, as well as the size of oysters transferred onto the site (Wear *et al.*, 2004). It is understood some licence holders authorised to farm oysters have merged the two farming methods to create a hybrid system, whereby 'stick basket' culture units are hung perpendicular across BST longlines. This method of farming oysters remains a form of racking.

More recently, floating oyster farming systems are being used, including the Zapco longlines, FlipFarm™, BST Floating Culture Units, SEAPA REVO longlines and vertical tray longline systems.

Racking (traditional and hybrid systems)



Figure 1: Racking infrastructure showing double-pillow culture units at low water in Coffin Bay, South Australia. Photo by PIRSA Fisheries and Aquaculture.

The traditional rack farming system (contained racks or rack and railing) involves the use of rectangular-shaped culture units (for example stick baskets/two setters or spat trays) perpendicularly secured to wooden railing fixed to posts which are embedded into the sea floor (Wear *et al.*, 2004). Each wooden rack (see Figure 1) comprises a double-pillow culture unit (or tray) that holds up to 120 saleable size (65 - 85 mm shell length) oysters or spat.

Hybrid systems are much like the traditional system but uses BST longlines to allow adjustment of lines.

Traditional contained longline system



Figure 2: Example of the Baker-Schutz-Turner (BST) type adjustable longline system with plastic mesh bags and plastic clips. Photo by PIRSA Fisheries and Aquaculture.

The traditional BST adjustable longline system of farming oysters typically involves cylindrical mesh bags or injection-moulded high-density polyethylene (HDPE) baskets hung along a longline suspended by a series of upright wooden posts (Figure 2).

Baskets can fit approximately 60 saleable size (65 - 85 mm shell length) oysters and are single hung along longlines with an average of one basket per metre of longline. It is important to note that since the inception of the BST adjustable longline method, various injection-moulded HDPE baskets have been developed by manufacturers which have replaced the original BST baskets used.

The various HDPE basket types developed have unique sizes, shapes and functionality, and can therefore alter the actual stocking density at a licence area (Guis, 2012).

Floating contained longline systems



Figure 3: An example of the Zapco style of floating mesh bags paired along the length of a longline. Photo from <https://www.zapcoaquaculture.com/videos-photos/photos/farms>

Floating contained longlines in South Australia primarily include Zapco bag and FlipFarm™ basket systems which can move slightly with each tidal cycle.

The Zapco style of floating longline system involves the use of floating oyster growing bags that are paired along the length of longlines (Figure 3). This system provides the ability for one mesh bag to sit on top of another, as well as for both bags to be flipped to either side of the longline.

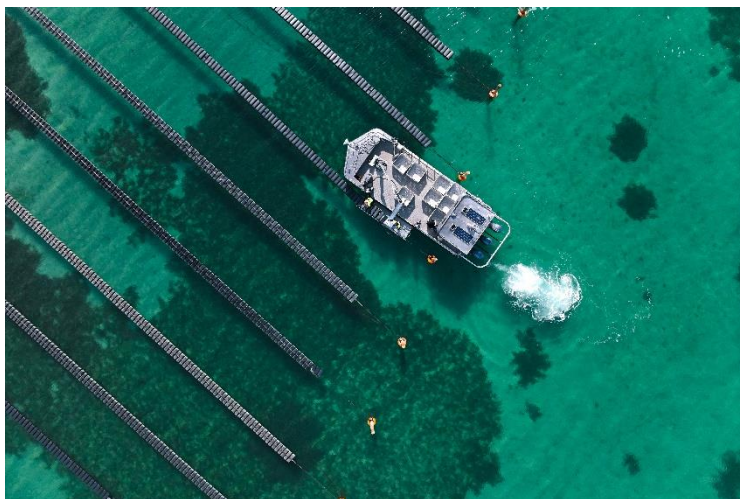


Figure 4: An example of the FlipFarm™ system. Photo courtesy of Angel Seafood Infrastructure Pty Ltd.

The FlipFarm™ style of floating longline system involves the use of plastic baskets which are semi-permanently attached to a heavy duty longline (Figure 4). The baskets are attached to the line through a central, rotational axle sleeve that is incorporated into the basket design (NSW DPI, 2021). The sleeve is attached to the bottom of the basket and sits perpendicular to the baskets longest axis which allows the basket to rotate around the longline (NSW DPI, 2021).

FlipFarm™ is a semi-automated system that uses a mechanical action device mounted to the side of a boat to flip baskets as the boat moves along a longline.

In addition to the Zapco and FlipFarm™ styles of floating contained longlines, other floating longline systems have recently been developed and considered for approval on aquaculture licences. Although not described here, these include the floating basket system developed by BST Oyster Supplies and the floating REVO system developed by SEAPA.

Farming structure and biomass limits for oyster aquaculture

On 18 August 2022, standardised aquaculture lease and licence conditions contained within the *Aquaculture (Standard Lease and Licence Conditions) Policy 2022* (the SLLC Policy) came into effect. Included in the SLLC Policy are standard farming system and maximum biomass limits for farming oysters (clauses 41 and 42 of the SLLC Policy, respectively). The standard requirements of these clauses apply to a licence if it authorises the farming of oyster species using contained longlines or contained racks (or both) and are to be read as forming part of current obligations of a licence holder. Where a new farming system has not been approved for use on a licence area and is not listed in the SLLC Policy, an aquaculture licence holder must obtain approval from the Department – including for use on a trial basis. This ensures the risk of environmental harm is minimised, and the number of oysters which can be cultured between each farming system remains equitable within the oyster sector. Where required, licence specific conditions can be applied to a licence.

Oyster farming industry code of practice

In July 2017, an amended code of practice for the environmental management of the South Australian oyster farming industry (the Code of Practice) was released at a South Australian Oyster Growers Association (SAOGA) seminar in Cowell (EPA, 2017). Originally produced in 2005, the Code of Practice was reviewed and amended to incorporate updated legislation administered by the Environment Protection Authority (EPA) and restructured to reflect operational practices of industry at that time.

The Code of Practice provides a tool to assist industry to meet the requirements of EPA legislation by identifying potential environmental issues associated with oyster farming and providing management strategies to address those issues. It does this by specifying mandatory requirements that must be complied with, and best environmental practices that are generally outcome-based, to encourage growers to drive beyond compliance and more sustainable operations. The Code of Practice applies to all operational aspects of oyster farming including land-based hatcheries, intertidal and subtidal marine farming sites, vessels and land-based oyster depots (EPA, 2017). A copy of the latest Code of Practice is available on the South Australian EPA's website. Importantly, this sector-based strategy does not supersede the EPA's Code of Practice, and all oyster growers must still have regard to and comply with the provisions presented in the latest available Code of Practice.

Strategy development

The sector-based aquaculture strategy has been developed by the Department with input from SAOGA, Department for Environment and Water (DEW), EPA and the oyster sector. This strategy does not vary or exempt the oyster sector from legislative requirements but rather supports relevant legislation applicable to aquaculture and the operational practices of the oyster sector. The strategies outlined in this document collectively form the sector-based aquaculture strategy for the oyster sector. These include:

- Requirements for inspecting and monitoring licence areas.
- Requirements for maintaining farming structures and aquaculture equipment.
- Requirements for avoiding or minimising impacts on sensitive habitats.
- Requirements for avoiding or minimising aquaculture waste.
- Requirements for avoiding or minimising disease and biosecurity risks (including stock escapes).
- Requirements for avoiding or minimising adverse interactions with seabirds and large marine vertebrates and a response plan for dealing with such events.
- Requirements for avoiding or minimising adverse effects on existing leases.

Strategy review

This sector-based aquaculture strategy may be amended following consultation with the oyster sector and any public authority likely to be affected by the strategy, and by publishing the amendment on the Minister's website. This sector-based aquaculture strategy will be reviewed as needed but at least once every ten years to ensure the prescribed strategies remain relevant, accepted and valuable to the oyster sector and support relevant updates to legislation governing aquaculture. Reviews should consider new scientific knowledge, industry best practices, legislative requirements and community expectations. This strategy may be amended urgently without prior notice or consultation, if it is in the opinion of the Minister that the action needs to be taken without delay to avoid, remedy or mitigate an adverse effect on the environment resulting from farming practices or other conduct by the industry sector. The industry sector will be notified if such an amendment is made.

Strategies

Inspecting and monitoring licence areas

Prescribed strategies

To promote ecologically sustainable operational standards, the following strategies relating to inspecting and monitoring licence areas are prescribed.

(1) A licensee of the oyster sector **should** ensure—

- (a) Individual licence areas are inspected in a scheduled and consistent manner to minimise the risk of potential impacts to the environment.
- (b) Frequent surveys of the seabed in and around individual licence areas are undertaken to identify sedimentation, the accumulation of aquaculture waste (including shells and broken equipment such as lines, posts, and culture units).
- (c) Written records are kept for all activities relating to routine and non-routine inspections (i.e. inspections made following storm events).

(2) A licensee of the oyster sector **must** ensure—

- (a) Inspections of individual licence areas are carried out at least once every seven (7) days throughout a reporting year and additional inspections made within two (2) days following any storm event, weather permitting. During these site visits:
 - i. The licence area is inspected for presence of aquaculture waste and other marine debris and is managed in line with the prescribed strategy for [avoiding or minimising aquaculture waste](#).
 - ii. A visual inspection is made to ensure aquaculture farming structures and equipment are secured, remain wholly within the licensed site, and remain in good working order. This includes but is not limited to ensuring all farming structures (posts, crosses, wires, ropes and fastening devices) are structurally sound and wires and ropes are kept taut.
 - iii. Individual licence areas and surrounding waters are monitored for signs of adverse interactions with large marine vertebrates or protected animals and are managed in line with the prescribed [response plan for dealing with adverse interactions with seabirds and large marine vertebrates](#).
 - iv. Aquaculture stock is monitored for signs of disease or unusually high mortality rates and if stock appears to be affected by disease, the disease (or suspected disease) is responded to in line with the prescribed strategy for [avoiding or minimising disease and biosecurity risks \(including stock escapes\)](#).
 - v. Farming structures and other aquaculture equipment used to secure, anchor or mark the position of a farming structure are monitored to ensure they remain wholly within an individual licence area at all times. For clarity, this includes ensuring there is no bowing of lines outside of a licence area resulting from the flooding and ebbing of water during a tidal cycle.
 - vi. Longlines and ropes are monitored for abrasion, chafing or degradation to prevent them or any other aquaculture farming structure or aquaculture equipment from being blown, washed, or swept off the licence area.

- (b) Farming structures or any other aquaculture equipment identified during an inspection as being damaged, requiring repair or maintenance are attended to as soon as reasonably practicable and undertaken in accordance with the prescribed strategy for [maintaining farming structures and aquaculture equipment](#).
- (c) Oysters which are located on an individual licence area but not contained within a culture unit are managed in line with the prescribed strategy for [avoiding or minimising disease and biosecurity risks \(including stock escapes\)](#).

Maintaining farming structures and aquaculture equipment

Prescribed strategies

To promote ecologically sustainable operational standards, the following strategies relating to maintaining farming structures and aquaculture equipment are prescribed.

(1) A licensee of the oyster sector **should** ensure—

- (a) Farming structures, culture units and other aquaculture equipment used to secure, anchor or mark the position of a farming structure located within an individual licence area are assembled, installed and maintained in accordance with the manufacturer's specifications and/or instructions.

(2) A licensee of the oyster sector **must** ensure—

- (a) All reasonable measures are taken to ensure no fixed post installed on a licence area exceeds a height of one metre above Mean High Water, except for navigational marks and street signs installed in accordance with the respective aquaculture lease¹.
- (b) Where a sliding collar is used in connection with a fixed post, a sliding collar retainer is securely attached near the top of the post to prevent the collar floating free of the post.
- (c) Farming structures being used for aquaculture are not secured to a structure or equipment comprising a navigational mark installed under the respective aquaculture lease (for clarity, farming structures and navigational marks are to be separate structures).
- (d) Farming structures and other aquaculture equipment located within an individual licence area are maintained in good working condition. This includes the following minimum activities:
 - i. Inspections of individual licence areas during a reporting year are undertaken in line with the prescribed strategy for [inspecting and monitoring licence areas](#).
 - ii. Aquaculture farming structures and aquaculture equipment are kept taut and off the sea floor.
 - iii. Culture units used for aquaculture are kept as free from advanced (tertiary) stages of biofouling as is reasonable and practical.
 - iv. Where a culture unit is no longer in good working order (i.e. is damaged or has advanced stages of biofouling), the culture unit is taken ashore for cleaning, repair and/or replacement (as the case requires), or, if an approved biofouling management plan is in place, the culture unit is managed in line with the approved biofouling management plan.
 - v. Aquaculture farming structures or other aquaculture equipment identified during a site inspection as requiring repair or replacement are attended to as soon as practical, but in any event within seven (7) days, weather permitting.
- (e) Activities undertaken for maintaining farming structures and other aquaculture equipment located within an individual licence area (including cleaning) do not result in excessive sedimentation, accumulation of waste, or damage to seagrass or other benthic organisms in/on the benthic environment by managing aquaculture waste in accordance with the prescribed strategy for [avoiding or minimising aquaculture waste](#).

¹ Navigation marks are the responsibility of the lease holder.

Avoiding or minimising impacts on sensitive habitats

Prescribed strategies

To promote ecologically sustainable operational standards, the following strategies relating to avoiding or minimising impacts on sensitive habitats (e.g. seagrass and reef) are prescribed.

(1) A licensee of the oyster sector **should** ensure—

- (a) Floating contained longline systems used for aquaculture in shallow waters are anchored in a manner that does not exceed three anchor points per 200 metres of longline (e.g. one fixed post or anchor at either end of a longline and one intermediate anchor point if necessary), unless the water depth is three (3) metres or more at low water.

(2) A licensee of the oyster sector **must** ensure—

- (a) All reasonable and practical measures are taken to prevent damage or degradation to the seabed or the marine or coastal environment, including by:
 - i. Taking all reasonable measures to avoid causing damage to seagrass by boat propellers when accessing individual licence areas in shallow waters where seagrass is present.
 - ii. Anchoring farming structures used for aquaculture in a manner that minimises the impact on the seabed and the associated flora.
 - iii. Avoiding the installation of contained rack farming structures over areas of dense seagrass habitats, or *Posidonia* seagrass species of any density.
 - iv. Regularly rotating fixed culture units comprising spat trays or stick baskets which have been positioned over seagrass to minimise the effects of shading.

Avoiding or minimising aquaculture waste

Prescribed strategies

To promote ecologically sustainable operational standards, the following strategies relating to avoiding or minimising aquaculture waste are prescribed.

- (1) A licensee of the oyster sector **should** ensure—
 - (a) Farm staff are aware of the procedures for managing and responding to stock mortalities (day-to-day and unusually high mortalities) through provision of relevant training during inductions.
 - (b) Culture units are removed from an individual licence site when not stocked to prevent degradation and undesirable accumulation of biofouling.
- (2) A licensee of the oyster sector **must** ensure—
 - (a) All aspects of their aquaculture operation comply with the requirements of the latest available EPA Code of Practice.
 - (b) All aquaculture waste produced on an individual licence area is secured or treated in a manner designed to prevent it being blown, washed or swept off an individual licence area until such time it can be reused, recycled or disposed of in an environmentally sound manner.
 - (c) Debris identified during the inspection of an individual licence area is recovered immediately and contained appropriately after being recovered and during transport.
 - (d) Aquaculture waste does not cause an unsightly or offensive condition at an individual licence area, or cause damage to the benthic habitat within an individual licence area by:
 - i. Undertaking regular inspections of individual licence areas in line with the prescribed strategy for [inspecting and monitoring licence areas](#), and carrying out maintenance activities in line with the prescribed strategy for [maintaining farming structures and aquaculture equipment](#).
 - ii. Recovering aquaculture waste dislodged from aquaculture farming structures (including through cleaning) from the sea floor and disposing of such material lawfully. If an accumulation of aquaculture waste is observed (including oyster shell biota and tertiary biofouling) the Department is notified by email to pirsa.aquaculture@sa.gov.au as soon as reasonably practicable, but within two (2) days of becoming aware of the accumulation, to allow appropriate management actions to be undertaken.
 - (e) Aquaculture waste (including dead aquaculture stock) is disposed of in accordance with the waste management hierarchy or at an EPA-approved waste disposal facility authorised to receive the aquaculture waste, unless the aquaculture waste is used for alternative purposes which do not result in disease or breach applicable legislation.

Avoiding or minimising disease and biosecurity risks (including stock escapes)

Prescribed strategies

To promote ecologically sustainable operational standards, the following strategies relating to avoiding or minimising disease and biosecurity risks (including stock escapes) are prescribed.

(1) A licensee of the oyster sector **should** ensure—

- (a) A farm biosecurity plan is developed and implemented to reduce the risks of disease and demonstrate how disease would be managed if an outbreak occurs.
- (b) Farm staff are trained in procedural matters relating to aquatic animal health management and reporting requirements for disease and stock escapes (suspect or actual).

(2) A licensee of the oyster sector **must** ensure—

- (a) Dead aquaculture stock is removed from culture units as soon as possible after becoming aware of the dead aquaculture stock, and such dead aquaculture stock is disposed of in line with the prescribed strategy for [avoiding and minimising aquaculture waste](#).
- (b) If the mortality rate for oysters farmed under a licence is unusually high and the licensee knows or suspects the oysters may be affected with a disease, the Minister is immediately notified by telephone call to the Fishwatch hotline on 1800 065 522, and all reasonable measures are taken to isolate oysters apparently affected by disease from oysters not apparently affected by disease.
- (c) All reasonable measures are taken to prevent the escape of aquaculture stock, including through the following actions:
 - i. Containing stock within appropriately sized mesh so as not to allow stock to fall through a culture unit.
 - ii. If farmed oysters are located on an individual licence area but not contained within a culture unit, farmed stock is to be immediately collected and returned to a culture unit, and any feral (non-farmed) oysters are collected, destroyed and/or disposed of legally.
 - iii. Farming structures and aquaculture equipment are maintained in line with the prescribed strategy for [maintaining farming structures and aquaculture equipment](#).
- (d) If aquaculture stock have escaped and cannot be recovered, or a farming structure or other equipment has been damaged in a manner that may lead to the escape of aquaculture stock, the Minister is immediately notified by telephone call to the Fishwatch hotline on 1800 065 522, and all reasonable measures are taken to contain or prevent the escape or further escape of stock.

Avoiding or minimising adverse interactions with seabirds and large marine vertebrates

Prescribed strategies

To promote ecologically sustainable operational standards, the following strategies relating to avoiding or minimising adverse interactions with seabirds and large marine vertebrates are prescribed.

- (1) A licensee of the oyster sector **should** ensure—
 - (a) Farm staff are trained and inducted in farm management practices relating to interactions, so they are fully aware of the potential for adverse interactions with seabirds and large marine vertebrates, and the necessary actions and reporting requirements.
- (2) A licensee of the oyster sector **must** ensure—
 - (a) They avoid sudden or repeated changes in vessel direction, or generating excessive noise, near large marine vertebrates or other protected animals present within or near an individual licence area.
 - (b) Individual licence areas are inspected and monitored in accordance with the prescribed strategy for [inspecting and monitoring licence areas](#), to avoid adverse interactions with seabirds, large marine vertebrates and other protected animals.
 - (c) Aquaculture farming structures and equipment are maintained in line with the prescribed strategy for [maintaining farming structures and aquaculture equipment](#), to minimise the risk of adverse interactions with seabirds, large marine vertebrates and other protected animals.
 - (d) If a marine mammal has become entangled or otherwise incapacitated within an individual licence area – or by aquaculture farming structures associated with an individual licence area – it is only approached in line with the prescribed [response plan for dealing with adverse interactions with seabirds and large marine vertebrates](#).
 - (e) In the event of becoming aware of a seabird being present within an individual licence area, only non-lethal methods are used to exclude the seabird from the area, if necessary.

Response plan for dealing with adverse interactions with seabirds and large marine vertebrates

For the purposes of this strategy, a protected animal is considered entangled or confined if the animal shows signs of disturbance and cannot freely leave an individual licence area without intervention or has been injured because of aquaculture farming structures or other equipment used in connection with aquaculture.

Prescribed strategies

To promote ecologically sustainable operational standards, the following strategies for responding to and dealing with adverse interactions with seabirds and large marine vertebrates are prescribed.

(1) A licensee of the oyster sector **should** ensure—

- (a) The local National Parks and Wildlife Service (NPWS) duty officer is contacted for advice prior to attempting to assist marine mammals, and marine mammals are only assisted if safe to do so under any circumstance.
- (b) Appropriate protective clothing is worn to prevent potential disease transfer while undertaking any action to free a protected animal. This includes rubber gloves, a face mask, eye protection, long pants and long sleeves.
- (c) All reasonable care is taken to avoid unnecessary touching of entangled or confined protected animals when undertaking any action to free an animal from being entangled or otherwise confined in farming structures or other equipment used in connection with aquaculture.

(2) A licensee of the oyster sector **must** ensure—

- (a) If a protected animal becomes entangled or otherwise confined in farming structures or other aquaculture equipment used in connection with the oyster sector, the incident is immediately notified through the Fishwatch hotline on 1800 065 522.
- (b) In the case of a marine mammal, no action to free the animal is undertaken until they have contacted and received appropriate advice from NPWS.

Avoiding or minimising adverse effects on existing leases

Prescribed strategies

To promote ecologically sustainable operational standards, the following strategies for avoiding or minimising adverse effects on existing leases are prescribed.

(1) A licensee of the oyster sector **should** ensure—

- (a) They have regard to the proximity to other aquaculture leases to ensure a proposal to vary aquaculture activities authorised under an aquaculture licence does not adversely affect other existing farming operations nearby, including by:
 - i. Considering the prevailing direction of tidal water flow (to and from adjacent sites).
 - ii. Considering the prevailing wind direction and maximum wave fetch.
 - iii. Considering key navigational access points.
 - iv. Discussing the proposal with other existing lease and licence holders that may be affected by the proposal (whether directly or indirectly).
- (b) All reasonable measures are taken to prevent exceeding the carrying capacity of the water body a licensed site is in, including by not overstocking culture units with oysters.

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