

Issues Paper

Aquaculture Regulation in Queensland

February 2014

We wish to acknowledge the contribution of the following staff to this report:

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SUBMISSIONS

Closing date for submissions: 24 March 2014

Public involvement is an important element of the decision-making processes of the Queensland Competition Authority (QCA). Therefore submissions are invited from interested parties concerning its assessment of Aquaculture regulation in Queensland. The QCA will take account of all submissions received.

Submissions, comments or inquiries regarding this paper should be directed to:

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Public access to submissions

Subject to any confidentiality constraints, submissions will be available for public inspection at the Brisbane office, or on the website at www.qca.org.au. If you experience any difficulty gaining access to documents please contact us on (07) 3222 0555.

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EXECUTIVE SUMMARY

The Government has directed the Queensland Competition Authority (QCA) to investigate and report on regulation of the Queensland aquaculture industry. The QCA's report is to include recommendations for a regulatory approach that could facilitate expansion of aquaculture in Queensland, to promote economic development while balancing environmental protections.

Based on the QCA's preliminary investigations, it appears that the Queensland aquaculture sector has significant commercial potential for expansion, and that this expansion can be achieved in accordance with accepted environmental standards. The main focus of this issues paper is therefore on the components of a regulatory structure that would facilitate such expansion.

What problem is this review solving?

There have been no major aquaculture developments in Queensland for over 10 years, at a time when the aquaculture sector is showing significant growth in Australia and elsewhere. This review aims to identify impediments to the development of aquaculture, and to recommend an improved regulatory framework which will promote economic development while observing appropriate environmental standards.

The QCA is seeking stakeholder comment on the following issues:

- The commercial appetite for aquaculture development in Queensland. The QCA is open to comments that shed further light on the development potential of the sector.
- Appropriate environmental standards for Queensland aquaculture, based on recognised industry practice and potential for environmental harm.
- Broad principles to be applied in developing a regulatory structure.
- The value of a single piece of legislation to streamline the regulation of aquaculture, as is used in South Australia. It is possible that a more effective measure might be the creation of a single administrative unit focussed on aquaculture development.
- The application of the precautionary principle to aquaculture regulation.
- The concept of overlays, similar to the zones created for marine aquaculture in South Australia and Tasmania. In the case of Queensland, this might be applied to terrestrial aquaculture.
- A changed distribution of responsibilities between Queensland and Commonwealth regulators. Outside the process of this review, the Commonwealth and Queensland governments are negotiating an arrangement that may return full control of approvals processes to Queensland.
- Environmental offsets to allow greater regulatory certainty for developments in the Great Barrier Reef (GBR) region. Outside the process of this review, work is underway to establish a Reef Trust that is likely to include a central pool of offsets. Ideally, this would be provided as an alternative to the current practice of individual offset acquisitions and enable a far more effective, strategic and transparent approach.
- The potential for cage aquaculture in Queensland. We are interested in learning whether Queensland has the right conditions for cage aquaculture, and which species might be produced in this way.

- Suitable locations for aquaculture. We are particularly interested in the potential for greater development of freshwater aquaculture, and terrestrial aquaculture along the coast of the Gulf of Carpentaria.
- The benefits of a marketing levy for aquaculture. Other industries have marketing levies, and aquaculture has a research and development levy. The industry has suggested that a marketing levy could be used to inform consumers of the sound environmental practices of Australian aquaculture.
- Financial safeguards for new developments. Some industries (such as mining) are required to establish financial safeguards for environmental rehabilitation. It is uncertain whether aquaculture requires such safeguards.

Stakeholders should also feel free to identify and comment on other issues of significance.

THE ROLE OF THE QCA – TIMING AND CONTACTS

The Queensland Competition Authority (QCA) is an independent statutory authority established to promote competition as the basis for enhancing efficiency and growth in the Queensland economy.

The QCA's primary role is to ensure that monopoly businesses operating in Queensland, particularly in the provision of key infrastructure, do not abuse their market power through unfair pricing or restrictive access arrangements.

In 2012, that role was expanded to allow the QCA to be directed to investigate, and report on, any matter relating to competition, industry, productivity or best practice regulation; and review and report on existing legislation.

Key dates

<i>When</i>	<i>Who</i>	<i>What</i>
12 November 2013	QCA	Commenced review
19 November 2013	DAFF	Convened steering committee
February 2014	QCA	Released issues paper
24 March 2014	All (stakeholders)	Close of comments on issues paper
May 2014	QCA	Release draft report
July 2014	All (stakeholders)	Close of comments on draft report
15 September 2014	QCA	Provide final report to Ministers
29 September 2014	QCA	Release final report on website

Registration of interest

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1 BACKGROUND TO THIS REVIEW

1.1 Origins of the review

On 30 November 2012, the Agriculture, Resources and Environment Committee (AREC) of the Queensland Parliament published the report of its *Inquiry into Queensland's Agriculture and Resource Industries*. AREC made four recommendations, including the following:

The committee recommends that the Government review the regulations governing Queensland's aquaculture industry and explore the use of single, dedicated piece of legislation, as used in South Australia to reduce the regulatory burden on that state's industry, to further promote economic development while balancing environmental protections.

AREC's inquiry considered a submission from the Queensland Aquaculture Industries Federation (QAIF), which noted that problems with aquaculture regulation had been the subject of discussion for over a decade. QAIF suggested that there had been no improvement since the Productivity Commission found in 2004 that "aquaculture production is subject to an unnecessarily complex array of legislation and agencies".

Prompted by the AREC report and QAIF submission, the Office of Best Practice Regulation (OBPR) undertook to investigate regulation of aquaculture as part of its review of the burden of regulation in Queensland. After initial discussions with a number of stakeholders, the OBPR commissioned a report by the Centre for International Economics (CIE), investigating the economic potential of aquaculture in Queensland. CIE concluded that, based on historic growth rates in Tasmania and elsewhere, Queensland aquaculture had significant potential for growth, given the right regulatory settings (CIE 2013). In its February 2013 final report into measuring and reducing the burden of regulation, the OBPR identified aquaculture regulation as a top 10 priority candidate for regulatory reform (QCA 2013).

On 16 September 2013, the Queensland Government directed the QCA to undertake a review of aquaculture regulation commencing in November 2013, and reporting in September 2014. The government's direction notice and covering letter are at Attachment A.

1.2 Focus of the review/matters specified in the Ministerial Direction

The government's direction specifies that the aim of the review is to recommend "a regulatory approach that could facilitate expansion of aquaculture in Queensland, to promote economic development while balancing environmental protection". Consistent with this, the review will focus mainly on regulatory factors, particularly those within the responsibility of the Queensland Government. Factors to be considered include:

- environmental, economic and social considerations
- fish health and biosecurity issues
- marine park considerations
- applicable Commonwealth Government regulation and policy.

When considering options and making recommendations, the review will bear in mind the impact of regulatory factors on the following matters:

- predictability and security for investors
- consumer perceptions of Queensland aquaculture practices and products.

The review will not focus on the following factors, but may take them into account when considering the practicality of different regulatory options:

- the price of electricity from the national grid
- the cost and availability of labour
- general infrastructure constraints, such as port, road and airport access;
- interest rates and exchange rates.

1.3 Role of the Steering Committee

The QCA's review of aquaculture regulation arises from a Direction under section 10(e) of the *Queensland Competition Authority Act 1997*, and is subject to the usual governance arrangements arising from this. Final decisions on this review rest with the Board of the QCA.

It is the QCA's normal practice to consult widely and openly in the course of a review. The QCA is flexible in adopting the most appropriate methods for consultation.

In this review, the QCA will employ its usual methods, such as stakeholder submissions and individual stakeholder meetings. The QCA will also participate in the Steering Committee chaired by the Department of Agriculture, Fisheries and Forestry (DAFF). As specified in the Committee's Terms of Reference at **Appendix B**:

The Committee will be advisory in nature. Its role is to present the views of stakeholders on issues and experiences in relation to current and future aquaculture activity in Queensland, and suggestions as to where improvements could be made.

The Terms of Reference also specify that DAFF will invite specified representatives from the Queensland government, the Commonwealth government and industry bodies.

2 AQUACULTURE – GENERAL BACKGROUND

In 2013, OBPR commissioned a report by the Centre for International Economics (CIE), investigating the economic potential of aquaculture in Queensland. The report (CIE 2013) presented the global context of consistent growth in aquaculture, from 10 per cent of world fisheries production in 1980 to 47 per cent in 2010. The CIE also noted that Tasmanian aquaculture has had an annual growth rate (in value terms) of around 14 per cent in recent years, while Queensland's rate has been around 4 per cent. Further detail on the CIE report is set out in **Appendix C**, and the full report is available on the QCA's website¹.

Aquaculture is defined as the farming of aquatic organisms including fish, molluscs, crustaceans and aquatic plants with some sort of intervention in the rearing process to enhance production, such as regular stocking, feeding and protection from predators. (Commonwealth Department of Agriculture 2013)

- Extensive aquaculture involves no provision of extra feed. A typical example is production of molluscs (such as oysters and mussels), which consume algae already present in sea water.
- Intensive aquaculture involves provision of food. Typical examples are breeding of salmon in Tasmania, and tuna in South Australia.
- Marine aquaculture occurs in the sea or in estuaries. Examples are oyster, salmon and tuna production.
- Terrestrial aquaculture utilises ponds on land. Ponds can be filled with sea water, as in prawn production, or fresh water. Terrestrial aquaculture can either be near the coast, or located on inland river systems.
- Cage farming is a form of intensive marine aquaculture, which is used in Australia for salmon and tuna production.

Most aquaculture in Queensland is land-based barramundi and prawn farming located within the Great Barrier Reef (GBR) coastal zone. The only sea cage barramundi farm, located in the Hinchinbrook Channel, was damaged by cyclone Yasi in the year 2011, and has not restarted operations.

¹ <http://www.qca.org.au/files/OBPR-CIE-Report-AquacultureInQLD-0213.pdf>

Table 1 shows a summary break-up of aquaculture in Australia. **Appendix C** provides further detailed break-ups.

Table 1

	<i>Gross value of aquaculture production (\$m) in 2011-12</i>	<i>Aquaculture production (tonnes) in 2011-12</i>	<i>Aquaculture workforce (persons) in 2011</i>
New South Wales	55	5,440	574
Victoria	17	1,811	201
Queensland	83	6,418	500
South Australia	237	20,174	650
Western Australia	109	1,598	204
Tasmania	537	48,284	1,134
Northern Territory	17	881	38
Total	1054	84,606	3,301

Source: Australian Bureau of Agricultural and Resource Economics and Sciences 2012, ABS 2011, CIE 2013)

The need for regulation of aquaculture arises mainly from its potential environmental impacts. Terrestrial aquaculture (the dominant form in Queensland) is similar in impacts and constraints to other intensive animal industries. Section 3.3 has further detail on the environmental impacts of aquaculture.

Some other characteristics affecting aquaculture development are as follows:

- Queensland has a very long coastline, but locations suitable for aquaculture are limited. Coastal aquaculture requires an appropriate water supply (both salt and fresh water), large expanses of flat land with an impermeable soil underlay, and infrastructure such as electricity supply.
- Locations with appropriate physical characteristics can be subject to regulatory constraints, such as restrictions on clearing native vegetation.
- Coastal aquaculture faces risks such as coastal erosion and storm tide inundation. In many parts of Queensland, both terrestrial and marine aquaculture face serious cyclone risks. Cyclones can damage structures, and lead to failures in electricity supply, resulting in large-scale production loss.
- Marine aquaculture, which takes place in public waters, competes with uses such as fishing and boating.

2.1 Aquaculture — comparison of regulation

The proposed summary aim of this review is to recommend a regulatory framework that enables economic expansion of the Queensland aquaculture sector while ensuring observance of accepted environmental standards. In this context, it is useful to consider the existing regulatory framework in Queensland, and to compare it with regulation in other Australian jurisdictions.

Prior to the start of this review, the QCA engaged the CIE to undertake a comparative review of aquaculture regulation, analysing the frameworks in Queensland, Tasmania, South Australia and Western Australia. The full report is available on the QCA website².

The CIE report (CIE 2014) noted some general conclusions arising from its comparative review: Generally speaking, the regulatory frameworks have more similarities than differences, and most differences are superficial. The key similarity is that all jurisdictions have an approval mechanism for new aquaculture facilities, involving multiple regulatory agencies. Figure 1 shows an example of a development approval process under Queensland regulation. It does not show Commonwealth approval processes, which are also relevant for development, particularly in the Great Barrier Reef (GBR) region.

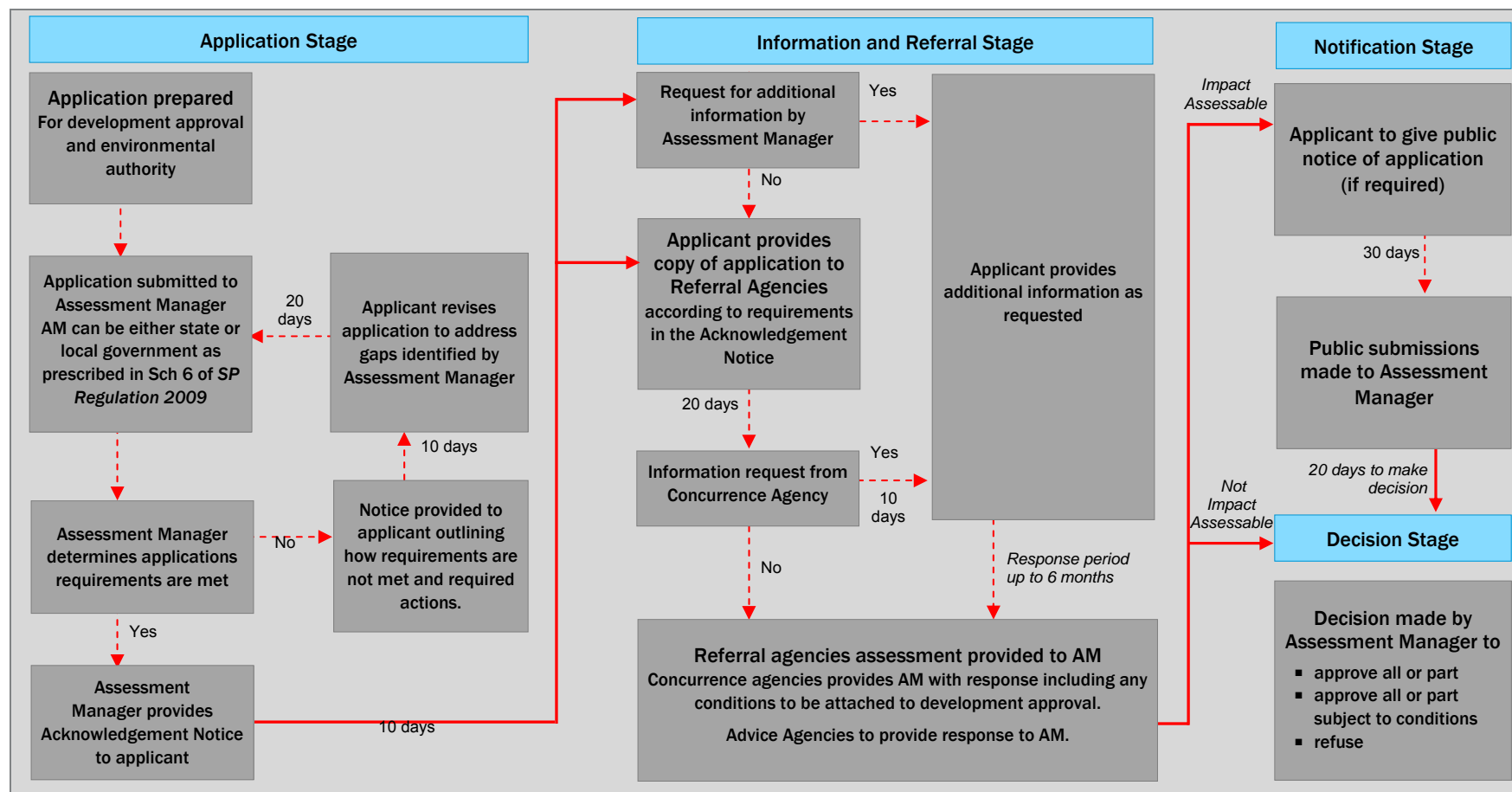
The CIE highlighted some differences between jurisdictions:

- The Queensland regulatory framework appears more complex than that in other states, partly due to overlapping responsibilities between State regulators and Commonwealth regulators such as the Great Barrier Reef Marine Park Authority (GBRMPA)
- One significant point of difference with other jurisdictions is that Queensland does not have a marine farm planning framework. Queensland has no operational cage aquaculture, which may arise from the lack of a specific regulatory framework, or may be caused by non-regulatory factors such as lack of accessible deep water with strong currents to reduce the build up of nutrients.
- Wastewater discharge limits are a more significant issue in Queensland than elsewhere, due to concerns about water quality, particularly in the GBR region.

The CIE noted that flexibility in application is just as important as the regulations themselves. All the regulatory frameworks have a degree of flexibility.

Has the CIE report correctly described the important features of aquaculture regulation in the jurisdictions being compared? Are there further features this review should consider?

² Available at <http://www.qca.org.au/Investigations/Aquaculture/>

Figure 1. Application process for development approval as specified under the Sustainable Planning Act 2009 - Queensland

Note: Time taken noted in days refers to business days. Various stages of the process can be extended at the decision of the Assessment Manager (AM), Concurrence Agency or applicant as specified in the Sustainable Planning Act 2009.

Source: Adapted from Queensland's Sustainable Planning Act 2009.

Source: CIE 2014

3 SPECIFIC ISSUES FOR STAKEHOLDER COMMENT

This chapter sets out key issues, identified through preliminary analysis and discussions, on which the QCA is seeking further information. Stakeholders should, however, feel free to identify and comment on other issues of significance.

3.1 Summary aim and guiding principles for the review

The QCA proposes to use the following as a summary aim and guiding principle for the review:

The aim of this review is to recommend a regulatory framework that enables economic expansion of the Queensland aquaculture sector while ensuring observance of accepted environmental standards.

In order to achieve this aim, the recommended framework should be:

- *transparent*
- *simple*
- *predictable*
- *efficient*
- *effective*
- *proportionate*
- *risk-based.*

The QCA is interested in further information on how to attain the optimum balance between economic and environmental considerations, and how it might be possible to define acceptable and unacceptable environmental impacts within the framework for aquaculture regulation. The QCA is also interested in stakeholder experience with the way agencies interpret and apply regulatory frameworks designed to control environmental impacts.

Are the suggested aim and principles the correct ones for this review of aquaculture?

How can we define acceptable and unacceptable environmental impacts?

How have agencies applied frameworks of environmental regulation?

3.2 Commercial interest in further aquaculture development in Queensland

Many stakeholders have noted that Queensland has had no major aquaculture developments for over a decade, and that there have been no new applications for regulatory approval over that period. The most common viewpoint is that this is due to regulatory barriers, and that there are significant commercial opportunities available if these regulatory barriers can be overcome. However, there is an alternative (and credible) viewpoint that there is limited demand for Queensland's aquaculture production, mainly because the cost of production is higher than in other jurisdictions. Most proponents of this view argue that the cost of production is high not only for regulatory reasons, but because of the relatively high cost of inputs such as electricity, labour and land.

There is also a third viewpoint, combining elements of the first two. According to this analysis, there are major regulatory barriers to aquaculture development in Queensland. At the same time, demand is limited because of high costs arising from the relatively small-scale operations

existing in Queensland. If the regulatory structure enabled creation of much larger aquaculture operations, the industry would be globally competitive.

The QCA's preliminary analysis, informed largely by the CIE (2013), suggests that there is potential for significant development of aquaculture in Queensland, and that regulatory barriers are at least part of the reason why development has lagged. The issue of scale is likely to be important, but the long-term competitiveness of the industry will also be influenced by factors such as exchange rates, and the cost of inputs. Development may also depend on a certain level of technical expertise and innovation.

Against the backdrop illustrated by this preliminary analysis, the QCA's review will focus mainly on regulatory factors. This is consistent with the government's direction notice.

Given current economic and environmental conditions, is there potential for greater development of aquaculture in Queensland? Would the increased production be sold primarily in the Australian market or elsewhere?

Does the Queensland aquaculture industry need to increase its scale of operations in order to become globally competitive? Does the industry need to enhance its technical expertise?

3.3 Environmental impacts of aquaculture

Aquaculture production has a range of potential environmental impacts, depending on the production method. Some of these impacts are relatively easy to mitigate, while in other cases mitigation can be difficult to achieve and may add significant expense to the production process.

- Cage farming can cause localised change to the seabed and water through the release of fish waste and uneaten food. This waste is a source of nutrients, which encourages the growth of algal blooms and microbes, which in turn can lead to oxygen depletion. The impact of cage farming is generally mitigated through location in deep waters with strong currents. The effectiveness of this mitigation strategy depends on a number of factors, such as the scale, intensity and type of aquaculture, stocking density and quantity of additives (feed and chemicals) applied.
- Aquaculture introduces other chemicals such as antibiotics, growth hormones, disinfectants, paracitocides and vitamins. The environmental impacts from the use of these substances are the subject of various ecotoxicological studies and may include risks of bioaccumulation beyond farm areas.
- Forms of marine aquaculture that introduce structures (e.g. cages and floating racks) can alter the habitat and attract fouling organisms that previously were not in the vicinity.
- Cages can have an impact if they use antifouling paint, as this can lead to leaching of chemical contaminants like copper.
- Shellfish farming is extensive aquaculture – it does not involve the addition of food. However, potential impacts include deposits of faeces, live shellfish and shells on the seabed, which can result in increased microbial activity and oxygen depletion.
- Mollusc farming can have an impact through shading, which affects algae, seagrass and their associated species. One mitigation strategy is the creation of offsetting seagrass habitats.

- Oyster racks can have an impact if they are constructed from treated timber which allows chemicals to leach into waterways. However, in Queensland oyster racks are generally not treated with chemicals that cause damage to waterways. These structures can also have an impact through shading, which affects algae, seagrasses and their associated species. Oyster racks can create barriers that affect water currents.
- Fish and prawn production in terrestrial ponds can lead to emissions of nutrients (nitrogen and phosphorus) or suspended solids. There are a number of mitigation strategies, including water treatment and the creation of offsets in other sectors, such as sugar cane farming. The impacts of terrestrial ponds are a major focus of debate in Queensland, with differing views on the cost and practicality of reducing emissions. There are suggestions that some terrestrial operations emit water of a higher quality than their input water (Australian Prawn Farmers Association 2012). Nevertheless, at least one major project, the Guthalungra aquaculture project, appears to have been halted because it could not satisfy a 'zero net emissions' condition, even with the use of offsets (Queensland Farmers' Federation 2012). The QCA understands that zero net discharge is most difficult to achieve in the dry tropics, where high evaporation requires greater water turnover.
- Aquaculture can facilitate the spread of diseases and parasites, as it involves a higher than normal density of aquatic host species. For example, in 2005 a disease outbreak at an abalone farm in Port Fairy led to the spread of a virus that wiped out the wild abalone population across western Victoria. The problem of diseases and parasites applies to both terrestrial and marine aquaculture. In cage aquaculture, disease and parasite transmission to the wild population is enabled through increased water flow and through occasional direct contact between farmed and wild individuals.
- The introduction of new species that are potentially invasive or genetically manipulated (or exogenous genetic strains) in aquaculture operations introduces risks associated with hybridisation with wild populations.
- Aquaculture can lead to depletion of wild fish stocks, when wild catch is used as feed for farmed stock. However, work is underway to mitigate this through vegetable-based feed, which has already been developed for prawns. Use of wild catch as feed can transform biomass of minimal market value into more valuable products.
- Pond aquaculture using seawater requires regular input of fresh water in order to make up for evaporation losses and maintain the pond at an acceptable salinity level. Where fresh water resources are constrained, this implies competition between aquaculture and other uses.
- Aquaculture often requires wild broodstock for the restocking of farms, which can have impacts on overall wild stocks.

The QCA understands that zero (or near-zero) emissions have been achieved for the farming of prawns and barramundi at some sites in Asia. The scale of these closed-system operations is still minimal compared to that of open-system farming areas. Pilot trials are also underway to integrate the farming of fish species with seaweeds, bivalves or sponges to minimise waste, biodeposition and water quality impacts (FAO 2009). The QCA is interested in the likelihood and timing of transition from pilot projects to full-scale production. In Queensland there are specific sensitivities around the potential impact of aquaculture on the Great Barrier Reef (GBR). One concern is that nutrient emissions promote an increase in the crown of thorns starfish, which has been a major cause of declines in reef cover. There are also regulatory complications

arising from the overlapping jurisdiction of the Commonwealth and Queensland governments in the GBR region. Further details are set out in **Appendix D**.

Are there further potential environmental impacts of aquaculture not identified in this issues paper that should be considered as part of this review?

How difficult (or expensive) is it to achieve zero net emissions from pond farming of species such as prawns and barramundi? What is the potential (and likely timing) for transitioning from pilot projects to full scale production?

In which existing cases do prawn and barramundi farming emit wastewater of higher quality than their input water?

3.4 A single dedicated Act for the aquaculture sector

Industry members have on a number of occasions expressed the view that there should be a single piece of legislation governing the aquaculture industry, as in South Australia. The examination of this issue is also specified in the Direction establishing the QCA's review. The general aim of a single piece of legislation would be a streamlining of regulatory requirements.

However, discussions have highlighted the fact that Tasmania has developed a thriving aquaculture sector but does not have single-piece legislation governing aquaculture. The CIE estimated that Tasmania's compound annual growth in the past decade was 14 per cent, compared to Queensland's 4 per cent (CIE 2013).

The CIE comparative study of aquaculture regulation (CIE 2014) noted that the approach to regulation can be as important as the regulation itself, in the sense that a flexible approach by regulators appears to be a key factor. This point has also been raised in the QCA's discussions with policymakers.

To be effective, a move to a single act would require an administrative rearrangement of responsibilities. At a time when the Queensland public sector has severe constraints on resources, it is helpful to examine how those resources might be best applied on matters of importance to the aquaculture industry. Additionally, a single Act could lead to legislative duplication or overlap if it contains environment protection and land use provisions already set out in legislation drafted for those specific purposes.

At the same time, it is worth noting that Queensland does not have a specific administrative unit dedicated to aquaculture. A dedicated unit could focus on implementation of reforms, as well as ensuring a flexible approach to existing regulation.

Tasmania has a successful aquaculture industry and does not have single-piece legislation governing aquaculture. What are the practical lessons from the regulation of Tasmanian aquaculture in the absence of a single piece of legislation?

Is creation of a single piece of aquaculture legislation a high priority? Is creation of a single administrative unit a better use of resources?

3.5 The precautionary principle

The precautionary principle is a feature of both Commonwealth and state aquaculture regulation in Queensland. For example, the (Queensland) *Environmental Protection Act 1994*

specifies that the precautionary principle is one of the 'standard criteria' to be applied when deciding whether to grant an environmental authority. Similarly, the (Commonwealth) *Great Barrier Reef Marine Park Act 1975* (the GBRMP Act) specifies that the precautionary principle is one of the principles of ecologically sustainable use of the marine park. Section 3 of the GBRMP Act defines the precautionary principle as follows:

precautionary principle means the principle that lack of full scientific certainty should not be used as a reason for postponing a measure to prevent degradation of the environment where there are threats of serious or irreversible environmental damage.

The precautionary principle is also a key component of the (Commonwealth) *Environment Protection and Biodiversity Conservation Act 1999* (the EPBC Act), which the Commonwealth Government uses as a framework for assessing matters it considers to be of national environmental significance.

However, misapplication of the precautionary principle can be costly, as pointed out in 2006 by Dr Peterson of the Productivity Commission:

...many of the shortcomings of the precautionary principle result from a failure to place the application of the principle within a framework of good regulatory practice. Scientific uncertainties and the potential for serious, irreversible or even catastrophic harm do not exempt precautionary decision making from normal standards of good regulatory practice. Without a full assessment of the costs, benefits and risks of alternatives, arbitrary invocation of the precautionary principle risks substituting one type of damage to the environment and human health with other unforeseen environmental ... damage. ... At the same time, substantial economic and social costs may be incurred, potentially leaving society worse off. (Peterson 2006)

The QCA's understanding is that, while the precautionary principle is embedded in aquaculture-related legislation, it has not explicitly been applied to date, since aquaculture development proposals always contain enough information for an informed decision, particularly in the Environmental Impact Statement (EIS). If that is indeed the case, it is possible to view the principle's presence in legislation as a fallback for unusual circumstances, which is not a barrier to aquaculture development.

Is it appropriate to apply the precautionary principle to aquaculture development? Which gaps in knowledge would make it appropriate to apply this principle?

In which cases concerning aquaculture development has the precautionary principle been applied?

3.6 Aquaculture overlays

The terms of reference for this review require the consideration of 'geographic overlays to identify further strategic and suitable areas for aquaculture'. The QCA understands that this is related to the fact that Tasmania and South Australia have made extensive use of aquaculture 'zones' to encourage development of the industry (14 zones in Tasmania, and 11 in South Australia). The zones are established through a government research program that maps relevant parameters, such as water flow, to determine which areas are suitable for different types of aquaculture. Once defined zones are established, the government sells (or auctions) the right to establish aquaculture operations. The main advantage of this arrangement is regulatory certainty for new aquaculture developments, as all the relevant parameters are already defined.

Consistent with the terms of reference, this issues paper will generally refer to 'overlays' when referring to Queensland regulation, while noting that the concept is closely related to the idea of 'zones' in Tasmania and South Australia.

Queensland has also established the Great Sandy Regional Marine Aquaculture Plan which has identified 26 sites in nine precincts available for extensive aquaculture commercial development³. However, there has been only moderate interest in the development of aquaculture in this area. It is possible that the lack of interest arises from the fact that the plan defines this area as suitable for only extensive aquaculture, where Queensland's traditional strengths are in prawns and barramundi.

The QCA understand that Queensland has no defined regulatory process for establishing marine aquaculture overlays. Creation of the Great Sandy marine aquaculture overlay relied on extensive goodwill and cooperation among a number of agencies, and was probably more complex than if a set procedure had been used.

Existing aquaculture overlays/zones in Queensland, Tasmania and South Australia apply only to marine resources, and do not apply to land-based aquaculture. It is possible, however, that terrestrial aquaculture could benefit from similar arrangements that would provide greater predictability for proponents.

When considering the option of aquaculture overlays, it is important to consider the role of local and Commonwealth regulation. The aim of overlays is to simplify regulatory processes for proponents, and to make outcomes more predictable. If overlays address only Queensland regulation, without any change in the other two layers of government, they may have only a minimal impact on regulatory hurdles faced by proponents.

The Queensland and Commonwealth governments are currently negotiating to return environmental approvals to Queensland. Within this context, it may become possible to ensure that Commonwealth regulation does not create an additional layer of regulation for proponents. For further detail, see section 3.7 on the Commonwealth–Queensland administrative demarcation.

The role of local government is more nuanced. Generally speaking, local government approvals ensure that development is consistent with local planning schemes and has acceptable impacts on local amenity. The QCA understands that one particular aquaculture development, at Armstrong Beach near Mackay, was inconsistent with local preferences (its permitted emissions were viewed as being unacceptably high), and the resulting controversy triggered Commonwealth intervention in terrestrial aquaculture developments in the year 2000. Any move to minimise local government barriers would need to include a mechanism to take account of local preferences. One option would be to include input from local government (or directly from local residents) when considering the creation of aquaculture overlays which would include 'as of right' development approvals.

Creation of overlays can require significant time and resources. To date, zones in other jurisdictions have been created by governments in order to facilitate economic development, and cost recovery has occurred through subsequent sale or auction of aquaculture permits. The QCA is interested in exploring the possibility of facilitating the creation of aquaculture overlays by private parties, who could recover their costs by selling or auctioning permits, or who could subsequently use the overlays for their own aquaculture operations. One advantage of such an option could be faster expansion of aquaculture overlays due to the commercial incentive for

³ Queensland Department of Employment, Economic Development and Innovation 2011.

their creation, particularly at a time when government resources are severely constrained. On the other hand, the potential conflict of interest in outsourcing an essentially regulatory function would require a degree of government supervision, which could negate the possible gains from commercialisation. There may be additional complications due to the involvement of the Commonwealth Government, which might require assurance that the commercial process was consistent with Commonwealth-Queensland agreements on environment assessments under the EPBC Act and the GBRMP Act.

It is possible that overlays for terrestrial aquaculture can be accommodated through regional or local planning processes under the (Queensland) *Sustainable Planning Act 2009*, in the same way as zoning for industry occurs. If this is the case, there may be no need for an overlay framework specific to terrestrial aquaculture.

Would the creation of aquaculture overlays make a significant difference to the development of Queensland aquaculture? Is it feasible to create such overlays for land-based aquaculture? How long might it take to create such overlays? Does existing legislation provide a practical means of creating overlays for terrestrial aquaculture?

In the context of aquaculture overlays, what is the best way to minimise local government regulatory barriers while ensuring a regard for local preferences?

Would the Queensland Government be able to recover the costs incurred in creating overlays?

If cost recovery is reasonably certain, should the government allow private parties to create the overlays and recoup their costs by selling the right to develop in the established zones?

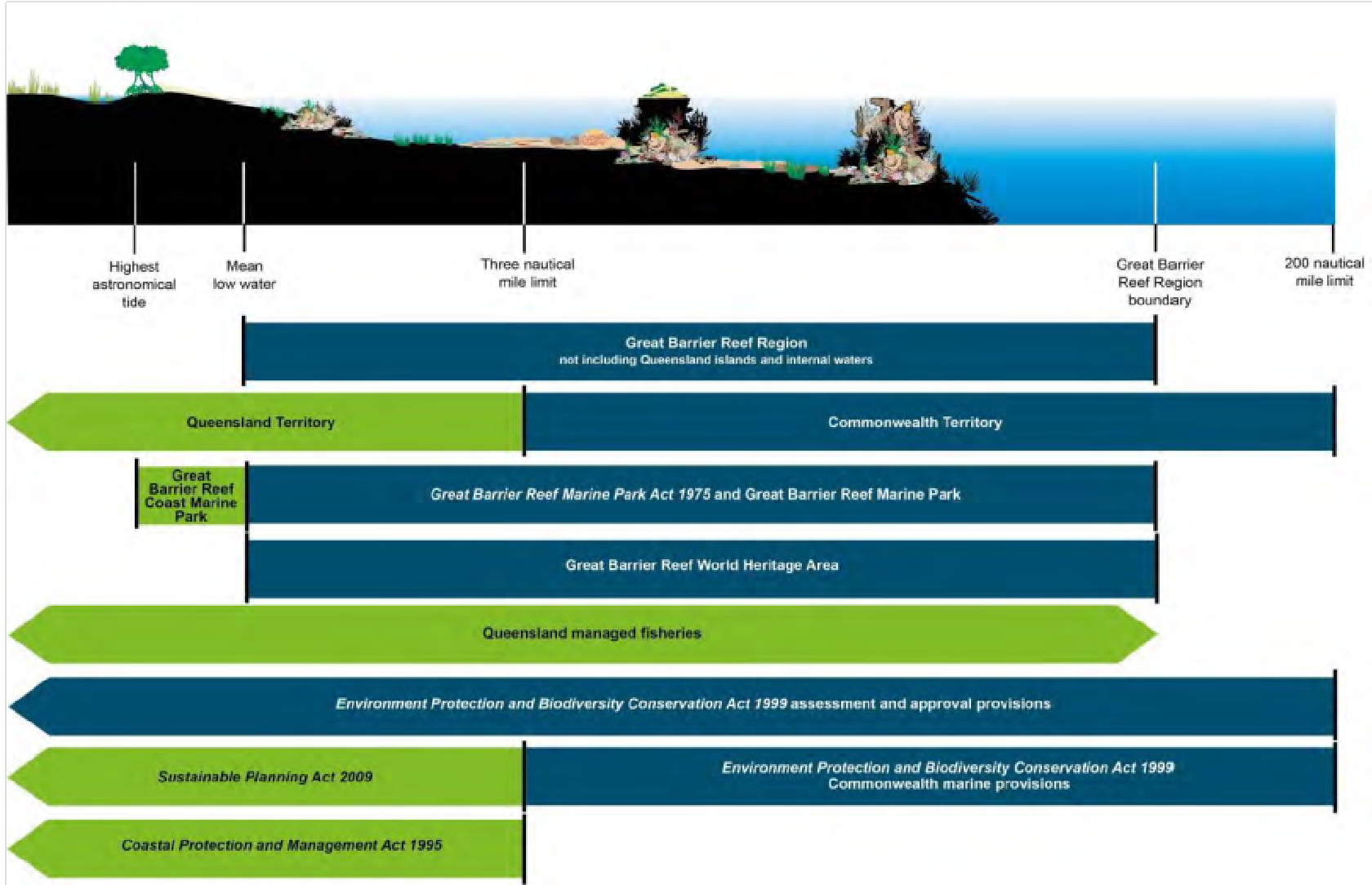
3.7 Demarcation between Commonwealth and Queensland governments

Prior to the year 2000, the Commonwealth Government had a minimal regulatory role in Queensland's terrestrial aquaculture, generally limited to environmental assessments triggered by application of other Commonwealth powers (such as foreign investment approvals). **Appendix D** sets out some of the complexities associated since then with the division of powers between the Queensland and Commonwealth Governments. Figure 2 illustrates demarcation boundaries of Queensland and Commonwealth regulation in the GBR region.

In October 2013, the Commonwealth and Queensland governments signed a Memorandum of Understanding (MOU), which aims to re-cast the relationship between the two jurisdictions (Abbott 2013). One proposed outcome of the MOU process is that regulatory assessment of terrestrial aquaculture may again be undertaken by the Queensland government, with the Queensland Government applying all the particulars of the Commonwealth legislation. This would potentially allow the creation of a 'one stop shop' for Queensland aquaculture proponents.

What is likely to be the effect of a 'one stop shop' on development prospects for Queensland aquaculture?

Figure 2 Demarcation between Queensland and Commonwealth regulation in the GBR region



Source: Great Barrier Reef Marine Park Authority 2013b

3.8 Environmental offsets

Most Queensland aquaculture production comes from coastal ponds, where the wastewater is released into the sea or into a watercourse near the sea. This wastewater potentially contains three pollutants with an impact on marine ecosystems: nitrogen, phosphorus and suspended solids. A significant portion of Queensland's coastal ponds are located close to the GBR, where these pollutants are of particular concern (Australian Government and Queensland Government 2013b). The pollutants contribute to poor water quality, which is a cause of crown-of-thorns starfish (COTS) outbreaks, accounting for an estimated 42 per cent of the loss in coral cover in the GBR⁴. (De'atha & Fabriciusa 2012).

The consensus is that the GBR's water quality problems are mostly derived from diffuse sources, rather than aquaculture:

The main land uses contributing pollutant loads are rangeland grazing for sediment, rangeland grazing and sugarcane for total nitrogen and total phosphorus, and sugarcane for photosystem II inhibiting herbicide. (Australian Government and Queensland Government 2013b)

Compared to diffuse sources, most contributions to suspended sediment, nutrient and pesticide loads from point sources such as intensive animal production, manufacturing and industrial processing, mining, rural and urban residences, waste treatment and disposal, ports and shipping are relatively small but could be locally, and over short-time periods, highly significant (Australian Government and Queensland Government 2013b).

However, securing the high conservation value of the GBR appears to have had the effect of blocking further aquaculture development in the GBR region, as even a small increase in pollutants has not been acceptable where the load exceeds accepted standards.

In addition to promoting production methods that internalise and manage waste outputs, environmental offsets are one possible solution to allow aquaculture development and allay concerns about aquaculture emissions. Using offsets, aquaculture proponents can implement a reduction in pollutants elsewhere in return for the right to emit a certain amount. For example, an aquaculture proponent might finance a better method of fertilising a sugar cane farm, leading to an overall decreased run-off of nitrogen and phosphorus.

The Commonwealth Government's policy (Hunt 2013c) is that all new projects must result in a net benefit to the GBRMP in order to gain approval, and one way to achieve this is through offsets. The QCA understands that the Commonwealth Government has recently approved four projects where the offset condition is greater than the emissions arising from the development (Hunt 2013a). Further details on these projects (at Abbott Point and Curtis Island) are at Attachment E.

If this approach of net benefit to the GBRMP were applied to aquaculture it would raise an obvious equity question. Why is one particular industry (aquaculture) compelled to bear the cost of pollutant reduction over and above its own impact? There may also be efficiency implications. If one industry is penalised more than another, and the highly penalised industry makes better use of the land, the penalisation will be a disincentive for structural adjustment allowing land to be utilised for its most productive use.

On the other hand, imposition of a requirement for an offset greater than 100 per cent, while not equitable, satisfies the principles of transparency, simplicity and predictability. A perfectly equitable framework is unlikely to be implemented, as it would involve imposing new emissions

⁴ Tropical cyclones are estimated to be the largest cause of decline in coral cover, accounting for around 48 per cent.

obligations on existing enterprises that have previously operated (often for decades) without them. Given the restricted development over the past decade, an offsets requirement greater than 100 per cent would at least provide more predictability and transparency than current regulatory arrangements, and would be consistent with general policy goals of improving (rather than just maintaining in its current state) water quality in the vicinity of the GBR.

The Queensland Department of Environment and Heritage Protection is scheduled to establish an agreed framework for reef water quality offsets by June 2014, as part of the Reef Water Quality Protection Plan 2013. Additionally, it is proposed that a Reef Trust be established, as part of the Australian Government's Reef 2050 program. After an initial injection from the Commonwealth, funding will also be derived from the pooling of offset funds for significant projects. The QCA understands that the Trust will be operated jointly with Queensland Government, with advice from GBRMPA (Hunt 2013). A central offsets exchange should reduce transaction costs, and is therefore potentially a more efficient mechanism than a system where proponents search individually for suitable offsets.

While offsets appear to provide a way forward, the QCA understands that offsets did not provide a solution for the proposed Guthalungra development near Bowen. This suggests that offsets alone may not provide an overall solution to development constraints faced by aquaculture proponents in recent years. There is also a possibility that the absence of a central exchange has made implementation of offsets too complex or costly, and that the creation of such an exchange could change the overall viability of the project.

Further background information on environmental offsets is provided in **Appendix E**.

Is there sufficient information available about the impacts of aquaculture on water quality adjacent to the Great Barrier Reef (GBR)? If not, what are the information gaps?

How significant is the impact of well-managed aquaculture on GBR water quality compared to the impact of other activities? Does this impact justify the current level of regulation?

What would be the impact on the GBR of a significant expansion of aquaculture? In which areas would the impact be smallest, and in which areas would it be greatest?

Is there sufficient information about GBR water quality and pollution sources to enable establishment of environmental offsets? If not, what are the information gaps and how could they be remedied?

When specifying offsets, what is the appropriate ratio of emissions to offsets (i.e., should the offset be equal to, greater than or smaller than the emission?)?

3.9 The potential for cage aquaculture in Queensland

There is at present no operational cage aquaculture in Queensland. This may be due to regulatory barriers, or it may be due to a lack of appropriate conditions, such as deep water with strong currents to reduce the build-up of nutrients. There was a cage aquaculture operation in the Hinchinbrook Channel, but it has not been re-activated following significant damage inflicted by Cyclone Yasi in 2011.

GBRMPA (in an undated position statement) has expressed reservations about the impact of cage aquaculture on the Queensland marine environment. (GBRMPA n.d.)

The QCA is interested in assessing the extent to which there is potential for cage aquaculture in Queensland waters, and which species could be farmed in this manner.

Does Queensland have the appropriate conditions for cage aquaculture? Where do these conditions occur? Which species are suited for cage aquaculture in Queensland?

3.10 Suitable locations for development of aquaculture

This review's discussion of Queensland aquaculture regulation has been predominantly concerned with the regulatory requirements associated with protecting the GBR.

The GBR is adjacent to Queensland's most prospective aquaculture areas. Since it is in the northern half of the state, those locations have sufficiently warm weather for year-round prawn cultivation. Queensland's east coast also has well-developed infrastructure such as all-weather roads, reliable electricity supply from the national grid, ports, and airports. There is a ready supply of labour, and in many cases the aquaculture peak season coincides with the sugar cane off-season, allowing employment of an otherwise under-utilised labour force.

The high conservation value of the GBR presents challenges to the development of aquaculture activities. This raises the question of whether the focus for aquaculture development should be on areas of Queensland not in proximity to the GBR.

The Queensland coast of the Gulf of Carpentaria appears to have many features suitable to aquaculture, but also some significant obstacles. A major obstacle is the absence of infrastructure, particularly affordable and reliable electricity, but a sufficiently large development could conceivably fund its own infrastructure. It is also possible that the Gulf coast is too shallow, with insufficient water movement to disperse nutrients. Nevertheless, the Gulf may be ideal for large-scale prawn or barramundi farms and for relatively low-maintenance species such as beche-de-mer (sea cucumber), which is successfully bred in the Northern Territory.

South east Queensland (south of the GBR) has some prawn farms, but expansion has apparently been limited by the climate, which only allows production in the warmer half of the year. There may be innovative ways of overcoming this constraint, such as production of species less sensitive to cold. For example, the QCA understands that one operation in Melbourne utilises warm spring water to grow barramundi⁵.

Queensland has successful operators of inland freshwater aquaculture, but the freshwater sector is small compared to prawn and barramundi farming. Some categories, like freshwater finfish, appear to be growing faster than others. It is possible that the overall development of freshwater aquaculture is limited by regulatory factors, or it could be due to non-regulatory factors like lack of demand, or lack of suitable locations.

⁵ Mainstream Aquaculture website <http://www.mainstreamaquaculture.com/>, accessed 4 February 2014.

Is there potential for expansion of aquaculture in south east Queensland? What are the current barriers to development?

Is there potential for the establishment of large scale aquaculture, or low maintenance aquaculture, in the Gulf of Carpentaria? What are the possibilities for overcoming infrastructure constraints? Would such a development require any specific regulatory mechanisms, or is current regulation sufficient?

What are the current barriers to development of inland freshwater aquaculture? Are there specific regulatory barriers to further development of inland freshwater aquaculture?

3.11 Aquaculture marketing levy

Industry members have noted that consumer perceptions of aquaculture products have been undermined as a result of publicity surrounding the environmental practices adopted by aquaculture producers in developing countries. One possible response is an industry levy to fund better information on the benefits of well-run aquaculture in Queensland. The industry already has a research levy that funds extensive and useful research. Other sectors, such as avocado growers, have marketing levies.

A marketing levy on Queensland aquaculture only would be quicker to implement, but a national levy could be more effective for a number of reasons. Aquaculture production is sold in a national market, and national opinion regarding aquaculture is relevant because of the Commonwealth's role in aquaculture regulation.

The Fisheries Research and Development Corporation (FRDC), is the RDC pertinent to the aquaculture industry (CIE 2014). Levies are collected through two means: an industry elected levy program managed by the Commonwealth through the Department of Agriculture and a voluntary contributions system. The industry elected program is compulsory for all producers and applies solely to the farmed prawn industry (Australian Government Department of Agriculture 2013). Voluntary contributions systems are used for a range of aquaculture industries, namely bluefin tuna, salmon and kingfish (CIE 2014).

Recent changes to the Commonwealth *Primary Industries and Energy Research and Development Act 1989* extend the possible use of levies to marketing activities, where previously they were restricted to research and development. (Cobb & Adams 2013)

Appendix F provides further details of levies on aquaculture, as well as marketing and research levies applied to other industries.

The possible introduction of a marketing levy gives rise to a number of questions and reservations:

- Would the introduction of a marketing levy lead to a less focused use of industry funds, with the potential to erode industry support for levies in general? The existing research levy has a sharp focus, and has delivered tangible gains. Marketing is an activity more susceptible to subjective judgements, and frequently it is not possible, even with hindsight, to judge the effectiveness of marketing expenditure.
- How large would marketing expenditure need to be in order to make an appreciable difference? Would this amount of money achieve a better return elsewhere, for example in technical research?

- In which industries has generic marketing, as opposed to specific brand marketing, been effective in raising consumption or raising the product price? This question applies particularly to food industries, rather than luxury goods or types of technology.
- What would be the focus of marketing campaigns? Australian markets or overseas? Consumers, wholesalers or restaurants?

Should the aquaculture industry have a marketing levy? If so, should it apply to Queensland only or should it be a national levy? What is an appropriate level for the levy?

What would be the focus of aquaculture marketing activities funded by the levy? How could the industry judge the effectiveness of expenditure?

3.12 Financial safeguards for new developments

Some industries are required to establish financial safeguards for environmental rehabilitation. The mining and petroleum industries are the most notable examples of this mechanism⁶. The aim of financial safeguards is to ensure that rehabilitation costs are internalised by the project, and are not ultimately borne by taxpayers.

If the Queensland aquaculture industry undergoes significant expansion, it is possible that a certain proportion of projects may be only partially completed, or may fail in the course of operation. Reasons can include a shortfall in financing, a general industry downturn, a regulatory dispute, or the prohibitive rebuilding costs following natural disasters such as flooding and cyclones. If project failure occurs, some questions arise:

- Can the project be taken over by another proponent who will ensure completion or continued operation? Continuation is more likely if the failure is due to a specific financing shortfall, but less likely if the failure is due to a general industry downturn.
- Does project failure create environmental problems that need to be remediated? If so, can remediation occur as part of general industry developments, for example through offsets on other projects?

If the project can be taken over by another proponent, or if there is no specific need for environmental rehabilitation, there is generally no need for a financial safeguard mechanism. Other industries with risky projects function without such a mechanism. For example, real estate developments frequently fail, leaving half-built projects or prominent holes in the ground. Nevertheless, governments generally do not consider that real estate development requires financial safeguards to cover the contingency of non-completion.

There may be a useful distinction between marine and terrestrial aquaculture. Terrestrial aquaculture generally takes place on freehold land in agricultural locations. In those circumstances it is likely that minimal damage would arise from an incomplete or failed project. The freehold owner may have devalued their own land, but that is an internalised problem. Potential devaluation of neighbouring land is unlikely to be significant in an agricultural setting, and can be mitigated through simple measures such as screening vegetation, which may in any case be a condition of development. Similarly, potential damage from acid sulphate soils is also likely to be mitigated through development conditions. In the unlikely event that taxpayers are

⁶ For example, Schedule 2D of the (Queensland) Environmental Protection Regulation 2008 sets out financial safeguard payments for small mining tenures.

exposed to a rehabilitation cost, this cost is likely to be less than the residual value of the freehold title, leaving open the possibility of mechanisms such as a caveat on the title.

By contrast, marine aquaculture takes place in waters under public ownership. Derelict structures such as fish cages and oyster racks can be a navigation hazard, and may have a detrimental effect on water flows and fish habitats. Because there is no freehold title, there is limited residual value that might cover taxpayer exposure to rehabilitation costs.

Even where there are arguments in favour of financial safeguards, it is worth weighing up the effect on aquaculture development against the size of the identified problem. The imposition of a safeguards requirement would clearly add to the cost structure of the industry, and could make otherwise viable projects unviable. If financial safeguards are financed through an industry-wide levy, there may be unintended consequences of moral hazard and inequitable distribution of risk.

Are there circumstances in which financial safeguard mechanisms should be applied to aquaculture for the purpose of environmental rehabilitation? Are these mechanisms applied in jurisdictions such as Tasmania and South Australia?

Is there an identified problem with taxpayer exposure to environmental rehabilitation costs of aquaculture projects? Where has this problem arisen, and what is the magnitude of the exposure?

GLOSSARY

A

ABARES	Australian Bureau of Agricultural and Resource Economics and Sciences
ABFA	Australian Barramundi Farmers Association
ABS	Australian Bureau of Statistics
AECL	Australian Egg Corporation Limited
AREC	Agriculture, Resources and Environment Committee
ASS	Acid Sulfate Soils

C

Cage aquaculture	a form of intensive marine aquaculture, used for salmon and tuna production
CIE	Centre for International Economics

D

DA	Department of Agriculture (Commonwealth)
DAFF	Department of Agriculture, Fisheries and Forestry (Queensland)
DNRM	Department of Natural Resources and Mines (Queensland)
DSDIP	Department of State Development, Infrastructure and Planning (Queensland)

E

EEM	Ecological Equivalence Methodology
EHP	Department of Environment and Heritage Protection (Queensland)
EIS	Environmental Impact Statement
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth)
ERA development permits	Environmentally relevant activity development permits
Extensive aquaculture	involves no provision of extra feed

F

FRDC	Fisheries Research and Development Corporation
------	--

G

GBR	Great Barrier Reef
GBRMP	Great Barrier Reef Marine Park
GBRMP Act	Great Barrier Reef Marine Park Act 1975
GBRMPA	Great Barrier Reef Marine Park Authority

GSRMAP Great Sandy Regional Marine Aquaculture Plan

I

Intensive aquaculture involves provision of food

M

marine aquaculture occurs in the sea or in estuaries

N

NRM Natural Resource Management (Queensland)

O

OBPR Office of Best Practice Regulation

P

PC Productivity Commission (Commonwealth)

Precautionary principle a principle that lack of full scientific certainty should not be used as a reason for postponing a measure to prevent degradation of the environment where there are threats of serious or irreversible environmental damage

Q

QAIF Queensland Aquaculture Industries Federation

QCA Queensland Competition Authority

QGEOP Queensland Government Environmental Offset Policy

R

RAA Resource Allocation Authority

RDC Research and Development Corporation

S

SESSF Southern and Eastern Scalefish and Shark Fishery

SMA Special Management Areas

T

terrestrial aquaculture occurs in ponds on land and may use either fresh or sea water

W

WAC Wine Australia Corporation

APPENDIX A: TERMS OF REFERENCE OF AQUACULTURE REVIEW

TRY-04803

16 SEP 2013

QLD COMPETITION AUTHORITY


17 SEP 2013

DATE RECEIVED



Hon Tim Nicholls MP
Member for Clayfield
Treasurer and Minister for Trade

Dr Malcolm Roberts
Chairman
Queensland Competition Authority
GPO BOX 2257
BRISBANE QLD 4001

Dear Dr Roberts **REPORT ON REGULATION OF THE AQUACULTURE INDUSTRY**

As part of its focus on regulatory reform and reducing red tape, the Queensland Government has determined that a review should be undertaken of the regulation governing the State's aquaculture industry.

As you are aware, aquaculture regulation was identified as a priority reform area by the Office of Best Practice Regulation (OBPR) in its Final Report on a Framework for Measuring and Reducing the Burden of Regulation. A review of aquaculture regulation was also recommended by the Agriculture, Resources and Environment Parliamentary Committee (AREC) in its November 2012 report, following its inquiry into the Queensland Agriculture and Resource Industries.

In its formal response to AREC's recommendations, the Government indicated that the review should be undertaken by either OBPR or the Department of Agriculture, Forestry and Fisheries (DAFF). Having now given further consideration to this issue, we consider it would be appropriate for OBPR to undertake the review, with DAFF to establish a steering committee (including representatives of key relevant Government agencies) to provide advice and guidance to OBPR in undertaking the investigation.

Please find enclosed a Direction Notice issued under section 10(e) of the *Queensland Competition Authority Act 1997*, specifying the terms of the review. In particular, you will note the Direction Notice requests that the review should explore the use of a single, dedicated piece of legislation as used in South Australia to reduce the regulatory burden on that State's aquaculture industry.

Level 9, Executive Building
100 George Street Brisbane
GPO Box 611 Brisbane
Queensland 4001 Australia
Telephone +61 7 3224 6900
Facsimile +61 7 3211 0122
Email treasures@ministerial.qld.gov.au
Website www.treasury.qld.gov.au
ABN 90 856 020 239

Should officers from the Authority require further information, I encourage them to contact Mr Peter Johnson, Director, Regulatory Reform and Inter-Governmental Relations, on (07) 3035 1407 or peter.johnson@treasury.qld.gov.au.

Yours sincerely



Tim Nicholls
Treasurer and Minister for Trade



Deb Frecklington
Assistant Minister for Finance,
Administration and Regulatory Reform

Encl.

QUEENSLAND COMPETITION AUTHORITY ACT 1997
SECTION 10(E)
MINISTER'S DIRECTION NOTICE

Direction

In our capacity as the responsible Ministers, pursuant to section 10 (e) of the *Queensland Competition Authority Act 1997*, we hereby direct the Queensland Competition Authority (the QCA) to investigate and report on regulation of the Queensland aquaculture industry. The report is to include recommendations for a regulatory approach that could facilitate expansion of aquaculture in Queensland, to promote economic development while balancing environmental protections.

1. Matters to be considered

Queensland has a number of key attributes to attract and support the development of a diverse aquaculture industry. However, there have been no new major entrants to the aquaculture industry and only three significant pond farm expansions approved during the last 10 years. The Agriculture, Resources and Environment Committee (AREC) of Parliament recommended in November 2012 that the Government review the regulations governing Queensland's aquaculture industry.

In undertaking this investigation and developing options for regulatory reform, the QCA should take into account, but is not limited to:

- environmental, economic and social considerations;
- fish health and biosecurity issues;
- predictability and security for investors;
- marine park considerations;
- applicable Commonwealth Government regulation and policy; and
- consumer perceptions of Queensland aquaculture practices and products.

The AREC report noted that South Australia and Tasmania have more developed aquaculture industries. This review should incorporate a comparison of regulatory arrangements in Queensland and those states, as well as any other jurisdictions of interest, inside and outside Australia. In particular, this review should explore, but not be limited to, the use of a single, dedicated piece of legislation as used in South Australia to reduce the regulatory burdens on that state's industry.

The review should also consider the possibility of updating geographic overlays to identify further strategic and suitable areas for aquaculture.

2. Consultation

In undertaking the investigation, the QCA should consult with all relevant stakeholders, including but not limited to:

- the Queensland aquaculture industry;
- relevant Queensland and Commonwealth Government departments; and
- consumer, retail and environmental groups with an interest in aquaculture.

In undertaking the review, the QCA should take into account advice and guidance from the review Steering Committee, to be established by the Queensland Department of Agriculture, Fisheries and Forestry (DAFF).

Commonwealth Government regulation and policy has a significant impact on Queensland aquaculture and any proposals for regulatory reform need to take this into account. Where possible, the review should include consultation with relevant Commonwealth Government agencies. This may include, or be separate to, any participation by those agencies in the Steering Committee established by DAFF.

3. Timing

The review should commence on 12 November 2013.

The QCA should provide a final report to the Ministers responsible for the QCA and the Minister for Agriculture, Forestry and Fisheries by 15 September 2014.

4. Other matters

The QCA may exercise all the powers under Part 6 of the *Queensland Competition Authority Act 1997*.



TIM NICHOLLS
Treasurer and Minister for Trade



JARROD BLEIJIE
Attorney-General and Minister for Justice

APPENDIX B: STEERING COMMITTEE TERMS OF REFERENCE

Queensland Aquaculture Review Steering Committee

Terms of Reference

Purpose

Queensland has a number of key attributes to attract and support the development of a diverse aquaculture industry. However, there have been no new major entrants to the aquaculture industry and only three significant pond farm expansions approved during the past 10 years. The Agriculture, Resources and Environment Committee (AREC) of Parliament recommended in November 2012 that the Government review the regulations governing Queensland's aquaculture industry.

The Queensland Competition Authority (the QCA) has been given a direction to investigate and report on regulation of the Queensland aquaculture industry, including regulatory approaches that will facilitate expansion of aquaculture in Queensland, to promote economic development while balancing environmental protections. In undertaking the investigation, the QCA will consult with relevant stakeholders who have an interest in the outcomes of the review. The review is scheduled to commence in November 2013, with the final report due in September 2014.

Objectives

The Aquaculture Review Steering Committee will provide advice and guidance to the QCA during the review process, specifically in relation to:

- issues with the current regulatory framework;
- policy and/or practical issues from the perspective of the relevant agency/organisation; and
- practical constraints around recommended courses of action.

The Committee will be advisory in nature. Its role is to present the views of stakeholders on issues and experiences in relation to current and future aquaculture activity in Queensland, and suggestions as to where improvements could be made.

Membership

The Department of Agriculture, Fisheries and Forestry (DAFF) will chair the Aquaculture Review Steering Committee. The Chair will be the Executive Director, Fisheries Queensland. The role of the Chair is to facilitate general discussion and ensure advice is provided to QCA in a timely manner.

The following members will be invited to join the Committee:

- Department of Environment and Heritage Protection (EHP)
- Department of State Development, Infrastructure and Planning (DSDIP)
- Department of National Parks, Recreation, Sport and Racing (DNPRSR)
- Queensland Treasury and Trade
- Department of the Premier and Cabinet
- Queensland Competition Authority Review Team
- Great Barrier Reef Marine Park Authority
- Australian Government Department of the Environment
- Queensland Aquaculture Industry Federation (QAIF)
- Queensland Prawn Farmers Association
- Queensland Barramundi Farmers Association

Procedures

Members will commit themselves to functioning in an environment that creates and extends opportunities for robust and open discussion about the issues related to the expansion of aquaculture in Queensland. Members will engage, canvass and represent the views of their respective agency/group, but will not be required to make decisions.

It is expected that committee members provide open and honest advice during discussions, noting that no decisions will be made by the committee. Members are asked not to publicly relay information from the meetings, or to use information obtained from or discussed by the committee for personal gain or benefit.

Meeting notes and Agendas

Meeting notes will be taken and distributed by Fisheries Queensland. Agendas will be compiled by the Chair in consultation with QCA.

The agenda will be distributed within one week prior to the meeting. Meeting notes will be distributed within one week of the meeting.

Fisheries Queensland, in DAFF, will organise meetings and distribution of agenda and meeting notes.

Meetings

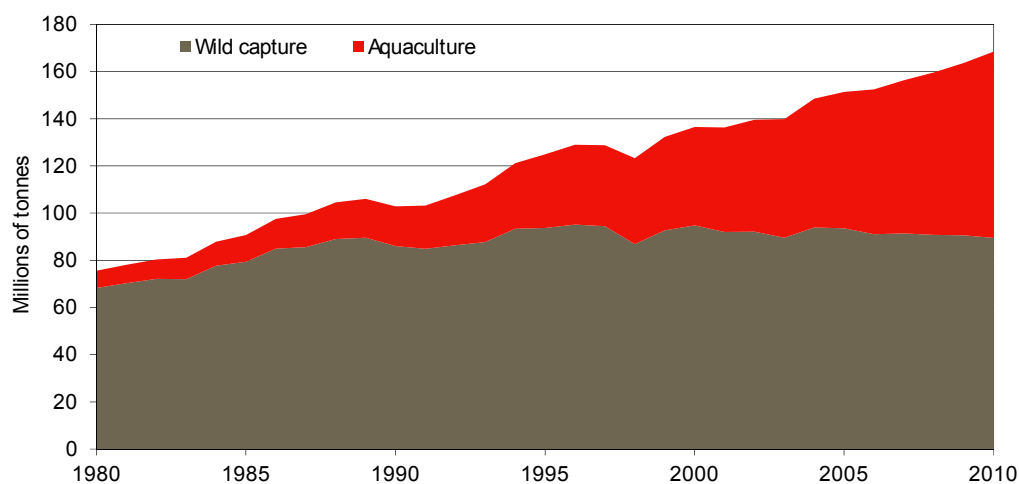
The Review Steering Committee will meet monthly, or as needed, for one to two hours, for the duration of the review (currently scheduled from 12 November 2013 until 30 September 2014).

The location of the meetings will be in Brisbane, but teleconference facilities will be available for members who cannot attend in person.

APPENDIX C: AQUACULTURE – GENERAL BACKGROUND

Over the past three decades, global aquaculture production has increased at an annual rate of 8 per cent in quantity terms. In that time, the contribution of aquaculture to world fisheries production has increased from 10 per cent in 1980 to 47 per cent in 2010.

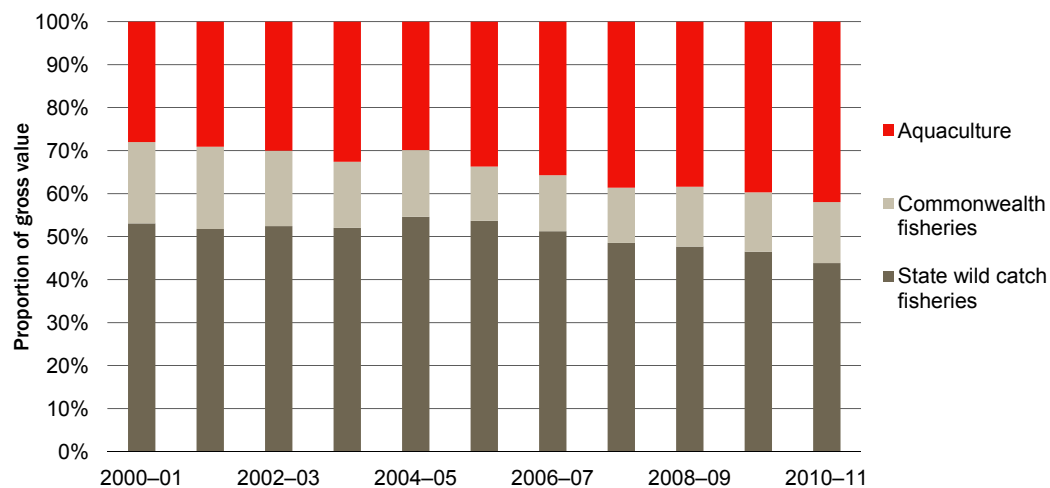
Figure 1: Global fisheries production, aquaculture versus wild capture



Source: CIE 2013

In Australia, aquaculture has also increased its share of the value of fisheries production, accounting for roughly 43 per cent of the total value in 2010-11. The value of aquaculture production in the past two decades has increased at an annual rate of around 8 per cent.

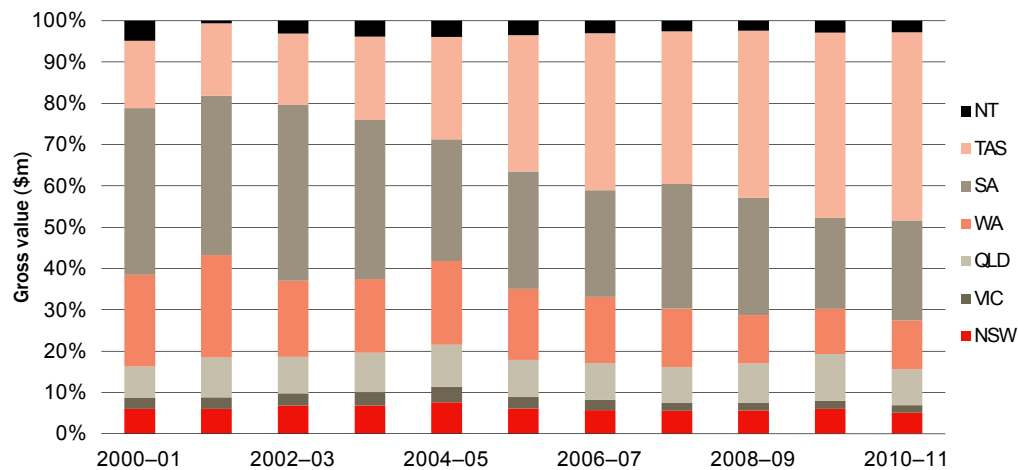
Figure 2: Fisheries production in Australia by value



Source: CIE 2013

In 2010–11, Queensland accounted for 8 to 11 per cent of Australia's total gross value of aquaculture production. In this period, the two largest producers were Tasmania who accounted for 46 per cent of the value of Australia's aquaculture production, followed by South Australia with around 24 per cent.

Figure 3: Australian aquaculture by value, states/territories.

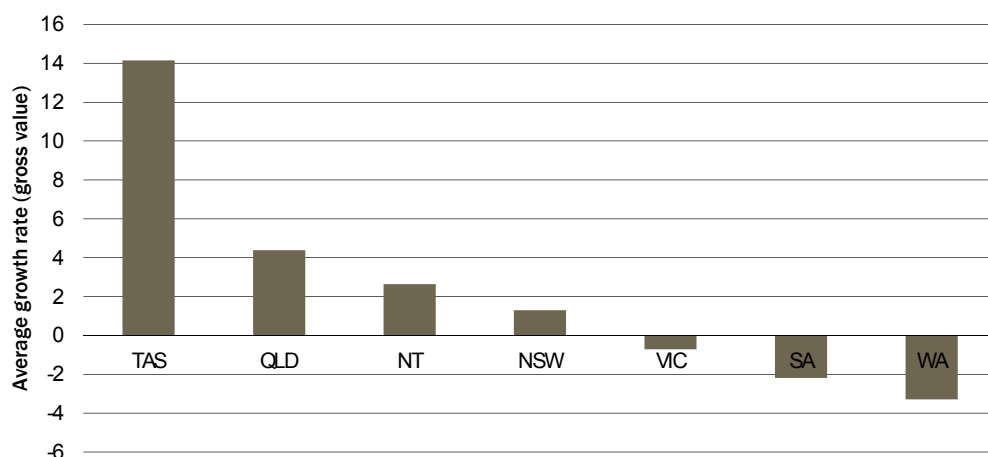


Source: CIE 2013

Queensland's production is dominated by prawns and barramundi, which are farmed in ponds on land. Salmon and tuna respectively account for a large proportion of Tasmania's and South Australia's production. These species are cultivated in cages in the open sea, and tuna in particular operates through initial wild catch of young tuna, which are then grown out in farms.

Historic growth rates of the Australian aquaculture industry differ significantly between states and territories. Over the past decade, Tasmania has had an annual growth rate (in value terms) of around 14 per cent, while Queensland's rate has been around 4 per cent. South Australia has had negative growth, due to increased restrictions on wild catch.

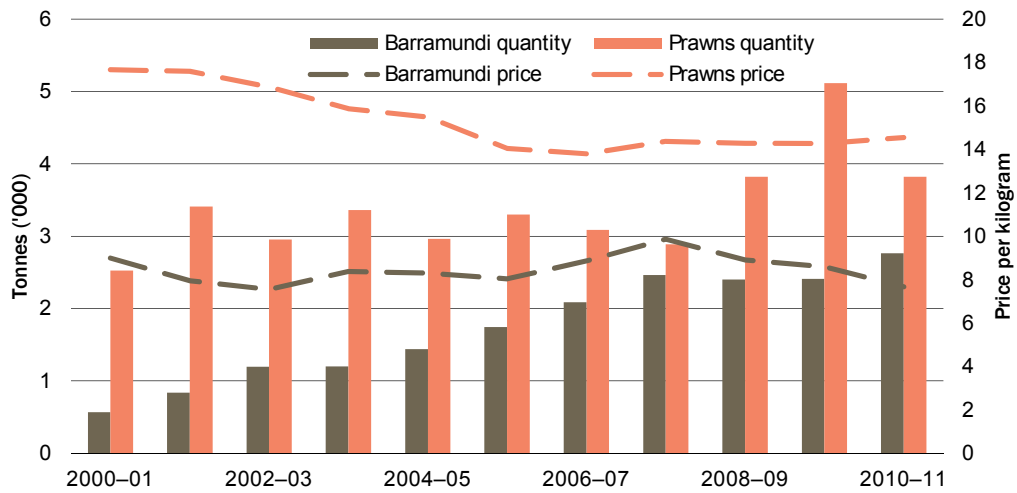
Figure 4: Average annual growth rate over the past decade, by value



Source: CIE 2013

While Queensland's production has grown over the last decade, the price per kilogram of product has declined.

Figure 5: Price and quantity of Queensland barramundi and prawns



Source: CIE 2013

Table 1 Gross value of fisheries production, by state, Australia

	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10	2010–11	2011–12p
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
State wild catch fisheries											
New South Wales	95 101	104 433	89 711	79 614	81 017	87 401	89 044	79 111	80 701	80 202	81 571
Victoria	101 659	89 048	72 214	85 859	77 502	74 631	67 830	54 284	47 663	51 258	54 686
Queensland	234 008	228 120	237 792	198 265	218 456	206 951	208 205	223 024	222 411	188 450	185 514
South Australia	206 779	195 219	182 536	182 959	192 674	218 684	205 967	219 285	199 489	195 440	208 838
Western Australia	434 372	431 501	400 742	414 834	417 653	352 382	323 524	291 473	272 368	284 800	275 520
Tasmania	199 896	159 306	142 733	166 503	170 165	188 365	165 563	176 326	175 135	163 053	153 495
Northern Territory	31 336	33 019	31 514	32 766	26 250	28 917	32 948	33 717	31 241	32 442	34 104
Total	1 303 151	1 240 646	1 157 243	1 160 800	1 183 717	1 157 330	1 093 082	1 077 220	1 029 008	995 646	993 728
Aquaculture a											
New South Wales	43 699	48 586	49 647	48 372	45 028	45 975	48 111	48 681	52 400	48 087	54 675
Victoria	20 740	20 700	23 561	23 946	21 003	20 121	17 100	15 499	17 598	18 904	16 459
Queensland	70 755	62 912	68 640	64 500	66 723	72 069	75 251	83 552	99 381	82 471	82 509
South Australia	282 672	301 721	278 973	186 643	210 482	207 815	262 128	245 855	193 452	216 708	237 339
Western Australia	180 873	130 303	129 529	128 475	127 913	129 045	123 174	101 535	96 395	112 448	109 235
Tasmania	127 800	122 744	146 447	157 346	245 196	306 390	320 924	350 691	392 893	448 740	536 673
Northern Territory	4 627	21 900	27 800	24 800	26 000	24 600	22 570	20 900	25 480	26 980	17 214
Total	731 165	708 866	724 597	634 082	742 345	806 015	869 258	866 712	877 600	954 337	1054 104
Commonwealth fisheries											
Northern Prawn	134 635	82 540	73 979	64 999	72 877	63 750	74 451	73 986	88 828	94 828	64 708
Torres Strait	34 203	36 666	32 985	34 702	27 844	24 659	21 256	15 442	14 527	33 931	23 914
SESSF Commonwealth Trawl Sector	70 047	65 732	54 547	58 926	43 627	54 539	46 398	55 940	55 673	48 579	50 644
SESSF Gillnet, Hook and Trap Sector	na	21 587	23 499	24 591	21 540	23 784	27 544	30 570	24 550	23 830	20 860
SESSF Great Australian Bight Trawl Sector	6 353	8 575	14 304	16 654	15 505	17 991	12 781	8 977	11 692	11 074	11 639
Eastern Tuna and Billfish – Longline and minor line	78 942	67 912	46 831	42 471	28 704	32 601	31 960	38 895	30 140	30 917	28 035
Southern Bluefin Tuna	72 432	77 840	38 156	43 807	37 525	40 975	44 568	45 341	24 220	30 551	40 603
Western Tuna and Billfish	31 826	19 998	8 201	3 584	2 749	2 200	1 656	np	np	np	np
Bass Strait Scallop	na	694	1 475	387	191	na	na	1 163	3 744	2 946	1 027
Southern Squid Jig	736	1 158	1 889	1 907	887	1 042	232	461	93	1 657	2 075
Other fisheries b	31 019	32 137	46 085	37 942	26 605	32 649	28 088	42 309	52 527	42 497	64 739
Total	481 112	414 841	341 950	329 970	278 054	294 191	288 933	314 710	305 994	320 810	308 244
Total value c	2 444 503	2 287 502	2 187 596	2 085 582	2 167 149	2 216 721	2 207 101	2 214 273	2 191 102	2 240 993	2 316 273

a Excludes the value of hatchery fishery production. b Includes entries marked np and Small Pelagics, Macquarie Island, Coral Sea, Heard and McDonald Islands, SESSF Victorian coastal waters sector, Norfolk Island, South Tasman Rise, Eastern and Western Skipjack Tuna, East Coast Deepwater Trawl, North West Slope Trawl, and Western Deepwater Trawl fisheries because of confidentiality requirements. c To avoid double counting, total value has been reduced to allow for southern bluefin tuna caught in the Commonwealth Southern Bluefin Tuna Fishery, as an input to farms in South Australia. np Not for publication because of confidentiality requirements. Included in Other fisheries. p Preliminary.

SESSF Southern and Eastern Scalefish and Shark Fishery.

Sources: ABARES; Australian Fisheries Management Authority; Department of Fisheries, Western Australia; Department of Primary Industries, New South Wales; Department of Primary Industries, Parks, Water and Environment, Tasmania; Fisheries Queensland, Department of Agriculture, Fisheries and Forestry; Fisheries Victoria, Department of Environment and Primary Industries; Northern Territory Department of Primary Industry and Fisheries; Primary Industries and Regions, South Australia; South Australian Research and Development Institute

Source: Australian Bureau of Agricultural and Resource Economics and Sciences 2012

Table 2 Fisheries production in 2011-12, by state, Australia ap

	NSW	Vic.	Qld	SA	WA	Tas.	NT	C'wlth		Aust.	
Value	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000		\$'000	
Fish											
Tuna	0	0	0	150 000	9	na	56	62 041		172 303	b
Salmonids c	2 200	3 870	0	na	61	506 446	0	0		512 577	
Other	47 679	11 867	95 871	57 376	55 872	2 517	33 343	151 821	d	456 347	
Total	49 879	15 737	95 871	207 376	55 942	508 963	33 399	213 862		1141 227	
Crustaceans											
Prawns	18 150	413	116 457	28 578	32 907	0	0	69 724		266 229	
Rocklobster	8 098	17 873	5 552	96 060	177 075	63 418	0	16 057		384 133	
Crab	4 665	598	31 796	5 967	5 941	1 752	8 196	50		58 964	
Other	2 072	277	10 836	1 151	1 903	0	1	3 085		19 324	
Total	32 985	19 160	164 641	131 756	217 826	65 170	8 197	88 916		728 651	
Molluscs											
Abalone	3 874	33 287	0	35 315	10 575	87 068	0	0		170 119	
Scallop	4	0	5 653	0	870	167	0	1 086		7 780	
Oyster	43 000	0	513	39 789	0	24 066	0	0		107 369	
Squid	1 169	563	758	5 442	504	397	0	3 850		12 683	
Other	1 799	2 398	0	7 176	97 905	4 197	9 438	506		123 420	
Total	49 846	36 248	6 924	87 723	109 854	115 896	9 438	5 442		421 371	
Other NEI	3 536	0	587	19 321	1 133	139	284	24		25 023	
Total value	136 246	71 145	268 023	446 177	384 755	690 168	51 318	308 244	e	2 316 273	b
Quantity	t	t	t	t	t	t	t	t		t	
Fish											
Tuna	0	0	0	7 087	1	na	11	7 542		10 071	b
Salmonids c	200	536	0	na	4	43 249	0	0		43 989	
Other	11 045	4 071	12 657	42 096	10 286	366	6 505	25 578	d	112 605	
Total	11 245	4 607	12 657	49 183	10 292	43 615	6 516	33 120		166 665	
Crustaceans											
Prawns	1 668	65	8 934	1 964	3 023	0	0	6 883		22 537	
Rocklobster	142	301	151	1 550	4 888	1 098	0	527		8 657	
Crab	326	13	2 981	748	538	38	441	5		5 090	
Other	139	37	529	47	73	0	0	113		938	
Total	2 275	416	12 596	4 309	8 522	1 136	441	7 527		37 222	
Molluscs											
Abalone	110	1 088	0	1 000	283	2 518	0	0		4 998	
Scallop	0	0	1 609	0	158	85	0	492		2 344	
Oyster	4 500	0	na	7 234	0	4 011	0	0		15 745	
Squid	136	47	152	512	36	41	0	1 961		2 885	
Other	192	912	0	1 845	549	1 047	11	68		4 624	
Total	4 938	2 047	1 761	10 592	1 026	7 702	11	2 520		30 597	
Other NEI	222	5	32	2 647	43	101	na	7		3 057	
Total quantity	18 680	7 074	27 046	66 731	19 883	52 554	6 968	43 174	e	237 540	b

a State totals include aquaculture but exclude hatchery production. b To avoid double counting, total has been reduced to allow for southern bluefin tuna caught in the Commonwealth Southern Bluefin Tuna Fishery, as an input to farms in South Australia. c Includes salmon and trout production. d Includes fish (excluding tuna) component of Commonwealth fisheries, plus catch from Commonwealth fisheries that cannot be disaggregated for confidentiality reasons. e Totals include all fisheries under Commonwealth jurisdiction. na Not available. NEI Not elsewhere included. p Preliminary.

Sources: ABARES; Australian Fisheries Management Authority; Department of Fisheries, Western Australia; Department of Primary Industries, New South Wales; Department of Primary Industries, Parks, Water and Environment, Tasmania; Fisheries Queensland, Department of Agriculture, Fisheries and Forestry; Fisheries Victoria, Department of Environment and Primary Industries; Northern Territory Department of Primary Industry and Fisheries; Primary Industries and Regions, South Australia; South Australian Research and Development Institute

Source: Australian Bureau of Agricultural and Resource Economics and Sciences 2012

Table 3 Aquaculture production in 2011-12, by state, Australia ap

	NSW	Vic.	Qld	SA	WA	Tas.	NT	Aust.
Value	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Fish								
Salmonids b	2 200	3 870	0	na	61	506 446	0	512 577
Tuna	0	0	0	150 000	0	0	0	150 000
Silver perch	3 120	0	886	na	254	0	0	4 260
Barramundi	950	0	21 295	na	11 135	0	7 680	41 061
Other c	0	886	1 654	18 797	531	0	0	21 867
Total	6 270	4 755	23 835	168 797	11 981	506 446	7 680	729 764
Crustaceans								
Prawns	2 280	0	56 789	0	0	0	0	59 069
Yabby	325	40	0	0	377	0	0	742
Marron	0	0	0	343	1 444	0	0	1 787
Redclaw	0	0	792	na	0	0	0	792
Total	2 605	40	57 581	343	1 821	0	0	62 390
Molluscs								
Edible oyster	43 000	0	513	39 789	0	24 066	0	107 369
Pearl oyster	0	0	na	0	93 062	0	9 250	102 312
Abalone	0	9 681	0	6 410	0	3 101	0	19 192
Blue mussel	200	1 983	0	2 677	1 367	3 060	0	9 288
Total	43 200	11 663	513	48 877	94 429	30 227	9 250	238 160
Other NEI d	2 600	0	580	19 321	1 004	na	284	23 789
Total value	54 675	16 459	82 509	237 339	109 235	536 673	17 214	1054 104
Quantity	t	t	t	t	t	t	t	t
Fish								
Salmonids b	200	536	0	na	4	43 249	0	43 989
Tuna	0	0	0	7 087	0	0	0	7 087
Silver perch	260	0	75	na	14	0	0	349
Barramundi	75	0	2 416	na	1 127	0	881	4 498
Other c	0	127	103	1 738	34	0	0	2 001
Total	535	663	2 593	8 825	1 179	43 249	881	57 924
Crustaceans								
Prawns	190	0	3 751	0	0	0	0	3 941
Yabby	25	5	0	0	19	0	0	48
Marron	0	0	0	12	50	0	0	62
Redclaw	0	0	41	na	0	0	0	41
Total	215	5	3 793	12	69	0	0	4 093
Molluscs								
Edible oyster	4 500	0	na	7 234	0	4 011	0	15 745
Pearl oyster	0	0	na	0	na	0	na	na
Abalone	0	330	0	178	0	97	0	604
Blue mussel	40	809	0	1 277	350	927	0	3 404
Total	4 540	1 139	na	8 690	350	5 035	na	19 754
Other NEI d	150	5	32	2 647	na	na	na	2 834
Total quantity	5 440	1 811	6 418	20 174	1 598	48 284	881	84 605

a Excludes hatchery production, crocodiles, microalgae and aquarium worms. b Includes salmon and trout production. c Includes eel, other native fish and aquarium fish.

d Includes aquaculture production not elsewhere specified because of confidentiality restrictions. In Victoria, this includes warmwater finfish, ornamental fish, other shellfish, shrimps and aquatic worms. Total only sums across. na Not available. NEI Not elsewhere included.

Sources: ABARES; Australian Fisheries Management Authority; Department of Fisheries, Western Australia; Department of Primary Industries, New South Wales; Department of Primary Industries, Parks, Water and Environment, Tasmania; Fisheries Queensland, Department of Agriculture, Fisheries and Forestry; Fisheries Victoria, Department of Environment and Primary Industries; Northern Territory Department of Primary Industry and Fisheries; Primary Industries and Regions, South Australia; South Australian Research and Development Institute

Source: Australian Bureau of Agricultural and Resource Economics and Sciences 2012

APPENDIX D: THE GREAT BARRIER REEF

The Great Barrier Reef stretches for 2,300 km along the east coast of Queensland from north of Bundaberg (around 24 degrees latitude) to the Torres Strait (around 10 degrees latitude). The Great Barrier Reef was declared a World Heritage Area in 1981 due to its "outstanding universal value". The Great Barrier Reef World Heritage area covers an area of 349,000 square kilometres.

The boundaries of the Great Barrier Reef and surrounding areas are outlined in Table 1 and Figure 1.

Table 1 Boundaries of the Great Barrier Reef and surrounding areas

<i>Area</i>	<i>Description</i>
Great Barrier Reef Region	<p>It generally extends from the Queensland coastline at the low water mark towards the sea, between longitude 145 and 154 degrees east. It does not include internal waters of Queensland and Queensland islands.</p> <p>It includes 70 Commonwealth Islands that together form the Commonwealth Islands Zone. These islands are the only land-based components within the Region. GBRMPA manage 21 of these islands.</p>
Great Barrier Reef World Heritage Area	Same boundaries as the Great Barrier Reef Region, however it includes all the islands and waters within the boundary, regardless of tenure.
Great Barrier Reef Marine Park	Same boundaries as the Great Barrier Reef Region, with 13 coastal exclusion areas around major ports and cities such as Gladstone and Townsville.
Great Barrier Reef Coast Marine Park	According to the Great Barrier Reef Intergovernmental Agreement, this is contiguous with the Great Barrier Reef Marine Park and covers the area between low and high water marks and many waters within the limits of the State of Queensland.
Queensland coastal water	<p>Queensland coastal water is defined by a line three nautical miles seaward of the territorial sea baseline. The baseline is defined by the low water mark and by gazetted straight lines such as river closing lines and bay closing lines.</p> <p>It overlaps with the Great Barrier Region and Great Barrier Reef World Heritage Area.</p>

Source: QCA

Figure 1 Boundaries of the Great Barrier Reef and surrounding areas

Source: Great Barrier Reef Marine Park Authority 2009

The Great Barrier Reef Marine Park Authority (GBRMPA)

The Great Barrier Reef Marine Park Authority (GBRMPA) was established by the (Commonwealth) *Great Barrier Reef Marine Park Act 1975* to facilitate the main objective of the Act:

to provide for the long term protection and conservation of the environmental, biodiversity and heritage values of the Great Barrier Reef Region.

Another objective of the Act, in so far as it is consistent with the main objective, is to allow ecologically sustainable use of the GBR region for: public enjoyment, public education, research and recreational, economic and cultural activities.

Section 66 of the GBRMP Act allows the Governor-General to make regulations to regulate or prohibit acts that may pollute water in a manner harmful to animals and plants in the Marine Park. There are currently three such regulations:

- (a) Great Barrier Reef Marine Park Regulations 1983
- (b) Great Barrier Reef Marine Park (Aquaculture) Regulations 2000 and
- (c) Great Barrier Reef Marine Park (Prohibition of Drilling for Petroleum) Repeal Regulations 1999.

Great Barrier Reef Marine Park (Aquaculture) Regulations 2000

The Great Barrier Reef Marine Park (Aquaculture) Regulations 2000 commenced on 23 February 2000 to regulate the discharge of waste from aquaculture facilities within a 'controlled area'. The western boundary of the controlled area is five kilometres inland from high tide and the eastern boundary is the western edge of the Marine Park.

Section 9 of the Regulation makes it an offence to discharge aquaculture waste into any body of water or conduit within the controlled area, into coastal waters that are contiguous with the Marine Park, or on land where the waste may enter a body of water or conduit affecting the Marine Park.

Nonetheless, the prohibition does not apply under some circumstances such as where:

- (a) a permit was previously issued
- (b) an aquaculture facility was operating on the 1st October 1999 and has not altered or increased significantly the composition and volume of its waste
- (c) discharge is in accordance with an approval given under Part 9 of the Environment Protection and Biodiversity Conservation Act 1999.

On 2 March 2005 the Commonwealth Minister for Environment and Heritage accredited Queensland law, under the Great Barrier Reef Marine Park (Aquaculture) Regulations 2000, with the responsibility to authorise discharge permits for land-based aquaculture. This effectively turned off that specific Commonwealth regulation. However, the Commonwealth still exercises powers under the (Commonwealth) *Environment Protection and Biodiversity Conservation Act 1999* (the EPBC Act). The accreditation procedure under the GBR regulations is also conditional on the Commonwealth Minister's satisfaction that Queensland law provides the requisite degree of protection for the Marine Park environment. The Commonwealth Minister for the Environment may revoke the accreditation if the Queensland law no longer provides the protection required.

Legislation related to the Great Barrier Reef Marine Park

Table 2 outlines the legislation related to the GBRMPA.

Table 2 Legislation related to the Great Barrier Reef Marine Park

<i>Legislation specific to the Great Barrier Reef Marine Park</i>	<i>Other Commonwealth legislation related to the Great Barrier Reef area</i>	<i>Queensland legislation</i>	<i>International conventions</i>
<ul style="list-style-type: none"> Great Barrier Reef Marine Park Act 1975 Great Barrier Reef Marine Park Regulations 1983 Great Barrier Reef Marine Park (Prohibition of Drilling for Petroleum) Repeal Regulations 1999 Great Barrier Reef Marine Park (Aquaculture) Regulations 2000 Great Barrier Reef Marine Park Zoning Plan 2003 Great Barrier Reef Marine Park (Environmental Management Charge-Excise) Act 1993 Great Barrier Reef Marine Park (Environmental Management Charge-General) Act 1999 	<ul style="list-style-type: none"> Environment Protection and Biodiversity Conservation Act 1999 (partly administered) Environment Protection (Sea Dumping) Act 1981 Historic Shipwrecks Act 1976 Native Title Act 1993 Protection of the Sea (Prevention of Pollution from Ships) Act 1983 Sea Installations Act 1987 	<ul style="list-style-type: none"> Coastal Protection and Management Act 1995 (Qld) Environmental Protection Act 1994 (Qld) Fisheries Act 1994 (Qld) Marine Parks Act 2004 (Qld) Native Title (Queensland) Act 1993 (Qld) Nature Conservation Act 1992 (Qld) Sustainable Planning Act 2009 (Qld) Transport Operations (Marine Pollution) Act 1995 (Qld) Transport Operations (Marine Safety) Act 1994 (Qld) Workplace Health and Safety Act 1995 (Qld) 	<ul style="list-style-type: none"> Convention for the Protection of the World Cultural and Natural Heritage, 1972 (the World Heritage Convention) Convention on Biological Diversity, 1992 (the Biodiversity Convention) Convention on International Trade in Endangered Species of Wild Fauna and Flora, 1973 (CITES) Convention on the Conservation of Migratory Species of Wild Animals, 1979 (the Bonn Convention) Convention on Wetlands of International Importance Especially as Waterfowl Habitats, 1971 (the Ramsar Convention) International Convention for the Prevention of Pollution from Ships, 1973 (the MARPOL Convention) United Nations Convention on the Law of the Sea, 1982 (the Law of the Sea Convention or UNCLOS) United Nations Framework Convention on Climate Change, 1992 (the FCCC)

Source: Great Barrier Reef Marine Park Authority n.d. b

Great Barrier Reef Marine Park Zones and Plans

The Great Barrier Reef Marine Park is divided into four management areas (listed from north to south):

- Far Northern
- Cairns/Cooktown
- Townsville/Whitsunday
- Mackay/Capricorn.

These four management areas are further divided into eight possible zone classifications:

- General use

- Habitat protection
- Conservation park
- Buffer
- Scientific research
- Marine national park
- Preservation
- Commonwealth islands.

The combination of four management areas and eight possible zone classifications results in 19 separate zones (i.e. not every zone classification is represented in every area).

There are four Plans of Management designed to manage and protect vulnerable groups of islands, reefs, species or ecological communities in more detail than can be accomplished by the zoning maps:

- Cairns
- Hinchinbrook
- Shoalwater Bay (Dugong)
- Whitsundays.

There are also eight types of Special Management Areas (SMA), which form a layer additional to zoning:

- Species conservation (dugong protection)
- Seasonal closure (offshore ribbon reefs)
- No dories detached (offshore ribbon reefs)
- Restricted access
- Public appreciation
- No dories detached (marine national park zone)
- One dory detached (buffer zone)
- Natural resources conservation.

Position statement on aquaculture

GBRMPA's position statement on aquaculture makes a distinction between extensive and intensive aquaculture. Extensive aquaculture may be permitted in general use, habitat protection and conservation zones of the GBRMP. Intensive aquaculture may only be allowed in general use zones. Additionally, GBRMPA have stated that intensive aquaculture in the GBRMP would proceed in the following circumstances:

Current Australian and international experience with intensive aquaculture indicates that the ecological risks associated with this type of aquaculture (at the current level of technological development) are likely to be unacceptable in the GBRMP (Great Barrier Reef Marine Park Authority n.d. a.).

Consequently, it is likely that permissions for intensive aquaculture in General Use Zones in the GBRMP would be granted only if the applicant can demonstrate, to the satisfaction of the GBRMPA, that there have been operational and technological advances that substantially mitigate ecological risk (Great Barrier Reef Marine Park Authority n.d. a.).

Aquaculture impacts on the Great Barrier Reef

Table 3 summarises aquaculture's impact on the Great Barrier Reef.

Table 3 Aquaculture impact on the Great Barrier Reef

<i>Report</i>	<i>Impacts</i>
GBRMPA's position statement—Aquaculture within the Great Barrier Reef Marine Park	<ul style="list-style-type: none"> • Nutrient enrichment of the water which may lead to algal blooms, coral mortality and reduce calcification. • Organic enrichment of the seabed. Localised enrichment of the seafloor with organic matter from fish excretions and excess fish feed can produce changes in the physical and biological characteristics of the seabed. • Prevalence of disease and parasites: In high-density stocking situations, such as in cage culture, fish may become stressed, thereby making them more susceptible to diseases and parasites that can be transmitted easily to wild stocks with consequent serious impacts. • Genetic pollution of wild stocks by escaped species. Selectively bred or genetically modified aquaculture stock may escape and breed with wild stock and lead to genetic dilution or alterations of the gene pool of natural populations. • Attraction of predators: may attract predators, commensals and other species to areas where they do not aggregate normally. • Introduction of structures: may cause entanglement, modify habitat and impede instinctive response of behavioural characteristics.
GBR coastal zone—draft strategic assessment report 2013	<ul style="list-style-type: none"> • Increased loads of sediment and nutrients (nitrogen and phosphorus) in discharged wastewater. • Clearing, modification or removal of coastal habitat. • Modification of hydrologic processes. • Disturbance of acid sulphate soils. • Introduced marine species. • Genetic pollution and disease introduction (endemic and introduced).
Great Barrier Reef Outlook Report 2009	<ul style="list-style-type: none"> • Increased nutrients and sediments from catchment runoff. • Clearing or modifying coastal habitats. • Introduction of exotic pests and diseases. • Crown-of-thorns starfish (COTS) outbreak. Increased nutrients and phytoplankton and reductions in predator population have increased the frequency and severity of COTS outbreaks which is one of the major causes of coral death and reef damage. • Algae out competing coral: increased nutrients may result in algae out competing coral. • Adverse ecological impact due to introduced species: marine species normally arrive attached to the hulls of ships, in ballast water or occasionally through aquaculture operations. Some of the introduced species have had major ecological impacts.

Commonwealth–State division of regulatory powers

Until 2000, the Queensland Government regulated land-based aquaculture in Queensland. In 1999 the government permitted the establishment of a prawn farm at Armstrong Beach, near Mackay. The prawn farm planned to discharge its waste into Queensland waters not controlled by GBRMPA. This was inconsistent with local preferences as its permitted emissions were viewed as being unacceptably high. This controversy led the Commonwealth to announce the new aquaculture regulation giving GBRMPA regulatory powers over land-based aquaculture. Since then, the Commonwealth Minister has accredited Queensland law under the GBR regulation.

Current division of powers

Some developments do not require a development permit as they may be carried out by complying with the code for self-assessable development⁷ administered by Queensland DAFF. Where an aquaculture development is assessed as self-assessable a number of restrictions apply. A selection of these is as follows.

- Culture stock must be sourced from within Queensland and cannot be from wild fisheries. The proponent must apply for a separate authority for bloodstock collection if they wish to collect from the wild.
- No hatcheries activities are permitted, except for the propagation for aquarium display aboveground tanks.
- Certain species are prohibited.

If an aquaculture development does not comply with the code for self assessment then approval of an alternative permit is required. Table 4 outlines the division of assessment responsibilities among levels of government.

Table 4 Division of assessment responsibilities

Level of government	Land-based aquaculture		Marine aquaculture
	Discharge waste to a waterway leading to the Great Barrier Reef Marine Park	Direct discharge waste to the Great Barrier Reef Marine Park	Discharge waste to the Great Barrier Reef Marine Park
Local Government	<ul style="list-style-type: none"> • Development permit: If the proposed development is assessable under the local council's planning scheme, the proponent must apply to the council, which is the Assessment Manager. 	<ul style="list-style-type: none"> • None 	<ul style="list-style-type: none"> • None
State Government	<ul style="list-style-type: none"> • Development permit: If the proposed development is not assessable under the local council's planning scheme, the proponent must apply to DSDIP which is the Assessment Manager. • Permit to occupy: Required from DNRMP for inlet and outlet structures on tidal land. • Discharge: EHP assesses waste discharge as accredited under the Great Barrier Reef Marine Park (Aquaculture) Regulations 2000. 	<ul style="list-style-type: none"> • Same as "Discharge waste to a waterway leading to the Great Barrier Reef Marine Park" 	<ul style="list-style-type: none"> • Development permit: Marine aquaculture requires a development approval under the Sustainable Planning Act 2009. The proponent must apply to DSDIP which is the Assessment Manager. • ERA development permit: Required from DEHP if feeding is involved. • RAA: Required for aquaculture activities in state waters, other than inlet/outlet structures. • Marine park permit: Required for areas within State marine parks.
Commonwealth	<ul style="list-style-type: none"> • Discharge: Commonwealth legislation (the GBRMP Act and the EPBC Act) is triggered when a 	<ul style="list-style-type: none"> • Discharge: A direct discharge to the Great Barrier Reef Marine Park triggers Commonwealth legislation 	<ul style="list-style-type: none"> • Discharge: Marine aquaculture triggers Commonwealth legislation (the GBRMP Act and the EPBC Act). These facilities require approvals by

⁷ Queensland Department of Agriculture, Fisheries and Forestry 2013

<i>Level of government</i>	<i>Land-based aquaculture</i>		<i>Marine aquaculture</i>
	proposed facility is likely to have a significant impact on the Marine Park. These facilities require approvals by the State and GBRMPA.	(the GBRMP Act and the EPBC Act). These facilities require approvals by the State and GBRMPA.	the State and GBRMPA.

APPENDIX E: ENVIRONMENTAL OFFSETS

The Queensland Government is committed to an 'avoid, mitigate and offset' framework (Queensland Department of Environment and Heritage Protection 2013) as a way of managing the environmental impact of development projects. Proponents must demonstrate that they have sought to avoid polluting as much as is possible and otherwise mitigated. When it is not possible to avoid or mitigate, the Government requires proponents to offset the impact.

There are five offsets policies in place. The Queensland Government Environmental Offset Policy (QGEOP) sets out the overarching framework and is supported by four issue-specific policies. Table 1 provides a short description of the policies as it relates to aquaculture developments and potential offset requirements.

A principle of the QGEOP is that offsets must achieve an equivalent or better environmental outcome. The task of calculating the ecological equivalence often requires specialist knowledge and small to medium sized proponents may not be in a position to pre-determine their offset requirements. The Ecological Equivalence Methodology (EEM) for vegetation and biodiversity offsets requires field-based assessment and/or GIS desktop analysis to assessment against 14 ecological condition indicators and another 14 special features indicators.

Table 5 Policies to support the Queensland Government Environmental Offset Policy

<i>Policy</i>	<i>Short description</i>
Policy for vegetation management offsets	Proponents must provide a land-based offset.
Queensland biodiversity offsets policy	Proponents may provide a land-based offset or offset payment to the Balance of the Earth Trust or other environmental offset trust.
Marine fish habitat offsets policy	<p>Offsets are triggered if area of fish habitat is equal to or greater than 25 square meters (for public purpose) or equal to or greater than 17 square meters (for private purpose). Offsets may be:</p> <ul style="list-style-type: none"> • direct: for example fish habitat enhancement, restoration, rehabilitation and additional protection of nominated areas. • Indirect: for example, in-kind or monetary payments to fund research, education and/or the associated cost of fish habitat enhancement, restoration and rehabilitation. The payment may be paid to the Fisheries Research Fund or alternatively to a third party (e.g. a tertiary institution or local natural resource management group) to deliver the offset under a Deed of Agreement or departmental contract.
Offsets for a net gain in bushland koala habitat in South East Queensland Policy	To deliver a net benefit, proponents are required to provide five new koala trees for every non-juvenile koala habitat tree removed. This may be through direct replanting or a monetary payment to be spent on koala habitat rehabilitation programs undertaken by the state and local government.

The Commonwealth Government has recently approved two mining-related projects at the Port of Abbot Point and two LNG-related projects at Curtis Island within the GBR region. These projects have been approved on the condition of a 150 per cent offset of fine sediments and a contribution of approximately \$89m to support the health of the GBR through programmes such as the Reef Trust. Table 2 provides a short description of the GBR water-related licence conditions.

Table 6 GBR water-related licence conditions

<i>Project</i>	<i>Short description</i>
Abbot Point Terminal 0	<ul style="list-style-type: none"> • Develop Marine Offset Strategy in consultation with Commonwealth environment department, GBRMPA and relevant NRM bodies. • The Strategy must include targeted outcomes, benchmarks, readily measurable performance indicators and goals for water related impacts. • The approval holder must provide a contribution of \$450,000 per annum (GST exclusive and CPI adjusted annually) to fund the Marine Offset Strategy.
Abbot Point Terminal 0, Terminal 2 and Terminal 3 Capital dredging	<ul style="list-style-type: none"> • To develop a Dredging and Spoil Disposal Management Plan (DSDM Plan) that outlines how the GBRMPA water quality guidelines will be taken into account. The plan must contain trigger levels for photosynthetic active radiation, turbidity, total suspended solids, sediment deposition rates and seagrass density. • Outline the consultation process undertaken with the GBRMPA in developing the DSDM plan. • 150 per cent offset of fine sediments from Burdekin and Don catchments.
Arrow LNG facility	<ul style="list-style-type: none"> • The dredge management plan must include water quality trigger levels for photosynthetic active radiation, turbidity, total suspended solids, sediment deposition rates and seagrass density. • Direct offset of a property of at least 1,400 ha on Curtis Island to be transferred into the national reserve system. • Indirect offset of at least \$200,000 per annum (GST exclusive and CPI adjusted annually) plus an additional \$100,000 per annum (GST exclusive and CPI adjusted annually) for each operating LNG train. Funds must be used to offset 150 per cent of total sediments.
Arrow Gas Transmission Pipeline	<ul style="list-style-type: none"> • None

APPENDIX F: RESEARCH AND MARKETING LEVIES

Levies are collected on a range of primary products and are used by Research and Development Corporations (RDCs) for a broad range of objectives such as research and development, marketing, residue testing, plant and animal biosecurity programs and emergency responses for industry. While some industries have set up levy funds that are collected through the Australian Government and are compulsory for all producers, other industries use voluntary mechanisms. The Australian Government also matches industry levy contributions up to 0.5 per cent of the gross industry value. The Fisheries Research and Development Corporation (FRDC), is the RDC pertinent to the Aquaculture industry (CIE 2014).

Collection arrangements for funding R&D in aquaculture are implemented through two broad mechanisms: a mandatory levy managed by the Commonwealth through the Department of Agriculture; and voluntary contributions systems. In aquaculture the farmed prawn industry is the sole body with an industry elected agreement to pay levies into the Commonwealth system. The remaining aquaculture industries collect levies through a voluntary system, as outlined in Table 1, with funds also provided to the FRDC, by means of state governments.

Levies are payable on farmed Australian prawns in the event that the producer sells the product, uses it as an input in the production of other goods or delivers it to another entity for storage. Levy rates are 3.64 cents/kg for production sold to the domestic and export market. Rates are estimated on the whole prawn prior to removal of any part of the prawn and include the following species:

- banana prawns (*Penaeus merguensis*)
- black tiger prawns (*Penaeus monodon*)
- brown tiger prawns (*Penaeus esculentis*)
- kuruma prawns (*Penaeus japonicus*) and
- school prawns (*Metapenaeus macleayi*).

The FRDC recently conducted an extensive review of 27 stakeholders (state government fisheries managers, industry associations and research organisations) and 160 operators. The objective of this research was to assist FRDC with improving its organisational strategy, management and performance and to identifying strengths, weaknesses, opportunities and threats for the industry (Fisheries Research and Development Corporation 2014).

Table 1 Arrangements for funding aquaculture research and development

<i>Jurisdiction</i>	<i>Arrangements for funding R&D</i>	<i>Arrangements for funding marketing</i>
Queensland	The prawn farming industry is under the FRDC system. Barramundi farmers are considering introducing a voluntary Industry Betterment Contribution. These funds are paid to the Australian Barramundi Farmers Association (ABFA) to be used for R&D, marketing or administration.	FRDC can fund marketing. The Industry Betterment Contribution paid to the ABFA can be used to fund marketing activities.
South Australia	The southern Bluefin tuna industry and oyster industry pay a levy to FRDC. The kingfish and tuna industries also contribute to the Seafood CRC.	Previous attempts at collective marketing arrangements have not led anywhere. Each company undertakes its own marketing.
Tasmania	The salmon farming industry is under the FRDC system.	Marketing is generally done by individual businesses. However, FRDC may undertake some marketing.
Western Australia	Section 238 of the Fish Resources Management (FRM) Act 1994 details the 'Fisheries Research and Development Account', from which the Minister can apply funds to a range of purposes including purposes specific to aquaculture, such as: <ul style="list-style-type: none"> • scientific, technological and economic research • the development of aquaculture • conduct programmes and provide extension services relating to fisheries, fish processing or aquaculture. • R&D funding has also been provided through FRDC and the Australian Seafood Cooperative Research Centre (CRC). 	Section 240 of the FRM Act 1994 details the 'Fishing Industry Promotion Training and Management Levy Account', from which the Minister can apply to programmes relating to: <ul style="list-style-type: none"> • seafood promotion • promotion of the fishing or aquaculture industry • fishing or aquaculture industry training • fishing or aquaculture industry management

Source: CIE 2014

Table 2 Levy rates and market development for select industries

Industry	Levy	Market development activities
Avocado	Fresh: 7.5 cents per kilogram. Processed: 1 cent per kilogram	The avocado industry's marketing campaign has focused on increasing consumer knowledge and demand for Australian avocados. Aims include: <ul style="list-style-type: none"> • changing the image of an avocado from a luxury to a daily consumed fruit • integrating promotional activities in independent retail, supermarkets and food service and • undertaking within country education and promotions activities. The industry has also invested in research to identify other potential value adding activities and plans to develop these opportunities.
Apples and Pears	Apples*: 1.845 cents per kilogram Pears (excluding nashi)*: 2.099 cents per kilogram Juicing Apples: \$2.75 per tonne Juicing Pears (excluding nashi): \$2.95 per tonne Processing Apples: \$5.50 per tonne Processing Pears (excluding nashi): \$5.90 per tonne *The rates for apples and pears (excluding nashi) include an export charge	The apple and pear industry is implementing a five year strategic plan known as New Horizons 2015 (Apple and Pear Australia Ltd 2010), which highlights the urgency for industry to accelerate change, respond to domestic and export market challenges and to improve industry communication and capability. The industry plans to: <ul style="list-style-type: none"> • undertake activities related to market research in both a domestic and an export setting • undertake consumer market research activities in the context of supply chain studies, not in isolation • pilot-test an <i>Aussie Apple</i> brand.
Macadamias	Dried kernel: 25.21 cents per kilogram. Levy is not payable if the total levy or charge per person each year is less than \$120. From 12 February 2010 levy is not payable on macadamia nuts used in the production of oil and other products, not used for human consumption.	The macadamia industry contains a range of marketing objectives in their industry strategic plan which includes: <ul style="list-style-type: none"> • understanding markets and customers • meeting market and customer demand through the value chain and • building industry leadership, capacity and confidence.
Eggs	The levy rate is 32.5 cents per laying chicken used in the commercial production of eggs.	Australian Egg Corporation Limited (AECL) is responsible for marketing activities to promote Australian eggs. Its actions are aimed at benefiting all producers by increasing consumption. AECL marketing activities are conducted using magazine, radio and online advertising and are supported by an integrated public relations campaign and social media engagement. AECL also operates health and educational campaigns aimed at primary school students.

Industry	Levy	Market development activities																											
Wine Grapes	<p>Wine grapes have two levies: the wine grapes levy fund and the wine export levy.</p> <p>Wine grapes levy fund: funds are provided to the Wine Australia Corporation, marketing and promotion programs, Grape and Wine Research and Development Corporation (GWRDC) research and development (R&D) programs and Plant Health Australia (PHA) plant health programs.</p> <p>Source: Australian Government Department of Agriculture 2013</p> <p>Notes: Calculation of total producer levy amount.</p> <p>Example 1: Levy on 500 tonnes (500 x \$9.20 = \$4,600) \$4,600 + \$180 = \$4,780</p> <table border="1" data-bbox="371 496 1106 1050"> <thead> <tr> <th>Quantity (tonnes)</th><th>Stepped amount of levy payable per tonne.</th><th>+ Levy Base Amount</th></tr> </thead> <tbody> <tr> <td>More than 0 to not more than 10</td><td>\$5.00 per tonne</td><td>+ \$200</td></tr> <tr> <td>More than 10 to not more than 3,000</td><td>\$9.20 per tonne (including first 10 tonnes)</td><td>+ \$180</td></tr> <tr> <td>More than 3,000 to not more than 6,000</td><td>\$8.80 for each tonne over 3,000 tonnes</td><td>+ \$27,780</td></tr> <tr> <td>More than 6,000 to not more than 9,000</td><td>\$7.00 for each tonne over 6,000 tonnes</td><td>+ \$54,180</td></tr> <tr> <td>More than 9,000 to not more than 12,000</td><td>\$6.30 for each tonne over 9,000 tonnes</td><td>+ \$75,180</td></tr> <tr> <td>More than 12,000 to not more than 20,000</td><td>\$5.60 for each tonne over 12,000 tonnes</td><td>+ \$94,080</td></tr> <tr> <td>More than 20,000 to not more than 40,000</td><td>\$5.50 for each tonne over 20,000 tonnes</td><td>+ \$138,880</td></tr> <tr> <td>More than 40,000</td><td>\$5.40 for each tonne over 40,000 tonnes</td><td>+ \$248,880</td></tr> </tbody> </table> <p>total levy payable</p> <p>Example 2: Levy on 4,000 tonnes (1,000 x \$8.80 = \$8,800) \$8,800 + \$27,780 = \$36,580 total levy payable</p>	Quantity (tonnes)	Stepped amount of levy payable per tonne.	+ Levy Base Amount	More than 0 to not more than 10	\$5.00 per tonne	+ \$200	More than 10 to not more than 3,000	\$9.20 per tonne (including first 10 tonnes)	+ \$180	More than 3,000 to not more than 6,000	\$8.80 for each tonne over 3,000 tonnes	+ \$27,780	More than 6,000 to not more than 9,000	\$7.00 for each tonne over 6,000 tonnes	+ \$54,180	More than 9,000 to not more than 12,000	\$6.30 for each tonne over 9,000 tonnes	+ \$75,180	More than 12,000 to not more than 20,000	\$5.60 for each tonne over 12,000 tonnes	+ \$94,080	More than 20,000 to not more than 40,000	\$5.50 for each tonne over 20,000 tonnes	+ \$138,880	More than 40,000	\$5.40 for each tonne over 40,000 tonnes	+ \$248,880	<p>The Wine Australia Corporation (WAC) is funded by both the wine grape levy and the export wine levy. This organisation is primarily responsible for the marketing and promotion of wine domestically and abroad. It aims to increase consumer interest in Australian wines by developing a strong understanding of its quality, the diversity of product (based on wine style, region, place and story) and its value. WAC focuses on three principles:</p> <ul style="list-style-type: none"> • educate using targeted education programs aimed at consumers • engage by displaying and promoting a diverse portfolio of Australian wines and develop e-communications to engage with a wider audience and • energise to generate interest in Australian wines to improve the returns to producers. <p>Education programs developed by WAC are aimed at their main stakeholders including existing importers (countries like USA, Canada, Japan, China, UK), distributors, retailers, wine educators, domestic consumers, lifestyle media, wine commentators, bloggers, other Australian Government agencies.</p> <p>Wine Australia is currently partnering with Tourism Australia to improve the perception of Australian wine.</p>
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Industry	Levy	Market development activities												
	<div>Wine export levy: funds are provided to the Wine Australia Corporation</div> <table><tr><td>The wine export charge funds the Wine Australia Corporation (WAC) to undertake international promotions aimed at increasing international demand for wine. Wine free on board (FOB) sales value for the levy year</td><td>Levy base amount</td><td>+ Amount of levy payable</td></tr><tr><td>\$0 to \$20 million</td><td>-</td><td>0.20 per cent of value</td></tr><tr><td>\$20 million to \$70 million</td><td>\$40 000</td><td>0.10 per cent of value between \$20m and \$70m</td></tr><tr><td>\$70 million and over</td><td>\$90 000</td><td>0.05 per cent of value over \$70m</td></tr></table> <div>Source: Australian Government Department of Agriculture 2013</div> <div>Notes: Calculation of total producer levy amount.</div> <div>For example, if the FOB sales value is \$75 000, the charge payable is calculated as: \$75 000 x 0.2 per cent = \$150.</div>	The wine export charge funds the Wine Australia Corporation (WAC) to undertake international promotions aimed at increasing international demand for wine. Wine free on board (FOB) sales value for the levy year	Levy base amount	+ Amount of levy payable	\$0 to \$20 million	-	0.20 per cent of value	\$20 million to \$70 million	\$40 000	0.10 per cent of value between \$20m and \$70m	\$70 million and over	\$90 000	0.05 per cent of value over \$70m	
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Notes: Australian Government levies exclude GST.

Source: Australian Government Department of Agriculture 2013

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