

# Queensland Aquaculture Strategy 2024–2034

Final Strategy





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### Cover

Coral Coast Barramundi – Coral Coast Barramundi Farm,  
Bowen, Queensland © Matt Blythe

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# Acknowledgment of Country

We acknowledge the Traditional Owners of the diverse lands across Queensland and pay our respects to their Elders past and present.

The *Queensland Aquaculture Strategy 2024–2034* was developed with an appreciation of the deep connection that Aboriginal peoples and Torres Strait Islander peoples have with the land and waters of Queensland, recognising their vital role as custodians of Country and the natural environment.

We recognise that the traditional wisdom and enduring connection to Country by First Nations people has safeguarded this land and its resources for future generations.









# Minister's Foreword



I am proud to deliver the Queensland Aquaculture Strategy 2024–2034 (the Strategy).

This Strategy is a key pillar in the Queensland Government's response to the recommendations of the independently chaired Future Fisheries Taskforce (the Taskforce), which was established to provide expert advice to government on a suite of measures to better protect the global icon that is the Great Barrier Reef.

A central recommendation of the Taskforce was to develop a whole-of-government aquaculture policy and strategy to provide a clear direction for the future of the aquaculture industry in our state. This Strategy delivers on that recommendation.

Queensland's growing aquaculture industry is small by global standards. However, our state has cultivated a reputation for producing sustainable, safe, high-quality and high-value aquaculture products. Continuing to foster these values across the industry will be a core part of ensuring the future of the industry is ecologically and economically sustainable.

As you will see articulated throughout the Strategy, my vision for 2034 is that Queensland is a thriving, world-leader in sustainable aquaculture and our state's aquaculture industry is respected for its diverse, high-quality produce, innovation, and environmental stewardship, and is supported by the community.

The Queensland Government will focus efforts to achieve this vision through four integrated pillars: productive industry, environmental performance, community benefits, and contemporary governance and engagement. Under this framework, the Strategy outlines 32 new actions which will be pursued to support the vision. The actions within the Strategy outline a clear plan for research, development and extension to respond to a range of foundational issues facing the industry.

Funding of \$15 million has been allocated to support implementation of the Strategy to ensure the ongoing development of innovative, best practice, sustainable aquaculture in Queensland. This builds on an existing investment of \$7.5 million, over 2023–2027, to support the Queensland aquaculture industry.

Case studies highlighting some of the many Queensland aquaculture businesses already pursuing innovative and sustainable production are included in the Strategy.

The Strategy also recognises the importance of respecting and working in effective partnership with Aboriginal peoples and Torres Strait Islander peoples from across Queensland to ensure that their values and aspirations, both culturally and economically, are supported.

I would like to thank all individuals and groups who have contributed to the development of this Strategy by sharing their insights through consultation. The Queensland Government will continue to engage with stakeholders so that our actions and efforts support Queenslanders to make the most of the opportunities that aquaculture offers, while safeguarding and enhancing the environmental and social values which make our state great.

**Honourable Mark Furner MP**

Minister for Agricultural Industry Development  
and Fisheries and Minister for Rural Communities





Department of Agriculture and Fisheries © State of Queensland

## Introduction

In response to recommendations made by the Future Fisheries Taskforce, the Queensland Aquaculture Strategy 2024–2034 (the Strategy) was developed to provide a whole-of-government, strategic direction for the future of the aquaculture industry in Queensland. The Strategy seeks to ensure that Queensland is in the best position to make the most of aquaculture while balancing the environmental and social values which make our state great.

Like Queensland’s other primary industries, growth in the aquaculture industry will need to be informed by strong environmental, social and governance practices, and backed by a robust research, development and extension capability.

The Strategy provides a high-level, strategic framework for the ongoing development of the aquaculture industry in Queensland in accordance with a vision that:

‘Queensland is a thriving, world leader in sustainable aquaculture. Our state’s aquaculture industry is respected for its diverse, high-quality produce, innovation, and environmental stewardship, and is supported by the community.’

This vision is underpinned by four integrated pillars: (1) Productive industry, (2) Environmental performance, (3) Community benefits, and (4) Contemporary governance and engagement (pages 21 - 23). Under these pillars, a range of foundation and growth actions are proposed (pages 24 - 26).

The first part of the Strategy includes an overview of the aquaculture industry globally, nationally and within Queensland. It outlines a range of threshold challenges for the industry and highlights its strengths and opportunities, and seeks to foster enhanced engagement between agencies, industry, and key stakeholders.



## What is aquaculture?

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Generally, aquaculture is the farming of aquatic organisms—including fish, molluscs, crustaceans and aquatic plants. It can be pursued in a range of settings, including freshwater, brackish water and marine systems, and can be undertaken at a range of intensities. Aquaculture is also defined under legislative frameworks at a state level including, the *Fisheries Act 1994 (Qld)* and the Environmental Protection Regulation 2019 (Qld).

Aquaculture involves some form of intervention in the rearing process to enhance production, such as regular stocking, feeding and protection from predators. It is not limited to production for human food purposes, and can also include the production of:

- juvenile fish for stocking for conservation and recreational fishing purposes
- seaweed and algae for food and non-food purposes
- materials for ornamental or jewellery use e.g. pearls
- a range of freshwater and marine species for the aquarium trade, such as native freshwater fish and corals.

Globally, new uses for aquaculture products continue to emerge.

Aquaculture, and the scope of this Strategy, do not directly deal with the regulation and policy of wild-caught commercial fishing, recreational fishing, fishing and boating safety, marine park management, fish habitat area management or marine habitat impact assessment, nevertheless these matters may be relevant to considerations related to the aquaculture industry.





## Purpose

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The purpose of this Strategy is to:

- articulate a clear vision for the future of sustainable aquaculture in Queensland
- establish pillars and actions to achieve its vision
- identify research priorities
- identify best practice governance approaches and lay the foundations
- acknowledge the role of Aboriginal peoples and Torres Strait Islander peoples as Traditional Custodians and operators within the aquaculture industry
- enable Queenslanders to make the most of the opportunities that aquaculture offers, while balancing the state’s environmental and social values.

## Alignment

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The Strategy complements and builds on a range of existing strategies, roadmaps, plans and other relevant pieces of work that support the development of a modern policy framework for aquaculture. Some relevant work in the Queensland context includes:

- Aquaculture Transformation Program (ATP) (2023)
- Queensland Aquaculture Policy Statement (2016)
- Queensland Competition Authority final report on Aquaculture Regulation in Queensland (2014) and the Government response (2016).

### More broadly, the Strategy is aligned with work progressed through:

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#### Queensland

- Future Queensland Science Strategy 2024–2029
- Queensland Biosecurity Strategy 2024–2029
- Queensland AgTech Roadmap 2023–2028
- Conserving Nature—a Biodiversity Conservation Strategy for Queensland (2022)
- Queensland Low Emissions Agriculture Roadmap 2022–2032



#### National

- Australian Government Aquaculture Statement 2024
- AQUAPLAN 2022–2027
- National Biosecurity Strategy (2022)
- National Fisheries Plan 2022–2030
- Reef 2050 Long-Term Sustainability Plan 2021–2025
- National Aquaculture Strategy (2017)
- National Aquaculture Statement (2014)



#### Global

- United Nations Sustainable Development Goals

A range of other strategic industry plans exist for sectors across the aquaculture industry in Queensland and nationally. In addition to these policy frameworks and strategies, consideration has also been given to the broader regulatory framework established at a state and national level.



# Development of the Strategy

## Our actions to date

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The Queensland Government is already undertaking a range of actions that support the development of a sustainable aquaculture industry in Queensland.

An updated summary of existing actions currently or previously undertaken by Queensland Government agencies is included in the appendix on pages 33 to 34. Key elements of this work, including recent program initiatives and consultation are also summarised in the paragraphs below.

### Aquaculture Transformation Program

The Aquaculture Transformation Program (ATP) was initiated in 2021–22 by the Department of Agriculture and Fisheries (DAF) with \$1.5 million in funding. In 2022–23 a further \$7.5 million was committed by government to support Queensland aquaculture over five years including to support regulatory reform and guidance, industry development, research, development and extension, and the establishment of an aquaculture incubator.

An updated summary of existing actions that comprise the ATP is included in the appendix on pages 31 to 32. In line with action 7 (page 24), implementation of the Strategy will include a review of progress to date under the ATP to understand the scope of work remaining and support the incorporation and realignment of any remaining initiatives under this Strategy.

## Existing consultation

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### DAF and DESI-led consultation

In October 2023, DAF hosted the Queensland Aquaculture Industry Forum, which brought together stakeholders from industry, regulators, academia and non-government organisations. Through this forum, a range of key themes were identified including: supporting industry through coordinated planning and delivery of critical infrastructure; simplifying and streamlining regulatory frameworks; supporting environmental, social and corporate governance; supporting growth of the ‘ocean economy’; promoting aquaculture awareness and literacy; and building capacity and capability by investing in skills and training. Considerations and planning from this forum has supported the development of the Strategy.

In August 2023, the Department of Environment, Science and Innovation (DESI) established the Aquaculture Working Group, aimed at those operating with an environmental authority under the *Environmental Protection Act 1994*. The objective of the Aquaculture Working Group is to provide for regular engagement between DESI, other relevant state government agencies, universities and the aquaculture industry to work through day-to-day operational and regulatory matters as well as responding to a set of identified challenges.

As identified in action 1 (page 24), existing engagement through the Queensland Aquaculture Industry Forum and transitional arrangements for the DESI Aquaculture Working Group will be considered through the establishment of an aquaculture Stakeholder Reference Group under the Strategy.

### Consultation Paper

The Queensland Aquaculture Strategy 2024–2034 Consultation Paper (Consultation Paper) was available for public consultation for a period of four weeks, from 2 to 31 July 2024. The Consultation Paper was published on DAF’s engagement hub (eHub) website and received 6,052 total page views from 3,346 unique visitors. It was downloaded a total of 838 times and a total of 53 written submissions were made through the eHub, directly to agencies, or through targeted consultation and information sessions. Submissions were received from a range of stakeholders across industry, industry associations, aquaculture businesses, universities and research organisations, Aboriginal peoples and Torres Strait Islander peoples’ representative groups, First Nations aquaculture businesses, government and non-government organisations, and interested members of the community.

Feedback received through the consultation process has been incorporated throughout this Strategy, where possible.



# Status of aquaculture

## Global picture

The Organisation for Economic Co-operation and Development (OECD) and United Nations Food and Agriculture Organisation (UNFAO) report, Agricultural Outlook 2023–2032, projects that global seafood consumption will reach 21.2 kilograms (kg) per person per year in 2032—up from an average of 20.4 kg in 2020-2022 (2023). Global fish production will continue to expand to meet rising demand into 2032, however, at a slower rate than in the preceding decade and with most of the additional production projected to be generated by the aquaculture sector (OECD and UNFAO 2023). Reflecting this, aquaculture is expected to account for 55% of global fish production by 2032, an increase in market share since it first overtook wild-caught fisheries at 50% in 2020-2022 (OECD and UNFAO 2023).

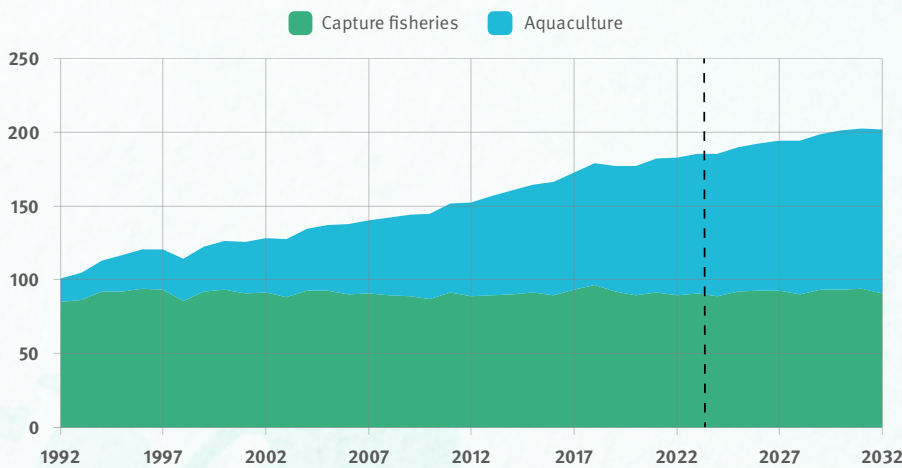


Figure 1: World capture fisheries (in million tonnes) and aquaculture production showing increasing proportion of aquaculture (OECD and UNFAO 2023).

## Australian industry snapshot

The recent Australian Bureau of Agricultural and Resource Economics and Sciences (ABARES) publication, *Australian fisheries and aquaculture outlook to 2028–29*, suggests that aquaculture in Australia is expected to continue increasing its overall contribution to seafood production – including growing from 60% of total production value in 2023–24 to 64% by 2028–29 (Tuyman et al. 2024). This total production value is expected to equate to \$2.21 billion by 2028–29 driven by anticipated production increases in a range of aquaculture species, predominantly salmonid production (Tuyman et al. 2024).

Total seafood consumption in Australia topped 350 kilotonnes in 2021–22, making seafood Australia’s fourth preferred source of protein in that period (based on per person consumption rates) (Tuyman et al. 2023). Australia’s seafood consumption has been relatively stable over the last decade and was approximately 14 kg per person annually in 2021–22 (Tuyman et al. 2023).



# Queensland industry snapshot

Queensland has a well-earned reputation as a producer of safe, high-quality and nutritious fresh produce. Queensland’s aquaculture industry is growing and is known for its sustainability and high-value aquaculture products.

Queensland’s aquaculture industry includes a spectrum of operators, from locally-run, small to medium size businesses to large enterprises. The majority of aquaculture operators in Queensland are small in scale, with a smaller number of large producers accounting for a significant proportion of production. Currently, there are 104 aquaculture operations in Queensland. Most aquaculture production in Queensland is through land-based farms utilising ponds, raceways, tanks, and recirculating production systems, with the balance (22) being oyster farms within tidal waters (non-intensive marine aquaculture).

## Queensland aquaculture businesses by annual revenue

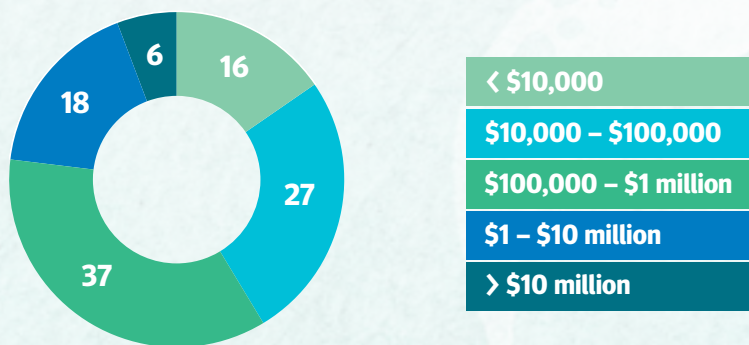


Figure 2: number of Queensland aquaculture businesses by annual revenue (DAF unpublished).

The total gross value of production (GVP) of the Queensland aquaculture industry in 2022–23 was \$263 million, up from \$225 million, an increase of 17.1%, in 2021–22 (DAF 2024). Gains in value in 2022–23 were predominantly in the prawn, freshwater, aquarium, and oyster sectors (DAF 2024). The industry operates across three main regions of production including Cairns, Mackay, and the Gold Coast (DAF 2024). However, the Torres Strait, Townsville area, southern inland areas, and Moreton Bay also account for aquaculture production (DAF 2024).

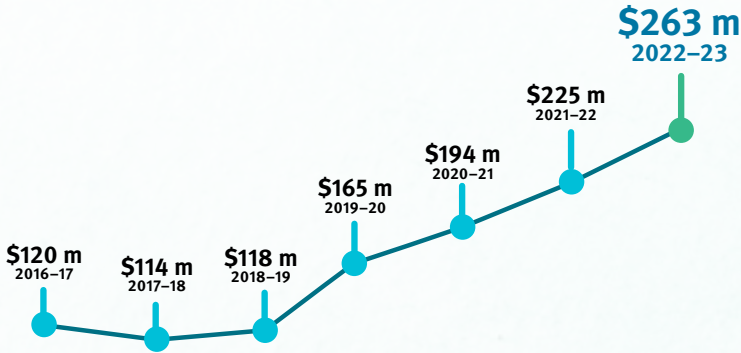
Within the Australian context, Queensland’s aquaculture GVP represented approximately 11.6% of the national aquaculture industry in 2022. While a significant proportion of the Australian aquaculture industry is made up of salmon and trout production (more than 69% of industry revenue) (IBISWorld 2023), there is no salmon or trout production in Queensland.

In 2022–23, Queensland’s production was characterised by two main sectors – prawns (72.6%) and barramundi (24.5%) (DAF 2024). The next largest sector was freshwater fish (1.8%) (DAF 2024). The industry also supports other niche and high-value sectors including redclaw, oyster, cobia, and grouper production. A future focus for the industry will be supporting this continued diversification into sustainable and high-value products for a variety of markets.

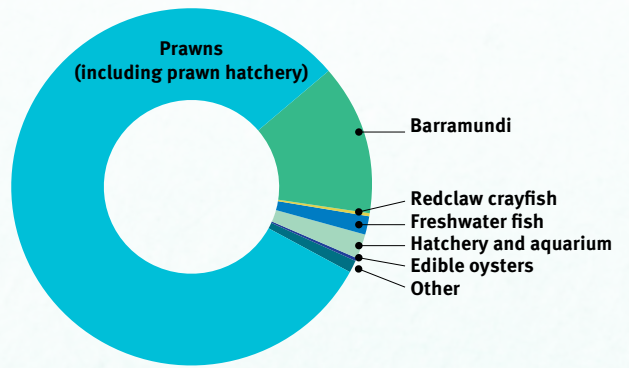


# Production summary 2022–23

## OVERALL PRODUCTION VALUE



## PRODUCTION VALUE

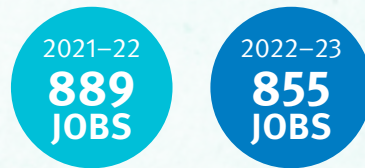


Since 2021–22, the **total value** of the Queensland aquaculture industry has increased by

**17.1%**

## LABOUR

The combined Queensland aquaculture industry employed



## PRODUCTION (tonnes)

	2021-22	2022-23
Prawns	8727	9826
Redclaw	31	22
Barramundi	3992	3315
Freshwater fish	197	242
Other	76	124

**TOTAL** 13,023 13,528

## REGIONAL SUMMARY

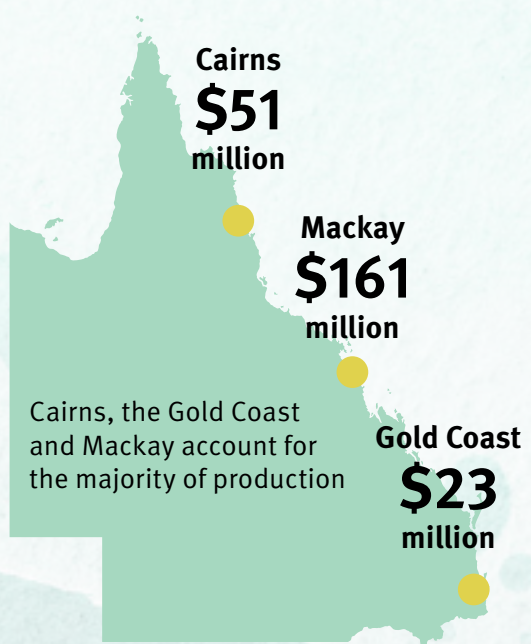


Figure 3: Production summary of Queensland's aquaculture industry 2022–2023 (DAF 2024).





## CASE STUDY

Condabilla Fish Farm © State of Queensland

### Farming fish differently at Condabilla Fish Farm

Situated on the banks of the Condamine River near the town of Chinchilla, Condabilla Fish Farm (Condabilla) is a 570-hectare property farming Murray Cod. The farm has been running for over 20 years, and is operated by Mark Oliver and his wife, Lanh Vuong along with seven other local staff members. Keeping sustainability and technology at the core of its operation, Condabilla prides itself on producing premium, high-quality products. As Mr. Oliver describes the business – ‘we don’t want to be the biggest, we want to be the best’. Embracing continuous improvement in all aspects of the business, Mr. Oliver cites Condabilla as the only fish farm of its kind in Australia.

Ponds at the facility are much larger than on a standard pond-based farm, with its largest being approximately 6.5 hectares. The fish are grown in purpose-built concrete raceways constructed and embedded prior to filling the ponds. The result is that only 5% of the pond area is devoted to growing fish and the remainder is a natural ecosystem, which assimilates waste. This best practice operating model allows the farm to avoid discharging any wastewater into the environment. In line with this focus on sustainability, the farm draws on sustainable power generation, with over 200kW of solar power meeting the daytime electricity needs of the property. Only around 5% of Condabilla’s operational costs go towards electricity, much less than the standard operating costs for an aquaculture facility.

The health and wellbeing of Condabilla fish is paramount with the farm maintaining a ‘fish come first’ policy at the core of the business. This approach supports the production of a premium product, with quality assurance starting when the fish are eggs and continuing through to shipping the product to customers. Much of the grading, sorting, harvesting and packing is done by hand, which allows for each individual fish to have its quality assessed by skilled staff at multiple points during their life cycle.

Condabilla Fish Farm is proud of its approach and is keen to share its learnings – “We have an open-book mindset,” says Mr. Oliver. The farm works with other aquaculture facilities to solve problems, conducts free bus tours, as well as hosting visits from research and academic institutions, government agencies, and regional support industries.

With increasing production levels, Condabilla is looking to access new markets and release valued added products. Already exporting limited amounts of produce to Hong Kong, Macau and Fiji the farm will seek to expand to new international markets in future. Condabilla is also developing a range of artisanal products like smoked cod and partnering with other artisanal food producers.





## CASE STUDY

Coral Coast Barramundi © State of Queensland

### Innovation at Coral Coast Barramundi

Coral Coast Barramundi, situated north of Bowen on Queensland's Whitsunday Coast, is a fully integrated barramundi farm committed to incorporating innovation and technology into its operation and minimising the impact on its coastal environment.

Located 2.5 km away from the coast, the farm's design utilises 24 concrete raceways to produce award-winning barramundi in optimal conditions. Water in the raceways is enriched with liquified oxygen, ensuring optimal saturation that aids better feed conversion and growth rates than conventional pond culture. This system does not require paddle wheels for aeration, reducing power costs. Since much higher stocking densities can be achieved in raceways, a combination of raceway design and fish movement ensure the effective removal of waste from the production area. Coral Coast is also working with DAF on opportunities to trial new water treatment technologies, which can be tested in individual raceways before being applied to the whole farm.

Coral Coast has invested in automated water supply resulting in further significant power savings and lower pumping costs as well as lower discharge volumes. Additional farm efficiency gains were recently achieved through the installation of automated feeding technology. This uses a programmable logic controller that uses live camera images to enable staff to constantly adjust feed supply.

Supported by a North Queensland Economic Diversification Grant from the Queensland Rural and Industry Development Authority (QRIDA) this investment – in combination with raceway lighting – has enabled feeding 24 hours a day, smoothing out fluctuations of oxygen demand and reducing feed waste. As outlined by Farm Manager Justin Forrester, 'It used to take us a whole day and three vehicles to feed the entire farm, [it] now takes 15 minutes. The saved labour is welcomed in our packing shed, where we have more product to ship.'

For more than ten years, the farm has been undertaking feed trials in collaboration with Skretting with the goal of developing barramundi diets to improve sustainable production and support a circular economy. Coral Coast also maintains a robust hatchery operation supplying specialised feed, and clean, sterilised water to its broodstock to produce millions of Barramundi eggs. The associated breeding program carefully selects each fish for its traits and provides additional benefits for the ornamental trade and the Stocked Impoundment Permit Scheme, run by DAF. Through this program, hundreds of thousands of barramundi fingerlings have been stocked into the Proserpine and Burdekin Dams over the years.



# Queensland's unique operating environment

Queensland is home to a range of unique and globally significant ecosystems. This includes multiple UNESCO World Heritage sites like the Great Barrier Reef World Heritage Area and Wet Tropics World Heritage Area, as well as internationally Ramsar-listed sites including the Great Sandy Strait, Moreton Bay and other diverse and protected natural environments. This operating context is of relevance to the aquaculture industry and those producers operating in areas within and adjacent to sensitive natural environments across the state.

The potential impact of aquaculture discharge on sensitive receiving environments is a key issue for Queensland's aquaculture industry. Considerations for managing this challenge include integrated planning approaches and the development and uptake of innovative technologies to reuse water, treat discharge or change production models. Not all operators release wastewater into receiving environments, however, it remains a relevant consideration for ensuring ongoing growth in Queensland's aquaculture industry is ecologically and economically sustainable. The issue of wastewater management is reflected in actions 24 and 25 of the Strategy.

In addition to the management of water discharge, there are a range of other environmental considerations for the aquaculture industry which can pose risks if not managed correctly. This includes biosecurity and the risk of disease associated with pathogens in production and feed, species translocation risks, interaction with threatened species, and the impact on key habitat areas and natural vegetation in wetlands (including mangroves, seagrass, and saltmarshes).



# The Great Barrier Reef

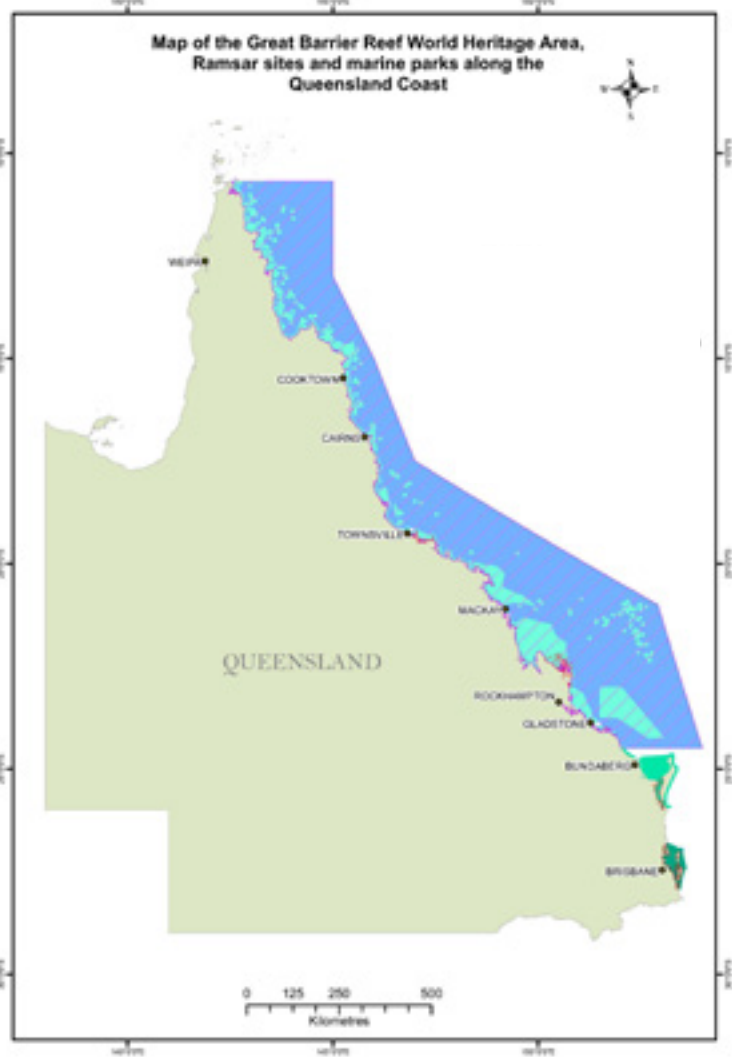
The Great Barrier Reef contains the world’s largest collection of coral reefs, with 1500 species of fish, 400 types of coral, and 4000 types of molluscs (UNESCO n.d.). The Reef encompasses much of Queensland’s east coast – extending from the coastal hinterlands and estuaries, and up to 250 kilometres offshore (UNESCO n.d.). It provides habitat for a range of threatened, endangered and protected species (TEPS) including dugongs, marine turtles and dolphins.

The importance of the Reef lies not only in the coral reef ecosystem but also in the inshore areas and oceanic waters and the connectivity across these habitats. There is no other world heritage property that contains such biodiversity (UNESCO n.d.). These environments are of cultural and economic importance to Queensland’s First Nations peoples who have lived and depended on this sea country for their wellbeing and livelihoods for many thousands of years.

The Reef holds significant value for all Queenslanders, Australians and the global community. In 2015-16, it had a recognised economic, social, and cultural value of more than \$56 billion supporting thousands of jobs across tourism, fishing, recreational and scientific activities (Deloitte Access Economics 2017).

The Queensland and Australian Governments have committed to enhancing protections for the Great Barrier Reef in line with recommendations from UNESCO. Monitoring of progress against these commitments is ongoing and will inform decisions about the status of the Reef in the future. There are a range of key measures relating to improving water quality in the Reef, ensuring sustainable fishing practices, and mitigating the impacts of climate change that the Queensland Government is continuing to pursue.

The unique context and significance of the Great Barrier Reef presents an opportunity for Queensland’s aquaculture industry to be at the global forefront of innovation for environmental performance and productivity.



**Legend**

- Great Barrier Reef World Heritage Area
- Ramsar sites
- Great Barrier Reef Marine Park (C'With)
- Great Barrier Reef Coast Marine Park (State)
- Great Sandy Marine Park (State)
- Moreton Bay Marine Park (State)

*Note: Great Barrier Reef Marine Park overlaps much of the Great Barrier Reef Coast Marine Park and is jointly managed by the Commonwealth and Queensland Governments.*

**Figure 4: Map of the Great Barrier Reef World Heritage Areas, Marine Parks and Ramsar wetlands along the Queensland coast © Department of Environment, Science and Innovation**



## Protected areas overview

In Queensland, an aquaculture business (existing or proposed) needs to be aware of a range of protected areas, and the requirements that may apply. A high-level overview of relevant State and Federal frameworks is included below. These considerations will need to be factored into planning for any aquaculture business as well as any approvals that may be required under different regulatory frameworks like the: *Fisheries Act 1994*, *Environmental Protection Act 1994*, *Planning Act 2016*, *State Development and Public Works Organisation Act 1971*, and *Environment Protection and Biodiversity Conservation Act 1999* (Cth), as relevant.<sup>1</sup>

### Overview of Protected Areas and relevant legislative frameworks

- Marine Parks under the *Marine Parks Act 2004 (Qld)*
  - Declared Fish Habitat Areas under the *Fisheries Act 1994 (Qld)*
  - Protected Areas and forest reserves declared under the *Nature Conservation Act 1992 (Qld)*
  - Areas declared under the *Wet Tropics World Heritage Protection and Management Act 1993 (Qld)*.
- 
- Matters of National Environmental Significance (MNES) under the *Environment Protection and Biodiversity Conservation Act 1999 (Cth)* (EPBC Act), which may include consideration of:
    - Habitat of migratory species protected under bilateral migratory bird agreements
    - Habitat of nationally threatened species and ecological communities
    - Ramsar wetlands in the Convention on Wetlands of International Importance
    - Declared World Heritage places that have natural or cultural heritage values
    - National heritage places defined under the EPBC Act which, include places or groups of places with outstanding heritage value to Australia
    - Great Barrier Reef Marine Park established under the *Great Barrier Reef Marine Park Act 1975 (Cth)*.
- 
- Matters of State Environmental Significance (MSES) as prescribed in the Environmental Offsets Regulation 2014, which may include consideration of:
    - Wetlands and watercourses prescribed as matters of state environmental significance
    - Designated precincts identified under the *Regional Planning Interests Act 2014 (Qld)*
    - Legally secured offsets as prescribed under the *Environmental Offsets Act 2014 (Qld)*
    - Threatened species habitat identified under the *Nature Conservation Act 1992 (Qld)*
    - Protected Plants identified under the *Nature Conservation Act 1992 (Qld)*
    - Regulated Vegetation under the *Vegetation Management Act 1999 (Qld)*
    - Waterways that provide for fish passage including under the *Fisheries Act 1994 (Qld)*
    - Marine plants as defined under the *Fisheries Act 1994 (Qld)*.
- 
- Matters of local environmental significance (MLES) as prescribed under a local planning instrument and consistent with the Planning Minister's Guidelines and Rules, where the area is not already prescribed as a MNES or MSES.

### Other matters for consideration may include:

- National Directory of Important Migratory Shorebird Habitat, which identifies important migratory shorebird habitat around Australia
  - Mapping for sea turtle nesting areas is included within MSES wildlife habitat mapping to identify significant and very significant nesting beaches for threatened turtles
  - Cultural heritage areas for the recognition, protection and conservation of the cultural heritage of Aboriginal peoples and Torres Strait Islander peoples as outlined under the *Aboriginal Cultural Heritage Act 2003 (Qld)* and the *Torres Strait Islander Cultural Heritage Act 2003 (Qld)*.
- 
- Conserved areas recognised under the National Other Effective area-based Conservation Measures Framework (Cth)
  - Recognition and exercise of native title rights in Australia administered through the *Native Title Act 1993 (Cth)*
  - Wetlands of High Ecological Significance and general ecological significance shown on the map of Queensland wetland environmental values.

<sup>1</sup>Note that this is a non-exhaustive list (and may be updated over time), other considerations, including those related to other state and federal government agencies may also apply. Business proponents should seek contemporary advice about regulatory requirements at the time of planning a proposal.



## Biosecurity in aquaculture

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While Queensland is free of many serious diseases and pests affecting aquaculture in other countries, maintaining biosecurity remains a primary, ongoing consideration for the Queensland aquaculture industry.

All Queenslanders play a role in safeguarding Queensland’s lifestyle, industries, and environment from biosecurity threats. This is known as the ‘general biosecurity obligation’ under Queensland’s *Biosecurity Act 2014* and helps prevent the spread of pests, disease, or contaminants. The general biosecurity obligation applies to individuals and corporations.

Biosecurity Queensland, within DAF, is responsible for leading biosecurity initiatives across the Queensland Government and in partnership with industry bodies, producers and the community to build and maintain a strong biosecurity system, including for the aquaculture industry.

Biosecurity management is fundamental to aquaculture and refers to practices that minimise the risk of introducing pests and infectious diseases and reducing their spread within a facility. It also aims to prevent pests or disease agents from escaping a facility and spreading beyond their boundaries into the broader environment. Aquaculture operators are responsible for managing biosecurity risks that are under their control, and to the best of their ability, take all reasonable and practical steps to prevent or minimise each biosecurity risk, minimise the likelihood of causing a ‘biosecurity event, and limit the consequences of any such event.

New disease organisms are constantly emerging and known diseases can appear at new locations, with outbreaks and spread occurring quickly. While the risk of a disease incident in an aquaculture setting can never be eliminated, the adoption of strong biosecurity procedures on-farm can significantly minimise it and ensure appropriate management. Investing in biosecurity management on farm can have significant economic, environmental, and animal welfare benefits. Healthy animals exhibit better growth rates, higher reproductive success, and improved resistance to stressors and diseases, all of which support more effective and efficient operations.





# Queensland’s strengths, opportunities and challenges

Queensland is uniquely positioned in the aquaculture landscape. A range of strengths, opportunities and challenges will need consideration to support the ongoing development of a sustainable aquaculture industry in Queensland. A high-level overview of key strengths, opportunities, and challenges are outlined in table 1. While actions under the Strategy seek to respond to these challenges and take advantage of the identified strengths, emerging issues and opportunities will need to be considered over the course of the Strategy.

**Table 1: Queensland’s key strengths, opportunities and challenges**

Strengths	Opportunities	Challenges
<ul style="list-style-type: none"> <li>• An excellent reputation nationally and internationally as a supplier of safe, high-quality and high-value seafood</li> <li>• Ideal growing conditions for a range of temperate and tropical species</li> <li>• Suitable tracts of land to support land-based operations</li> <li>• Suitable waters to support high quality aquaculture products</li> <li>• Freedom from serious diseases affecting aquaculture in other international jurisdictions</li> <li>• Strong regional capability, with major towns along the eastern coastline</li> <li>• Demonstrated capability in research and innovation and strong industry leadership</li> <li>• Robust regulatory frameworks to protect and preserve sensitive natural environments and threatened species</li> <li>• Existing skilled workforce supporting regional economies</li> </ul>	<ul style="list-style-type: none"> <li>• Stronger engagement and partnership with Aboriginal peoples and Torres Strait Islander peoples in aquaculture</li> <li>• Species diversification and continued production of premium, high-value aquaculture products</li> <li>• Leading the application of innovative technologies supporting premium world class aquaculture production</li> <li>• Continued uptake of new technologies and R&amp;D led and supported by industry</li> <li>• Continued application of best practice standards and innovation through decarbonisation and circular economies</li> <li>• Potential rehabilitation and habitat restoration supported by aquaculture</li> <li>• Enhancing consumer recognition of Queensland aquaculture products</li> <li>• Responding to consumer preferences for sustainable and local produce</li> <li>• Proximity to major seafood markets in the Asia-Pacific region and potential new markets</li> </ul>	<ul style="list-style-type: none"> <li>• Waste management, particularly nutrient emissions and developing environmentally and economically viable management strategies</li> <li>• Multi-layered regulatory environment requiring consideration of state and federal factors</li> <li>• Intensifying need to respond to climate change and disaster preparedness</li> <li>• Replicating and scaling best practice environmental standards across industry and supporting the spectrum of industry operators</li> <li>• Replicating innovative strategies at farm scale and across the industry</li> <li>• Maintaining effective biosecurity and responding to emerging threats</li> <li>• Responding to changing consumer preferences and competitive markets</li> <li>• Managing potential biodiversity and environmental impacts of aquaculture operations</li> <li>• Ongoing recruitment and retention of a skilled workforce</li> </ul>



# Pillars and actions

The vision of the *Queensland Aquaculture Strategy 2024–2034* is that: Queensland is a thriving, world-leader in sustainable aquaculture. Our state’s aquaculture industry is respected for its diverse, high-quality produce, innovation, and environmental stewardship, and is supported by the community.

Four integrated pillars underpin this vision. These pillars support a holistic approach to the future development of Queensland’s aquaculture industry and collectively reinforce the vision.

- Pillar 1: Productive industry
- Pillar 2: Environmental performance
- Pillar 3: Community benefits
- Pillar 4: Contemporary governance and engagement

Sitting across all four pillars is recognition and understanding of the role of Aboriginal peoples and Torres Strait Islander peoples as the Traditional Custodians of lands and seas where aquaculture production occurs in Queensland and as participants in the industry.

These four over-arching pillars have equal importance. A suite of actions has been developed to support the pillars and vision (Pages 24 - 27).

## VISION

Queensland is a thriving, world-leader in sustainable aquaculture. Our state’s aquaculture industry is respected for its diverse, high-quality produce, innovation, and environmental stewardship, and is supported by the community.

## PILLARS



PRODUCTIVE  
INDUSTRY



ENVIRONMENTAL  
PERFORMANCE



COMMUNITY  
BENEFITS



CONTEMPORARY  
GOVERNANCE &  
ENGAGEMENT

## ACTIONS



## Integrated pillars

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### Pillar 1: Productive industry

While highly productive, aquaculture in Queensland is still a developing industry. There remain many opportunities to grow and enhance the state’s aquaculture industry into the future, including through investing in innovation and diversification, and taking advantage of opportunities presented by increasing demand for aquaculture products. Building greater resilience and competitiveness into Queensland’s aquaculture industry will also support productivity.

#### What does success look like?

Queensland aquaculture attracts investment and continues to grow into a leading primary industry for Queensland. High-quality seafood is innovatively and sustainably produced for Queenslanders and beyond, and industry is backed by a skilled workforce.



### Pillar 2: Environmental performance

Queensland’s broad expanses and lengthy coastline are home to internationally significant biodiversity; our natural environment is pristine and unique.

This environment is highly important to the people of Queensland, aquaculture producers, and beyond. Aboriginal peoples and Torres Strait Islander peoples have cared for this land and coast for many thousands of years. They hold ongoing cultural rights and interests in conserving and protecting the environment and productive capacity of their land, territories, waters, coastal seas, and other resources.

From an industry perspective, operators are invested in maintaining a healthy and well-managed natural environment as it is key to long-lasting productivity. Responding to challenges such as climate change, disaster preparedness and biosecurity will be a key part of Queensland’s environmental performance into the future. Sustainable aquaculture practices must also demonstrate alignment with commitments such as the delivery of land and catchment management targets under the *Reef 2050 Water Quality Improvement Plan 2017–2022* (review underway) and the goals under *Conserving Nature—a Biodiversity Conservation Strategy for Queensland (2022)*.

Husbandry and welfare of aquaculture species is also a component of environmental performance. The health of animals in aquaculture relies on and contributes to best practice care for animals, health of the surrounding environment and overall productivity.

#### What does success look like?

The value of Queensland’s natural and cultural environment is protected and supports sustainable aquaculture production. The aquaculture industry is attuned to the state’s unique natural environment, is best practice and strives for continuous improvement.





### Pillar 3: Community benefits

The investment of Queensland’s aquaculture industry continues to benefit rural and regional communities through supporting local jobs and economies. It is through these inputs that aquaculture indirectly contributes to local wellbeing and prosperity, including through providing employment opportunities for young people in regional communities.

Aquaculture also presents an opportunity for First Nations Queenslanders to realise their economic aspirations. By working in partnership with First Nations operators and communities, there will be a better understanding of their interests in the future of Queensland’s aquaculture industry and how to strengthen their role.

A sustainable Queensland aquaculture industry supports access to fresh, quality seafood for communities throughout the state and beyond. Meeting the needs of consumers and ensuring they are informed while maintaining commitment to robust environmental standards is key to the social acceptance of sustainable aquaculture.

#### What does success look like?

Aquaculture industry investment continues to benefit Queensland communities through supporting local jobs and regional economies. Queensland aquaculture products are recognised as sustainable and high-quality.



### Pillar 4: Contemporary governance and engagement

Queensland’s aquaculture industry is governed by a robust regulatory framework that aims to ensure that Queensland can make the most of the opportunities that aquaculture offers, whilst balancing the environmental and social values that make the state great.

Effective partnerships between government, industry and broader stakeholders will be critical to achieving the vision for aquaculture in Queensland. Ongoing communication and collaboration across government, industry, First Nations representatives, research organisations, and the community is key. Actions under the strategy seek to foster this ongoing engagement.

#### What does success look like?

Queensland’s regulatory framework for aquaculture is fit for-purpose and considers and balances the interests of all stakeholders, including through strong engagement.



# Actions

Table 2 sets out the practical actions the Queensland Government will invest in from 2024–2034 to ensure that we are in the best position to achieve the vision for this Strategy.

**Table 2: Queensland Government action**

Actions	Timeframe	Lead	Pillar
<b>Governance and oversight</b>			
<p><b>1.</b> Establish an aquaculture Stakeholder Reference Group (advisory) to ensure effective ongoing engagement with industry, universities, research organisations, First Nations groups, non-government organisations, environment and biodiversity experts, and other key stakeholders on development of the industry and implementation of the strategy.</p> <p>The establishment of the Reference Group will consider existing engagement through the Queensland Aquaculture Industry Forum and transitional arrangements for the DESI Aquaculture Working Group, as needed.</p>	2024–25 to 2034–35	DAF, supported by DESI	<ul style="list-style-type: none"> <li>All pillars</li> </ul>
<p><b>2.</b> Establish a program management function within DAF to support implementation of the <i>Queensland Aquaculture Strategy 2024–2034</i>.</p>	2024–25 to 2034–35	DAF	<ul style="list-style-type: none"> <li>All pillars</li> </ul>
<p><b>3.</b> Develop and publish a monitoring and evaluation framework to assess implementation of the Strategy and development of the Queensland aquaculture industry.</p>	2024–25 to 2025–26	DAF	<ul style="list-style-type: none"> <li>All pillars</li> </ul>
<p><b>4.</b> In 2029, at the mid-point of implementation, conduct a review to assess progress and refocus efforts and initiatives, as necessary, for the remaining five years of implementation. A final review will also be conducted at the end of the Strategy in 2034.</p> <p>The outcomes of the mid-point and final reviews will be published online.</p>	2024–25 to 2034–35	DAF	<ul style="list-style-type: none"> <li>All pillars</li> </ul>
<p><b>5.</b> Continue to engage with the Federal Government including as part of its forthcoming review of the <i>National Aquaculture Strategy 2017</i>, outlined in the Australian Government <i>Aquaculture Statement 2024</i> to ensure alignment with the <i>Queensland Aquaculture Strategy 2024–2034</i>.</p>	Subject to timelines set by the Federal Government	DAF	<ul style="list-style-type: none"> <li>Contemporary governance</li> </ul>
<p><b>6.</b> Review progress to date towards implementation of the government response (2016) to recommendations of the former Queensland Competition Authority report on <i>Aquaculture Regulation in Queensland</i> (2014) to determine if any action is still required in line with this Strategy.</p>	2024–25 to 2025–26	DAF	<ul style="list-style-type: none"> <li>Contemporary governance</li> <li>Productive industry</li> <li>Environmental performance</li> </ul>
<p><b>7.</b> Review progress to date towards the DAF-led Aquaculture Transformation Program (noting this work is intended to continue to 2027) to provide an update on implementation, understand the scope of work remaining, and incorporate remaining initiatives under this Strategy.</p>	2024–25 to 2025–26	DAF	<ul style="list-style-type: none"> <li>Contemporary governance</li> <li>Productive industry</li> <li>Environmental performance</li> </ul>



**Table 2: Queensland Government action (continued)**

Actions	Timeframe	Lead	Pillar
<b>Communication and guidance</b>			
<b>8.</b> Develop an aquaculture communication and engagement strategy aimed at ensuring that information about the Queensland aquaculture industry is consistent, accessible, and transparent for industry, stakeholders and the community.	2024–25 to 2025–26	DAF and DESI	<ul style="list-style-type: none"> <li>Community benefits</li> <li>Productive industry</li> </ul>
<b>9.</b> In line with the communication and engagement strategy developed under action 8, review and update online materials available through the DAF and Business Queensland websites relating to aquaculture to ensure they are up to date, comprehensive and easily accessible.	2025–26 to 2026–27	DAF supported by DESI, Planning, Resources.	<ul style="list-style-type: none"> <li>Community benefits</li> <li>Productive industry</li> </ul>
<b>10.</b> Develop a new aquaculture toolkit to better support proponents to navigate regulatory pathways for establishing and continuing an aquaculture business in Queensland. The development of the toolkit will include the mapping of current regulatory pathways.	2025–26 to 2027–28	DAF supported by DESI, Planning, Resources.	<ul style="list-style-type: none"> <li>Productive industry</li> <li>Contemporary governance</li> </ul>
<b>11.</b> Work with industry to build its capacity to promote and develop the Queensland brand for the aquaculture industry, showcasing its high quality, food safety, year-round availability, and sustainability.	2025–26 to 2026–27	DAF	<ul style="list-style-type: none"> <li>Productive industry</li> <li>Community benefits</li> </ul>
<b>Business establishment and extension support</b>			
<b>12.</b> Design and establish a limited aquaculture grants program to support: <ul style="list-style-type: none"> <li>establishment of new aquaculture businesses including for business development support, skills and training, regulatory guidance, and culturally appropriate advice for First Nations businesses</li> <li>projects, equipment or technology supporting innovation in processes, mitigating ecological risks, supporting sustainable and best practice operation, or addressing disaster and climate change resilience.</li> </ul>	2026–27 to 2032–33	DAF	<ul style="list-style-type: none"> <li>Productive industry</li> <li>Environmental performance</li> </ul>
<b>13.</b> Engage and work in partnership with First Nations Queenslanders to better understand their aspirations for aquaculture including through a dedicated extension officer for First Nations aquaculture business proponents. This will include the mapping of potential opportunities in sustainable aquaculture for First Nations communities in Queensland to better understand feasibility, barriers and possible pathways.	2026–27 to 2034–35	DAF and DTATSIPCA	<ul style="list-style-type: none"> <li>Productive industry</li> <li>Community benefits</li> <li>Environmental performance</li> </ul>
<b>14.</b> As part of implementation of all actions under this Strategy, ensure that agencies consider the interests and perspectives of First Nations communities and Traditional Custodians including through engagement, ongoing planning and policy development.	Ongoing	DAF supported by Resources and DTATSIPCA	<ul style="list-style-type: none"> <li>Community benefits</li> <li>Environmental performance</li> </ul>
<b>15.</b> Continue and enhance existing extension services to the Queensland aquaculture industry, including dedicated services to navigate regulatory pathways across government for new and existing aquaculture businesses and to identify and adopt best practice methods.	From 2026–27 (from the end of ATP) to the end of the strategy in 2034	DAF	<ul style="list-style-type: none"> <li>Productive industry</li> <li>Contemporary governance</li> <li>Environmental performance</li> </ul>
<b>16.</b> Review the impact of Aquaculture Development Areas (ADAs) on the growth of Queensland's aquaculture industry, including examining the factors affecting the take-up and success of existing ADAs, to inform any future planning. This planning will include consideration of the interests of First Nations communities and Traditional Custodians.	2024–25 to 2025–26	DAF	<ul style="list-style-type: none"> <li>Productive industry</li> <li>Environmental performance</li> </ul>
<b>17.</b> Investigate ways to enhance the collection of aquaculture supply chain and market data, as well as independent accreditation data, to inform a better picture of where Queensland aquaculture produce is sold and how it is marketed.	2025–26 and ongoing	DAF	<ul style="list-style-type: none"> <li>Productive industry</li> <li>Environmental performance</li> </ul>
<b>18.</b> Review and publish high-level, de-identified information on the independent accreditation status of the Queensland aquaculture industry to build understanding of different types of accreditations.	Ongoing	DAF	<ul style="list-style-type: none"> <li>Productive industry</li> <li>Environmental performance</li> </ul>



**Table 2: Queensland Government action (continued)**

Actions	Timeframe	Lead	Pillar
<b>Biosecurity capability</b>			
<p><b>19.</b> Enhance existing biosecurity capability by building laboratory diagnostic capacity to support health certification and disease investigation in aquaculture, including through the validation of new and existing molecular diagnostic testing and accreditation through the National Association of Testing Authorities.</p>	2024–25 to 2028–29	DAF	<ul style="list-style-type: none"> <li>• All pillars</li> </ul>
<p><b>20.</b> Enhance biosecurity-industry liaison and extension services for operators in the Queensland aquaculture industry, including through enhanced biosecurity planning support for industry, development of educational support materials, promotion of biosecurity at industry workshops and events, and awareness raising.</p>	2025–26 to 2029–30	DAF	<ul style="list-style-type: none"> <li>• All pillars</li> </ul>
<p><b>21.</b> Broaden ‘fish kill’ investigation training in instances of unusual mortality events related to an aquaculture operation including through enhanced sample collection capability.</p>	2025–26 to 2029–30	DAF	<ul style="list-style-type: none"> <li>• All pillars</li> </ul>
<p><b>22.</b> Continue to monitor emerging animal welfare issues and consider opportunities to optimise the welfare of animals used in Queensland aquaculture, responding as necessary.</p>	2024–25 and ongoing	DAF	<ul style="list-style-type: none"> <li>• Environmental performance</li> <li>• Community benefits</li> <li>• Productive industry</li> </ul>
<b>Research and development</b>			
<p><b>23.</b> Develop and publish an aquaculture research and development plan in consultation with key stakeholders including industry, universities and research organisations, First Nations representatives, conservation groups and key government agencies that responds to and prioritises identified research needs for the Queensland aquaculture industry.</p> <p>The plan will take into account the RD&amp;E program under this Strategy and be reviewed annually and updated as needed.</p>	2025–26 and ongoing	DAF supported by DESI	<ul style="list-style-type: none"> <li>• Productive industry</li> <li>• Environmental performance</li> </ul>
<p><b>24.</b> Undertake research investigating innovative and cost-effective waste treatment and management for aquaculture, including through novel nutrient management systems, evaluation and integrated planning. Implementation of this action will seek co-investment from industry.</p>	2024–25 to 2029–30	DAF supported by DESI	<ul style="list-style-type: none"> <li>• Productive industry</li> <li>• Environmental performance</li> </ul>
<p><b>25.</b> Continue implementation of recommendations made in the Griffith University <i>Review of Nutrient Release from Aquaculture Activities – Final Report</i> by DESI with support from DAF and Griffith University.</p>	2024–25 and ongoing	DESI supported by DAF	<ul style="list-style-type: none"> <li>• Productive industry</li> <li>• Environmental performance</li> </ul>



**Table 2: Queensland Government action (continued)**

Actions	Timeframe	Lead	Pillar
<b>Research and development</b>			
<b>Research and development – Improving operational efficiency of farm systems</b>			
<p><b>26.</b> Undertake research to identify and evaluate innovative technology to support more energy efficient farming equipment and systems for the aquaculture industry.</p>	<p>2025–26 to 2028–29</p>	<p>DAF</p>	<ul style="list-style-type: none"> <li>• Productive industry</li> <li>• Environmental performance</li> </ul>
<p><b>27.</b> Undertake research to develop and assess technology to improve automation and digitisation to reduce farm labour costs for the aquaculture industry.</p>	<p>2025–26 to 2028–29</p>	<p>DAF</p>	<ul style="list-style-type: none"> <li>• Productive industry</li> <li>• Environmental performance</li> </ul>
<b>Research and development – Diversification of aquaculture products</b>			
<p><b>28.</b> Undertake research to investigate diversification of aquaculture production to grow supply and develop a more diverse range of Queensland aquaculture products. This work will include the development of a selection framework to guide investment in new species for aquaculture and involve consultation and co-investment with industry.</p>	<p>2024–25 to 2030–31</p>	<p>DAF</p>	<ul style="list-style-type: none"> <li>• Productive industry</li> <li>• Community benefits</li> </ul>
<p><b>29.</b> Undertake research to increase product value and diversity in Queensland’s aquaculture industry by reviewing market trends and creating new value-added products.</p>	<p>2024–25 to 2027–28</p>	<p>DAF</p>	<ul style="list-style-type: none"> <li>• Productive industry</li> <li>• Community benefits</li> </ul>
<b>Research and development – Industry support and farm-scale demonstration sites</b>			
<p><b>30.</b> Investigate the feasibility of developing and piloting an aquaculture demonstration site outside of South East Queensland to highlight research and innovation and provide training and extension opportunities.</p>	<p>2024–25 to 2030–31</p>	<p>DAF</p>	<ul style="list-style-type: none"> <li>• Productive industry</li> <li>• Environmental performance</li> </ul>
<p><b>31.</b> Provide additional resources to establish a Recirculating Aquaculture System demonstration site for proponents to trial novel technologies and strategies to overcome barriers to expansion and uptake.</p>	<p>2024–25 to 2030–31</p>	<p>DAF</p>	<ul style="list-style-type: none"> <li>• Productive industry</li> <li>• Environmental performance</li> </ul>
<b>Skills and training</b>			
<p><b>32.</b> Convene a skills and workforce roundtable with industry to identify aquaculture employment pathways and priority skills needs to respond to workforce challenges in the industry.</p>	<p>2024–25 to 2025–26</p>	<p>DAF</p>	<ul style="list-style-type: none"> <li>• Productive industry</li> <li>• Community benefits</li> </ul>



# Project profile

## Innovative and cost-effective aquaculture waste treatment and management (action 24)

Innovative and cost-effective waste minimisation, treatment and management in aquaculture systems is a major challenge to growing Queensland’s sustainable aquaculture industry. Addressing this challenge is therefore a high priority for the *Queensland Aquaculture Strategy 2024–2034*. The Queensland Government has invested \$2 million in research, development and extension to maximise outcomes in this area.

More effective minimisation and management of farm effluent and nutrient load will require a combination of changes to existing on-farm water management practices. Adoption of individual technologies to extract nutrients and other waste products from farm waters (e.g. electro-flocculation, modifying the pond water exchange regimen and managing nutrient accumulation within production and settlement ponds), are potential options in a waste minimisation and management system. However, successful waste management control requires an integrated and holistic approach to how water is managed across the entire farm system. The performance, practicality and economics of new approaches to farm waste management to deliver systems that significantly reduce production of waste and the waste loads in discharge water, needs to be assessed at commercial scale.

A strategic, staged program of works has been developed to pursue innovative and cost-effective waste treatment and management for aquaculture in Queensland. The program will be developed in a way that supports an evidence-based approach. Through additional co-investment by key industry stakeholders, this program will be delivered in three stages across a six-year timeframe. The stages include:

- identification of current best-practice and potential novel waste production minimisation and management technologies
- quantitative evaluation of suitable individual waste management strategies
- development of an integrated waste management system to support expansion of pond-based aquaculture in Queensland.

Outcomes of the project will be overseen by the Aquaculture Implementation Steering Committee with the Stakeholder Reference Group briefed as needed.





## CASE STUDY

Department of Agriculture and Fisheries © State of Queensland

### Supporting R&D – Pioneering Blacklip Rock Oyster farming in Bowen

In 2014, John and Annette Collison moved to Bowen after more than three decades of oyster farming in New South Wales. Although planning to retire, John's discovery of large Blacklip Rock Oyster (*Saccostrea echinata*) thriving in local waterways reignited his passion for growing oysters and he began his journey to establish a tropical oyster farming venture.

Initially, John captured juvenile oysters from the wild. This approach resulted in a mix of oysters dominated by small, undesirable species, making the process time-consuming and costly. Despite these challenges, John persevered, refining his techniques over four years to demonstrate the feasibility of farming Blacklip Rock Oyster that are found throughout Queensland's tropical regions. By 2022, with half a million juvenile oysters in the water, the Collison's venture was well underway.

Support from the Queensland Government was pivotal to John's ongoing success. In early 2022, the DAF's Bribie Island Research Centre (BIRC) achieved a significant milestone by successfully producing 110,000 farm-ready Blacklip Rock Oyster, which, after two years in the water near Bowen, are ready for harvest.

By 2024, production at BIRC reached nearly three million juveniles in a single hatchery run, confirming the species' suitability for commercial scale hatchery production and addressing the industry challenge of securing a consistent supply of juvenile oysters. This advancement—a combination of a lifetime of knowledge, curiosity and research innovation—has shone a new light on the future potential of Queensland's oyster industry, particularly beyond oyster farming's existing range and for possible exploration by First Nations enterprises and communities.

John and Annette's venture has highlighted the Blacklip Rock Oyster's suitability for aquaculture, being hardy, fast-growing, and disease resistant. Local demand for John and Annette's oysters has far exceeded supply, underscoring the species' market potential.



# Implementing the Strategy

The *Queensland Aquaculture Strategy 2024–2034* is a framework that has been developed to provide strategic direction for the future of the aquaculture industry, supported by whole-of-government/multi-agency actions and governance. The Strategy aims to ensure that Queensland is in the best position to make the most of aquaculture while balancing economic, environmental and social factors. In this Strategy:

- the *vision*, supported by the *pillars*, ensure a clear overarching framework to guide future development of the industry
- the *actions* set out what will be pursued in the short, medium, and longer-term to achieve the vision, noting implementation may need to respond to new and emerging issues
- *implementation and monitoring* will help keep delivery of the Strategy on track.

## Governance

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Implementation of the Strategy will be supported by two key governance arrangements.

An implementation steering committee (Aquaculture ISC) co-chaired by DAF and DESI will be established. Aquaculture ISC membership will also include representatives from key partner agencies. As secretariat for the Aquaculture ISC, DAF will report on progress on implementation of the Strategy to the responsible Minister and support the provision of regular updates to government.

The Aquaculture ISC will be complemented by the establishment of a Stakeholder Reference Group to provide input on the ongoing implementation of the Strategy and development of Queensland’s aquaculture industry. The intent of the Stakeholder Reference Group will be to facilitate engagement with industry, academics, non-government organisations, environment and biodiversity experts, and First Nations stakeholders, as relevant.

## Monitoring and evaluation

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Information supporting the Strategy will be made available online and periodically updated as implementation progresses and actions under the Strategy are delivered.

In line with action 3, Government will develop and publish a monitoring and evaluation framework to assess implementation of the Strategy and development of our state’s aquaculture industry. Monitoring and evaluation will be undertaken in accordance with the Queensland Government Program Evaluation Guidelines (2020).

## Review

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A mid-point review of the *Queensland Aquaculture Strategy 2024–2034* will be conducted in 2029. The review will be conducted to assess progress and refocus efforts and initiatives, as necessary, for the remaining five years of implementation.

While a final review will also be undertaken in 2034, the Strategy is intended to position Queensland’s aquaculture industry for a much longer timeframe. The mid-point and final reviews will help inform the next steps taken to shape the future direction of aquaculture in Queensland.

Outcomes of the mid-point and final reviews will be published.



# Appendix

Some initiatives and programs below have also been supported by industry co-investment. Actions are not exhaustive and provide an overview of current and completed work across key government agencies related to the aquaculture industry.

**Table 3: ATP Actions**

ATP Actions	Pillar	Timeframe
Developed a user-friendly survey platform for annual production returns by aquaculture operators.	<ul style="list-style-type: none"> <li>Contemporary governance and engagement</li> <li>Productive industry</li> </ul>	completed
Legislative amendments to streamline planning and fisheries legislation through introducing an aquaculture authority.	<ul style="list-style-type: none"> <li>Productive industry</li> <li>Contemporary governance and engagement</li> </ul>	early-2025
Established an internal DAF aquaculture network for information-sharing.	<ul style="list-style-type: none"> <li>Contemporary governance and engagement</li> </ul>	ongoing
Established the Principal Agribusiness Development Officer (Aquaculture), to identify and promote aquaculture development opportunities and provide guidance to potential investors.	<ul style="list-style-type: none"> <li>Productive industry</li> </ul>	mid-2027
Establishment of the Queensland Aquaculture Industry Forum for industry engagement and collaboration to identify industry priorities.	<ul style="list-style-type: none"> <li>Productive industry</li> <li>Contemporary governance and engagement</li> </ul>	mid-2027
Research project to develop industry-ready methodologies to breed and grow diverse, new finfish species for aquaculture.	<ul style="list-style-type: none"> <li>Productive industry</li> <li>Environmental performance</li> </ul>	mid-2027
‘Digital aquaculture’ project to deliver automation systems based on existing technologies and off the shelf components that are relatively affordable and readily available.	<ul style="list-style-type: none"> <li>Productive industry</li> </ul>	mid-2027
Research project and semi-commercial scale production of oyster larvae and spat, including development of industry-ready methodologies to breed and grow tropical oyster species.	<ul style="list-style-type: none"> <li>Productive industry</li> </ul>	mid-2027
‘Pond health’ research project which takes a whole-of-farm approach to optimising farm biosecurity, system health and productivity. Effective uptake is supported through regular engagement and extension activities.	<ul style="list-style-type: none"> <li>Productive industry</li> <li>Environmental performance</li> </ul>	mid-2027



**Table 3: ATP Actions (continued)**

ATP Actions	Pillar	Timeframe
'Deadly aquaculture' initiative in which government scientists provide expertise and on-ground extension services to First Nations aquaculture proponents.	<ul style="list-style-type: none"> <li>Productive industry</li> <li>Environmental performance</li> <li>Community benefits</li> </ul>	mid-2027
Establishment of new role tasked with converting several ATP and other projects into large programs of work and working with industry on key issues and technologies.	<ul style="list-style-type: none"> <li>Productive industry</li> <li>Environmental performance</li> <li>Community benefits</li> </ul>	mid-2027
Development of diversified and value-added products to increase the opportunities for and grow the value of barramundi farming in north Queensland.	<ul style="list-style-type: none"> <li>Productive industry</li> <li>Community benefits</li> </ul>	mid-2027
Establishment of an aquaculture incubator at the BIRC to test innovative ideas without the need to set up a small operation at pilot scale.	<ul style="list-style-type: none"> <li>Productive industry</li> <li>Environmental performance</li> </ul>	mid-2027
Project to trial wave suppression infrastructure in oyster areas in Moreton Bay and review regulatory and policy frameworks to allow for this infrastructure. Ongoing work is subject to continued engagement with key agencies.	<ul style="list-style-type: none"> <li>Productive industry</li> <li>Contemporary governance and engagement</li> </ul>	mid-2025
Continuation of exploratory work to identify potential marine aquaculture development areas suitable for non-intensive (i.e. no supplemental feeding) marine aquaculture under the ATP. This work is subject to ongoing consultation with Queensland and Federal Government agencies including understanding regulatory requirements and feasibility.	<ul style="list-style-type: none"> <li>Productive industry</li> <li>Contemporary governance and engagement</li> </ul>	mid-2027
Development of a Roadmap for Decarbonisation of the Queensland aquaculture sector to assist meeting emissions reduction targets.	<ul style="list-style-type: none"> <li>Environmental performance</li> <li>Productive industry</li> <li>Community benefits</li> </ul>	mid-2026
Continuation of technical site investigations at selected land-based Aquaculture Development Areas (ADAs), specifically the development of water quality guideline values and an Assimilative Capacity Model as an assessment tool for environmentally relevant activity aquaculture. This work should account for the review of the ADAs which will occur under the Queensland Aquaculture Strategy 2024–2034.	<ul style="list-style-type: none"> <li>Productive industry</li> <li>Environmental performance</li> <li>Community benefits</li> </ul>	mid-2026
Supporting the external project, conducted by Central Queensland University, relating to specific assessment of the efficacy of Novel Water Treatment Technology (electro-flocculation) identified through the Open Innovation Challenge.	<ul style="list-style-type: none"> <li>Productive industry</li> <li>Environmental performance</li> </ul>	mid-2026



**Table 4: Existing agency actions**

Actions	Pillar	Timeframe
<b>DAF</b>		
Project to develop hatchery standards for fish stocking in Queensland to improve risk management around fingerling quality, genetic integrity and biosecurity.	<ul style="list-style-type: none"> <li>Productive industry</li> <li>Environmental performance</li> <li>Community benefits</li> </ul>	end-2024
Review of existing broodstock policy, which outlines management arrangements for the collection of broodstock from wild fisheries resources to be used for aquaculture.	<ul style="list-style-type: none"> <li>Productive industry</li> <li>Environmental performance</li> </ul>	mid-2025
Review of Oyster Management Plan for Moreton Bay Marine Park to reflect changes to infrastructure and technology used in the oyster industry.	<ul style="list-style-type: none"> <li>Productive industry</li> <li>Environmental performance</li> </ul>	end-2025
Allocation of oyster areas in Moreton Bay which have been surrendered or cancelled through an expression of interest.	<ul style="list-style-type: none"> <li>Productive industry</li> </ul>	mid-2025
Research, development and extension project to improve the viability of the Sydney rock oyster sector, and initiate commercialisation of new tropical rock oyster varieties for expansion beyond South-East Queensland.	<ul style="list-style-type: none"> <li>Productive industry</li> <li>Community benefits</li> </ul>	mid-2026
Research project to evaluate the efficacy, practicality and cost-effectiveness of existing methods and emerging techniques for controlling over-catch of oyster spat under commercial production settings.	<ul style="list-style-type: none"> <li>Productive industry</li> <li>Environmental performance</li> </ul>	mid-2025
Research project investigating pond microalgae bloom management for healthy prawns and productive ponds.	<ul style="list-style-type: none"> <li>Productive industry</li> <li>Environmental performance</li> </ul>	completed
Research project investigating the efficacy of trichlorfon water disinfection for influent water biosecurity on prawn grow-out farms.	<ul style="list-style-type: none"> <li>Productive industry</li> <li>Environmental performance</li> </ul>	completed
Research project to preliminarily evaluate electro-stunning technology for farmed barramundi.	<ul style="list-style-type: none"> <li>Productive industry</li> <li>Environmental performance</li> <li>Community benefits</li> </ul>	completed
Project to develop policy and support for the aquaculture industry to better understand the demand curve of customer preferences for seafood to position Queensland aquaculture initiatives.	<ul style="list-style-type: none"> <li>Productive industry</li> <li>Community benefits</li> </ul>	completed
Project developing a profile on all relevant technology applications for the removal of nutrients and validation for adoption of at least one piece of technology.	<ul style="list-style-type: none"> <li>Productive industry</li> <li>Environmental performance</li> </ul>	completed
Research project investigating controlling the composition of microalgae blooms on pond-based aquaculture farms and reducing the total nutrient concentration in farm discharge water.	<ul style="list-style-type: none"> <li>Productive industry</li> <li>Environmental performance</li> </ul>	2026
<b>DESI</b>		
Establishment of a working group to identify industry concerns relating to matters regulated by DESI.	<ul style="list-style-type: none"> <li>Productive industry</li> <li>Environmental performance</li> </ul>	ongoing
Research project to monitor the water quality of receiving environment in ADAs.	<ul style="list-style-type: none"> <li>Productive industry</li> <li>Environmental performance</li> </ul>	completed
Review of aquaculture industry's water quality management practices.	<ul style="list-style-type: none"> <li>Productive industry</li> <li>Environmental performance</li> </ul>	mid-2026
Reef catchments science partnerships.	<ul style="list-style-type: none"> <li>Productive industry</li> <li>Environmental performance</li> </ul>	ongoing
Project applying innovative approaches to develop a functional equivalency of nutrients from catchment versus point sources, with a focus on aquaculture and sewage treatment plants.	<ul style="list-style-type: none"> <li>Productive industry</li> <li>Environmental performance</li> </ul>	completed
Queensland Water Modelling Network modelling related to water quality offsetting – a modelling framework for nutrient offsets.	<ul style="list-style-type: none"> <li>Productive industry</li> <li>Environmental performance</li> </ul>	ongoing



**Table 4: Existing agency actions (continued)**

Actions	Pillar	Timeframe
<b>Department of Education</b>		
A new \$4.8 million aquaculture centre, opened at Rockhampton State High School in early 2024, enhancing subject offerings for students and providing a pathway for training and local aquaculture employment opportunities.	<ul style="list-style-type: none"> <li>• Community benefits</li> <li>• Productive industry</li> </ul>	ongoing
A new aquaculture facility was opened at Bowen State High School in July 2023. The \$2.2 million facility is utilised by approximately 400 students ranging from Year 7–12.	<ul style="list-style-type: none"> <li>• Community benefits</li> <li>• Productive industry</li> </ul>	ongoing
<b>Department of Employment, Small Business and Training (DESBT)</b>		
Vocational Education and Training (VET) investment targets key industry areas, including aquaculture, to support workforce capacity, through programs including: Free TAFE, User Choice (apprenticeships and traineeships, including school-based apprenticeships and traineeships); the Certificate 3 Guarantee; Higher level skills program; VET in Schools; and Skilling Queenslanders for Work.	<ul style="list-style-type: none"> <li>• Productive industry</li> <li>• Community benefits</li> </ul>	ongoing
Delivery of the Aquaculture and AgTech Trade Taster program in partnership with TAFE Queensland. Via the delivery of micro-credentials to school students, this program will aim to increase enrolments in the Certificate II in Aquaculture in 2024 and 2025.	<ul style="list-style-type: none"> <li>• Productive industry</li> <li>• Community benefits</li> </ul>	end-2024
Delivery of the Industry Skills Advisor (ISA) program for agriculture and horticulture (including aquaculture and fishing) that supports engagement with employers, small business and industry stakeholders to generate access to industry advice and intelligence on current and emerging industry direction, regional skills needs and training solutions, jobs growth and employment opportunities.	<ul style="list-style-type: none"> <li>• Productive industry</li> <li>• Community benefits</li> </ul>	ongoing
Continue the Network of Industry Workforce Advisors (IWAs) within peak industry organisations across industry sectors (including agriculture, horticulture and aquaculture) to provide support to employers to identify workforce challenges and possible solutions or supports that are available.	<ul style="list-style-type: none"> <li>• Productive industry</li> <li>• Community benefits</li> </ul>	ongoing
Engage with the Jobs and Skills Councils—including Skills Insight, the Jobs and Skills Council for the agribusiness industry—to inform industry in Queensland of opportunities to provide feedback and insights into workforce plans and training product development.	<ul style="list-style-type: none"> <li>• Productive industry</li> <li>• Community benefits</li> </ul>	ongoing
Build partnerships between schools and industry through the Gateway to Industry Schools program (GISP) (Agribusiness Gateway to Industry Schools program), to enable young people to acquire the knowledge, skills and attributes to participate effectively in the Queensland economy. The program provides opportunities for industry and the education sector to work together to deliver outcomes for students, local communities and businesses.	<ul style="list-style-type: none"> <li>• Productive industry</li> <li>• Community benefits</li> </ul>	ongoing



# Glossary

TERM	DEFINITION
ABARES	Australian Bureau of Agricultural and Resource Economics and Sciences
ADAs	Aquaculture Development Areas
Aquaculture ISC	Aquaculture implementation steering committee
ATP	Aquaculture Transformation Program
Consultation Paper	Queensland Aquaculture Strategy 2024–2034 Consultation Paper
DAF	Department of Agriculture and Fisheries
DESI	Department of Environment, Science and Innovation
DESBT	Department of Employment, Small Business and Training
DTATSIPCA	Department of Treaty, Aboriginal and Torres Strait Islander Partnerships, Communities and the Arts
FRDC	Fisheries Research and Development Corporation
OECD	Organisation for Economic Co-operation and Development
the Reef	Great Barrier Reef
the Strategy	Queensland Aquaculture Strategy 2024–2034
the Taskforce	Future Fisheries Taskforce
TEPS	Threatened, endangered and protected species
UNESCO	United Nations Educational, Scientific and Cultural Organisation
UNFAO	United Nations Food and Agriculture Organisation



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