Queensland Competition Authority

Final Report

Aquaculture Regulation in Queensland

Report to the Queensland Government

15 September 2014

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EXECUTIVE SUMMARY

The challenge

- **Over the last decade, investment in Queensland's aquaculture sector appears to have stalled, with no major new entrants to the market and only a modest expansion of established projects. This situation compares unfavourably with industry growth elsewhere in Australia and worldwide.**
- **Concerns have been raised that investment in Queensland is being discouraged by regulatory risks and costs.**
- **In response, the government has asked the Queensland Competition Authority (QCA) to recommend reforms to reduce the regulatory burden on the industry.**
- **The government has directed the QCA to balance environmental protection with industry development. The QCA recognises the unique conservation value of the Great Barrier Reef (GBR) and the pressing need to improve water quality in areas adjacent to the GBR.**

A new regulatory framework for aquaculture

- **In this report, the QCA recommends a new regulatory framework for the Queensland industry.**
- **The framework is intended to offer prospective investors greater certainty about the areas available for aquaculture development and the environmental and other conditions which projects will need to satisfy.**
- **The framework would maintain effective environmental protection.**
- **The main elements of the framework are the creation of aquaculture development areas and a more predictable approval process with explicit conditions set in new regulatory codes.**

Background to the review

The government has directed the 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 concerns.

The policy context

The Queensland government aims to double agricultural production by 2040. As arable land in Queensland is a limited resource, lifting production will generally require more productive use of existing land. In the case of flat coastal land, aquaculture can be a high-value alternative to traditional crops; the value of aquaculture output per hectare can be 20 times greater than existing crops such as sugar cane.

The most prospective areas for aquaculture in Queensland are found north of the Tropic of Capricorn. Promoting aquaculture development in this region could be an important part of the Northern Australia Development Strategy championed by the Commonwealth and state governments.

The commercial context

The QCA believes that Queensland's aquaculture sector has significant commercial potential. Despite the dearth of major new projects over the last ten years, the industry has still achieved compound annual growth of 4 per cent. Discussions with industry have confirmed strong interest in further development.

Barriers to growth and development

Many industry participants claim that regulatory risk is a significant barrier to new investment. In particular, two projects are often cited as cautionary examples: the Guthalungra terrestrial aquaculture project and the Sun Aqua marine aquaculture project.

- The Guthalungra prawn farm, proposed for grazing land near Bowen, has been seeking regulatory approval since 2001.
- The Sun Aqua project sought approval for snapper and kingfish production in cages on the eastern side of Moreton Bay. The project was proposed in 2001 but refused by the Queensland government in 2004. Of the 56 coordinated projects assessed by the Coordinator-General since 2000, the Sun Aqua proposal was one of only two proposals to be rejected. The then Queensland government reportedly paid substantial compensation to the proponents.

In a similar vein, some industry participants complain that the regulatory requirements applying to terrestrial aquaculture projects do not apply to comparable agricultural activities on coastal land. Other concerns include the time required to secure regulatory approvals, the lack of clarity about key regulatory requirements and uncertainty about the availability of environmental offsets.

Whether well-founded or not, the perception of regulatory risk tends to discourage investment.

Solutions – terrestrial aquaculture development areas

An effective regulatory framework should include clear regulatory conditions as well as a timely and transparent process for approvals.

As a first step, the QCA recommends that the Queensland government clarify which areas are appropriate for aquaculture development. Other states have set aside development areas for marine aquaculture; Queensland has laid the foundations for adopting this approach for terrestrial aquaculture.

In recent years, the Queensland Department of Agriculture, Fisheries and Forestry (DAFF) has been mapping prospective aquaculture areas for development, taking into account factors such as topography and land use zoning. Once this preliminary mapping is completed, consultation with the community and the collection of water quality data is the next step in delineating suitable development areas. Consideration also needs to be given to groundwater quality. Previously, lack of baseline data on groundwater quality has left aquaculture operations open to litigation from neighbouring landholders who consider (rightly or wrongly) that the establishment of saltwater ponds has increased groundwater salinity.

The QCA recommends that this work program be accelerated with the target of establishing terrestrial aquaculture development areas allowing the development of 450 hectares of aquaculture operations within two years of the government response to this review. An audit of approved but unused aquaculture sites may expedite identification of appropriate sites.

The creation of aquaculture development areas will require significant additional resources. The financing of this process is beyond the QCA's terms of reference, but the QCA notes that cost recovery (as part of the licensing process in the development area) avoids subsidising aquaculture at the expense of competing uses of the same resource.

Solutions – codes as a clearer process for regulatory approvals

Under the proposed framework, approval processes for projects in aquaculture development areas would be made more predictable and transparent by requiring projects to be assessed against a known set of conditions. The QCA recommends that each development area have a public code explaining the

regulatory conditions for aquaculture in that area. Such a code should be developed in conjunction with local government, Queensland government agencies and Commonwealth government agencies. In order to provide clear guidance to investors on costs and constraints, the code should include details such as construction conditions, permitted species, permitted wastewater discharges, the amount of required environmental offsets, approved locations for water intake and discharge structures, and operational matters such as noise and traffic restrictions.

Solutions — environmental offsets

The Queensland Government's general policy for dealing with environmental impacts can be summarised as 'avoid, mitigate, offset'. Under this approach, businesses are expected to offset environmental impacts whenever the first two options are not feasible. Having access to appropriate offsets is likely to be essential for the approval of any significant aquaculture project.

The Commonwealth and the Queensland governments are developing, through the Reef Trust, a mechanism to deliver offsets which can be used to satisfy environmental requirements. The QCA recommends that aquaculture projects should be eligible to obtain offsets through the Trust.

Who implements the reforms?

Implementing the reforms set out in this report will require a coordinated effort from government agencies and the industry. Responsibility for developing and implementing the reforms needs to be clearly allocated by government.

Unlike Tasmania and South Australia, Queensland does not have an administrative unit dedicated to aquaculture. One option is to create such an administrative unit to have primary carriage of the reforms. Another option is to assemble a task force drawn from relevant agencies which could also include representatives from the Commonwealth, local government and industry. A permanent administrative unit may be more likely to develop a better long-term work program. On the other hand, a task force could ensure that the work program is achieved with minimal resources that can be redeployed once reforms have been achieved.

Freshwater aquaculture

DAFF administers self-assessable code AQUA01, which can facilitate development of small-scale freshwater aquaculture as a complement to other agricultural activities. One stakeholder has submitted that application of this code is being held back by local governments. The QCA recommends that the government investigate whether this is occurring and, if so, how the situation might be improved.

A single Act for aquaculture?

As specified in the government's direction, the QCA has considered the merits of introducing a single aquaculture Act. In South Australia, regulatory and administrative functions have been centralised in a single unit operating under a single Act. While this approach appears to have the virtue of simplicity, it does raise difficult issues about the allocation of roles and responsibilities within government.

The QCA believes that the priority should be practical regulatory reform. The QCA is confident that better coordination of administration and clarity on key regulatory requirements will address the underlying concerns which have prompted calls for a single Act. Once regulatory reform is well established, the government may wish to consider legislative and machinery-of-government changes.

Marine aquaculture

For the purposes of this report, and consistent with advice from industry, the QCA has concentrated its attention on terrestrial aquaculture.

Marine aquaculture can conflict with other uses of public waters, such as boating, recreational fishing and commercial fishing. One feature of the Sun Aqua project was significant opposition from tourism operators, recreational fishers and environmentalists. The same groups opposed cage aquaculture in the Great Sandy region. This experience suggests that cage aquaculture is unlikely to have community support in south east Queensland or in other areas with significant tourism and recreational activity. It is also likely to be unacceptable in protected areas such as marine parks.

Marine aquaculture may have greater potential in less populated areas. The government should investigate the merits of establishing marine aquaculture development areas in such locations.

Bonds and guarantees

Under existing policy, marine aquaculture projects in Queensland must provide a financial guarantee to ensure eventual remediation of the marine resource. However, terrestrial aquaculture projects are not required to provide guarantees. This arrangement stems from the fact that terrestrial aquaculture projects are undertaken on private land with usually limited impact on public land (e.g. easements). The QCA understands that terrestrial projects have not led to the Queensland Government facing significant remediation liabilities. The QCA therefore does not make any recommendations on this topic.

Research and marketing levies

Aquaculture businesses pay various statutory and voluntary levies to support activities such as industry marketing, research and development. After discussions with industry participants, the QCA has not made any recommendations on this topic.

RECOMMENDATIONS

Terrestrial aquaculture development areas

- To assist investors with identifying prospective aquaculture sites, the QCA recommends that the Queensland Government create terrestrial aquaculture development areas.
  - The QCA notes that the Queensland Government has already undertaken some development work.
  - Broad community and industry consultation will be essential, as will support from relevant local, Queensland, and Commonwealth government agencies.
  - An audit of approved but unused sites may assist in the early identification of development areas.
  - The aquaculture development area should address issues of groundwater quality, to address future litigation risk from neighbouring landholders concerned about the impact of saltwater aquaculture ponds.
- The QCA recommends that the Queensland Government set a target for establishing aquaculture development areas.
  - The target could be the identification of development areas enabling 450 hectares of aquaculture operations within two years of the Queensland Government's response to the QCA's recommendations. Public reporting of progress against this target could be provided at six-monthly intervals.

Codes as a clearer process for regulatory approvals

- The QCA recommends that development applications in terrestrial aquaculture development areas be assessed against public criteria set out in a code applicable to each area. The code would address key issues such as:
  - The species that can be farmed in the development area.
  - The maximum load and concentration of nutrients and suspended solids that can be discharged each year from the development area.
  - The amount of environmental offsets required to offset the permitted discharge of nutrients and suspended solids.
  - Approved locations for water intake and discharge structures.
  - Construction conditions related to matters such as acid sulphate soils, impact on threatened species, clearance of native vegetation and impact on marine plants.
  - Operational restrictions such as disease management precautions, noise restrictions, setback from residential housing, traffic restrictions, and permitted hours of operation.

Environmental offsets

- The QCA is aware of discussions between the Commonwealth and the Queensland governments to establish a consistent environmental offsets framework. The QCA recommends that the Queensland Government provide potential proponents with the maximum possible certainty about the future price and availability of offsets.

- Mechanisms for providing certainty might include the provisions for financial offsets likely to be included in the Reef Trust.

Structure to implement the reforms

- The QCA recommends that the Queensland Government consider the best structure to implement this review's recommendations.
  - Options include a temporary task force drawn from relevant agencies, industry and other stakeholder groups with the sole aim of establishing the proposed aquaculture development areas, or a dedicated administrative unit with additional, ongoing industry development and regulatory responsibilities.
  - The structure should incorporate input from the aquaculture industry through an advisory committee or similar mechanism, to ensure a focus on the commercial viability of proposed solutions.

Freshwater aquaculture

- The QCA recommends that the structure created to implement this review's recommendations also examine possible barriers to the expansion of low impact freshwater aquaculture.

A single Act for aquaculture

- The QCA recommends that the Queensland Government defer consideration of the merits of a single legislative instrument for regulating aquaculture.
  - The QCA recommends that the Queensland Government consider a single legislative instrument for regulating aquaculture after the regulatory reforms recommended in this report have been well established.

Marine aquaculture

- The QCA recommends that the Queensland Government investigate the potential for marine aquaculture development areas.
  - The most prospective areas are likely to be in the Torres Strait, Gulf of Carpentaria and other less populated areas with a low possibility of conflict with other users of marine resources.

Bonds and guarantees

No recommendation

Research and marketing levies

No recommendation

THE ROLE OF THE QCA – TASK, TIMING AND CONTACTS

The 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

When	***Who***	***What***
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
22 July 2014	QCA	Release draft report
1 September 2014	All (stakeholders)	Close of comments on draft report
15 September 2014	QCA	Provide final report to Ministers

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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 2012).*

AREC's inquiry considered a submission from the Queensland Aquaculture Industries Federation (QAIF 2012), 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 QCA undertook to investigate regulation of aquaculture as part of its review of the burden of regulation in Queensland. After initial discussions with stakeholders, the QCA commissioned a report by the Centre for International Economics (CIE) investigating the economic potential of aquaculture in Queensland. The 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 QCA 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 Appendix 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 direction, the review focuses 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.

A separate review by the Queensland Department of Environment and Heritage Protection (DEHP) is assessing aquaculture operations policy. The Department of Agriculture, Fisheries and Forestry (DAFF) is also reviewing fisheries policy.

The review does not focus on the following factors, but where appropriate takes them into account when considering the merits 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*. 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 has employed its usual consultation methods, such as stakeholder submissions and individual stakeholder meetings. The QCA also participated in the Steering Committee chaired by 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.*

In accordance with the Terms of Reference, DAFF invited representatives from the Queensland government, the Commonwealth Government and industry bodies to participate in the Steering Committee.

2 AQUACULTURE — GENERAL BACKGROUND

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 (DOA 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 uses 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 on the east coast including within the 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 resumed operations.

The most significant aquaculture industry in Australia is based in Tasmania, which produces around half a billion dollars of salmon each year. The next most significant is South Australia, producing around $150 million of tuna. Western Australia produces around $100 million of pearl oysters, while New South Wales, Tasmania and South Australia together produce around $100 million of edible oysters.

In this context, Queensland's aquaculture production is relatively small, with around $20 million of barramundi, and around $60 million of prawns.

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

Table 1 Summary break-up of aquaculture in Australia

	Gross value of aquaculture production ($m) in 2011-12	*Aquaculture production (tonnes) in 2011-12*	*Aquaculture workforce (persons) in 2011*
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	1,054	84,606	3,301

Source: ABARES 2012, ABS 2011

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.

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 and protection of marine conservation values.
- 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 takes place in public waters and may compete with uses such as commercial tourism, commercial fishing, recreational fishing and boating.
- State and Commonwealth marine parks restrict development.

3 INDUSTRY VIABILITY

3.1 Background

The consensus among industry stakeholders is that Queensland aquaculture has significant scope for further development, but is held back by regulatory barriers.

In November 2012, AREC stated that the aquaculture industry in Queensland has significant potential for growth in a more favourable regulatory environment. Before suggesting aquaculture regulation as a high reform priority, in early 2013 the QCA engaged the CIE to test AREC's proposition. The CIE noted strong global growth in aquaculture, from 10 per cent of world fisheries production in 1980 to 47 per cent in 2010 (CIE 2013). The CIE also noted that Tasmanian aquaculture has had a compound 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 D and the full report is available on the QCA's website[1].

The CIE highlighted the comparative advantages Queensland possesses relative to other jurisdictions:

- Environmental factors including suitable land, climate for a wide variety of temperate and tropical species, and clean water (relative to Asia).
- Warm waters and wet seasons benefitting prawn farmers.
- Primary aquaculture species are native to Australia, and Australia is free from many serious diseases affecting aquaculture farms in other countries.
- Well developed infrastructure to link aquaculture producing areas on Queensland's east coast to markets.
- Research and expertise in the fields of aquaculture, marine science and engineering as well as biotechnology. This includes scientific knowledge to improve feed conversion rates, increase average weight of produce, reduce risk of mortality and disease, and expand production into additional species. Furthermore, the research leads to a high quality veterinary support with the capability for disease incident management.
- Significantly improved feed conversion rates and production per hectare by Queensland prawn farmers in recent years. The average number of harvests has increased from one harvest to 1.2 harvests of prawn crops per pond per year.
- Improvement in farm design, more specifically in production system and technology used.
- Market factors, including a perceived quality differential relative to imports and the potential to displace imported prawns in the domestic market. This perceived difference may be partly attributed to consumers' food safety concerns about imported products. The CIE considered that there is scope for Queensland aquaculture production to displace some of the imported prawns in the domestic market, given that Australia imports about 16,500 tonnes of prawns worth $150 million.

The CIE also noted the following factors which reduce the competitiveness and profitability of aquaculture in Queensland:

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

- economic factors such as higher wage and electricity costs relative to Asian competitors
- market factors including a high exchange rate
- a lack of reliable road and other infrastructure in prospective areas such as the Gulf of Carpentaria.

The CIE concluded that there appears to be significant potential for Queensland to expand its aquaculture production with a more favourable regulatory environment.

The CIE also noted anecdotal evidence that there may be significant economies of scale in aquaculture, which could improve the industry's future viability. The average size of a prawn farm is around 35 hectares in Queensland, while the proposed Guthalungra project has a pond area of 259 hectares.

Crucially, the CIE noted that the aquaculture industry in Queensland has achieved a 4 per cent compound annual growth over the past decade despite a restrictive regulatory environment with no new farm approvals. This is a key positive indicator of the underlying profitability and potential for growth of the Queensland aquaculture industry.

3.2 Stakeholder submissions and discussions

Most stakeholders consider that Queensland aquaculture is a viable industry with significant scope for expansion, given the right regulatory settings.

In response to stakeholder opinion that development of Queensland aquaculture is severely constrained by regulatory factors, the Great Barrier Reef Marine Park Authority (GBRMPA) has questioned whether the regulatory regime is the only factor which restricts development in this industry. GBRMPA noted that no new prawn farms have been developed anywhere in Australia in the last 10 years, despite less stringent regulatory requirements in other states (GBRMPA 2014b). In its submission to this review, GBRMPA supported this argument by highlighting the opportunity for the industry to expand without obtaining new permissions, by using the latent capacity within existing approvals:

> *There are 71 licences granted for prawn farming and 305 licences granted for barramundi farming in Queensland. Currently, only 20 prawn and 17 barramundi farms are operating on these licences (GBRMPA 2014b).*
>
> *These figures indicate that there is significant latent capacity in existing approvals that could facilitate expansion of these industries if the demand exists without the need for new approvals to be granted(GBRMPA 2014b).*

In response to GBRMPA's submission, the QCA sought more details on these unused licences from DAFF. DAFF clarified that the licensing regime grants applicants approvals for a broad range of species, even where the applicant intends to farm only one species. DAFF considers that the great majority of the 51 unused licenses granted for prawn farming are in fact incidental licences, with the licence holders farming another species. DAFF estimates that there are only six unused prawn farm licences with the necessary conditions for viable operation. DAFF's view is that viability requires access to salt water, a farm size of 10 hectares or greater, and a valid permission to discharge.

DAFF also noted that the unused licences cited by GBRMPA include some dedicated hatchery operations, where prawns and barramundi are not produced in commercial quantities for sale to consumers, but are used to stock farms for grow-out.

Stakeholder submissions and discussions have generally indicated there is potential for greater development in aquaculture in Queensland.

- DAFF, which has long experience and detailed knowledge of both aquaculture and wild catch fisheries, has a positive view of the prospects for Queensland aquaculture:

  > *There are significant opportunities for future expansion of the aquaculture industry in Queensland. Aquaculture continues to increase globally as wild capture fisheries struggle to meet the growing demand for seafood. Expansion of the aquaculture industry would support the Queensland Agriculture Strategy which has a vision to double food production by 2040 and any positive initiatives that would facilitate this should be encouraged (DAFF 2014).*

- APFA (2014b) stated that given existing economic and environmental conditions, there is potential for greater aquaculture development in Queensland provided that the regulatory framework allows for expansion.

- APFA (2014b) highlighted the fact that Australia imports 70 per cent of its seafood needs, giving ample scope for import substitution. Additionally, there is a global shortage of prawns due to the Early Mortality Syndrome (EMS), a disease which affects prawn health and reduced prawn productions of key producing countries.

  > *Percentage of production affected varies – from Shrimp News the following article stated that the 4 countries hit by EMS accounted for about 70% of the worlds shrimp exports (APFA 2014b).*

- Grofish Australia (2014) highlighted a number of commercial advantages Queensland possesses in aquaculture, including an environment free of commercially important aquatic diseases, a relatively high disease management capability, a much more efficient labour force measured in production per effective full-time employee, and a relatively low sovereign and cultural risk.

- Seafarms Group (2014a) suggested that an increase in aquaculture production may result in either increased export or import substitution in the domestic market; however, the extent to which this results will depend on market forces.

  > *Market realities will determine whether an expansion of domestic production leads to import substitution or increased exports. In general Australian exports are higher priced then imports, so increased production may lead to increased exports. On the other hand, import substitution may become more likely given recent record global prawn (shrimp) prices and rhetoric from supermarket chains stating a strengthened ambition to 'buy local'. In any case, it is clear that there is potential to modestly increase production from aquaculture without seriously impacting the overall supply/demand situation. Alternatively, there is a massive import replacement opportunity if the volume can be filled with cost-competitive product (Seafarms Group 2014a).*

In discussions, a number of stakeholders pointed to the persistence of the Guthalungra proponents as an indicator of viability and development potential. The QCA discussed this issue with Pacific Reef Fisheries (PRF), the Guthalungra proponents, who already operate a reasonably large (and recently expanded) prawn farm. PRF expressed confidence in the demand for increased production, and named specific customers who would buy this output. PRF has observed a strong consumer preference for Australian prawns, even at higher prices than imported prawns, and considered there is ample potential in the domestic market.

3.3 Conclusions

The QCA has evaluated data and opinions from a broad range of sources, and concludes that the Queensland aquaculture industry has very good development prospects, given the right regulatory settings. The most convincing arguments in favour of this conclusion were put forward by the CIE, which noted steadily increasing production over the last decade from existing aquaculture operations. Similarly, the persistence of the Guthalungra proponents, and

their confidence in consumer preference for Australian prawns, is a strong indicator of development opportunities.

The QCA also notes the asymmetric risk arising from a negative assessment of development potential. If the development potential is large but is unrealised because of regulatory barriers, the resulting economic loss is significant. However, if there is little development potential, the downside of regulatory reform is quite small. There will simply be little or no growth in aquaculture production. In this situation, with a potentially large loss from lack of regulatory reform, but minimal loss from regulatory reform followed by market-driven lack of development, it is preferable to undertake regulatory reform.

4 AQUACULTURE REGULATION IN QUEENSLAND

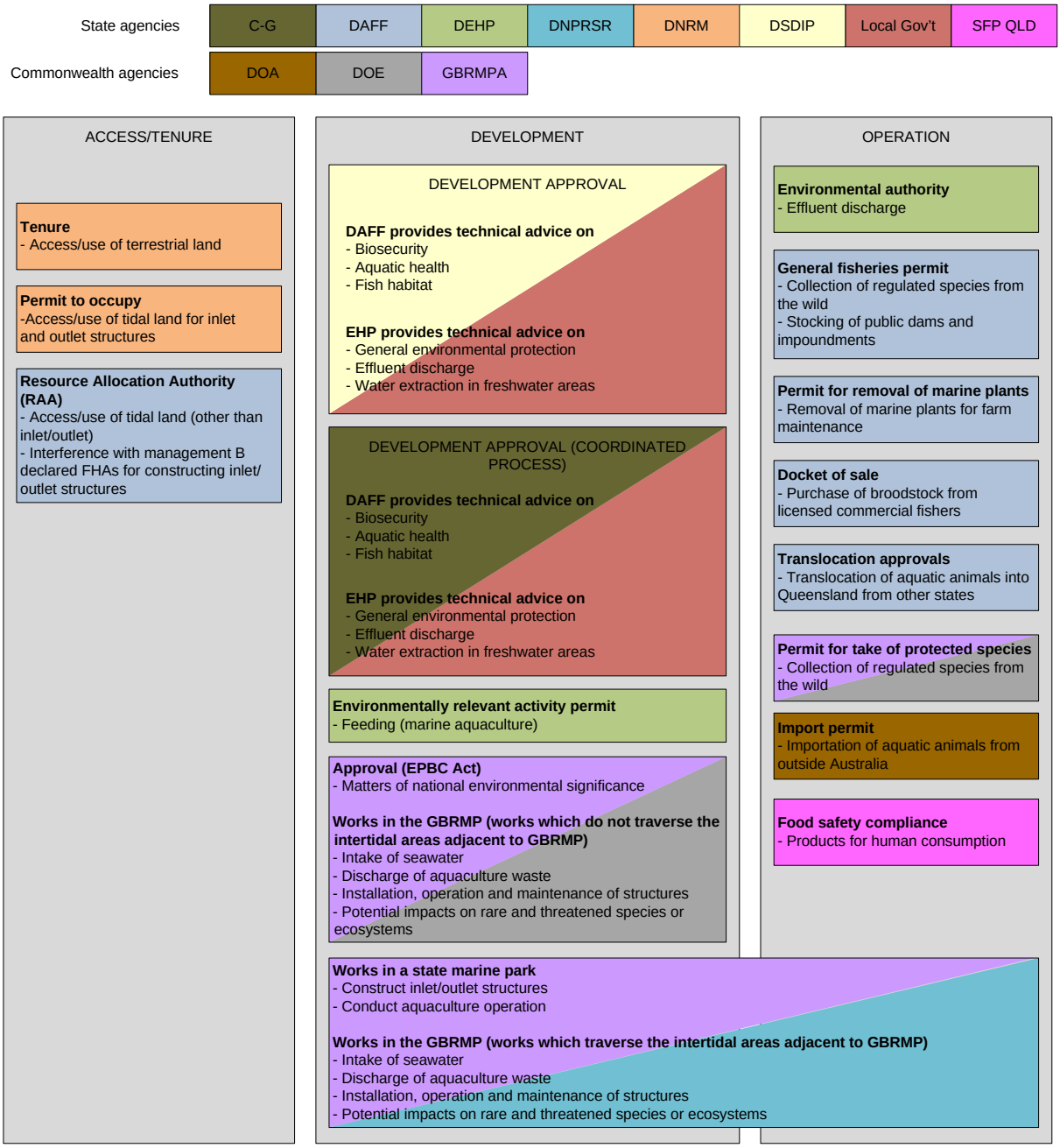
4.1 Introduction

Aquaculture production involves a wide range of issues which potentially require regulation. These include environmental and social externalities, access to public resources and food safety issues. As a result, a number of different regulatory frameworks designed to address the above issues separately may intersect, increasing the complexity of aquaculture regulation.

Queensland does not have dedicated aquaculture legislation. Aquaculture is regulated through a combination of planning, fisheries, environmental, and food safety regulation. Various licences, permits and development approvals may be required for aquaculture production, depending on the location, species and production systems. Figure 1 provides an overview of the approvals potentially required to establish and operate an aquaculture facility and the matters considered under these approvals.

The aquaculture industry is diverse, covering a wide range of production systems tailored to different aquatic species. This gives rise to a diverse range of regulatory measures to address the social and environmental impacts of different types of aquaculture. For the purpose of this review, we classify aquaculture production into two broad categories, namely terrestrial and marine aquaculture. This chapter outlines the likely Commonwealth and Queensland approvals required for each type of aquaculture.

Figure 1 An overview of the approvals potentially required to establish and operate an aquaculture facility and the matters considered under these approvals.



Source: DAFF, DEHP, DNPRSR, DSDIP, GBRMPA, SFP QLD

Note: C-G- Queensland Coordinator-General, DAFF- Queensland Department of Agriculture, Fisheries and Forestry, DEHP- Queensland Department of Environment and Heritage Protection, DNPRSR- Queensland Department of National Parks, Recreation, Sport and Racing, DNRM- Queensland Department of Natural Resources and Mines, DSDIP- Queensland Department of State Development, Infrastructure and Planning, Local Gov't- Queensland Local Councils, SFP QLD- Safe Food Production Queensland, DOA- Commonwealth Department of Agriculture, DOE- Commonwealth Department of the Environment, GBRMPA- Commonwealth Great Barrier Reef Marine Park Authority, EPBC Act- Environment Protection and Biodiversity Conservation Act 1999, FHA- Fish Habitat Area, GBRMP- Great Barrier Reef Marine Park

4.2 Approval processes

4.2.1 Approvals related to the access/tenure for aquaculture

Table 2 below summarises the potential access and tenure approvals required from the Queensland Government.

Table 2 Potential access/tenure approvals required from the Queensland Government

Approval Type	***Process***
Tenure	Tenure may be required under the *Land Act 1994* from the Department of Natural Resources and Mines (DNRM) for the access and use of terrestrial land. This applies mainly to easements for water intake and discharge.
Permit to occupy	A permit to occupy under the *Land Act 1994* will be required from DNRM for the access and use of tidal land for inlet and outlet structures.
Resource Allocation Authority (RAA)	**Terrestrial Aquaculture** A RAA is required under the *Fisheries Act 1994* from DAFF to authorise interference with management B declared Fish Habitat Areas (FHAs) for constructing inlet/outlet structure for terrestrial aquaculture operation. Note that this type of interference is not permissible in management A declared FHA areas. **Marine Aquaculture** In general, a RAA is required under the *Fisheries Act 1994* from DAFF for access and use of tidal land (other than inlet/outlet structures). However a RAA is also required for inlet/outlet structures in a declared FHA and a RAA will only be issued for this purpose in management B declared FHA areas. The Fisheries Regulation 2008 places restrictions on the issue of an RAA within a declared FHA. In particular, a RAA can only be issued for a prescribed development purpose listed in the above mentioned regulation. Note that aquaculture development is not permissible in management A declared FHAs. DAFF (on behalf of the Queensland Department of National Parks, Recreation, Sport and Racing or DNPRSR) must also have regard to the effect of the development in declared FHAs on the maintenance of: • public use of the area (particularly relating to fishing activities) • the natural condition of fish habitats and natural processes (management A area) • the fish habitat values and functions of the area (management B area).

Source: DAFF, DNPRSR

4.2.2 Approvals related to the development of aquaculture

Certain aquaculture developments, which are considered to have a limited impact on the environment and community, do not require a development permit as they may be carried out by complying with the code of self-assessable development (AQUA01) administered by DAFF. If a proposed development is considered as self assessable, the business is required to register with DAFF and a number of restrictions apply (DAFF 2013a). A selection of these restrictions is as follows:

- Production is only for display or human consumption purposes.
- Culture stock must be sourced from within Queensland and cannot be from wild fisheries.
- No hatchery activities are permitted, apart from propagation for aquarium display in above-ground tanks.
- No discharge of water or effluent is to be released from the facility into waterways.

In other words, the code for self-assessable development does not allow for large-scale aquaculture production for commercial purposes. If an aquaculture development does not comply with the above code then development approvals from the state and potentially the Commonwealth are required.

The QCA has also received a submission stating that some local government planning schemes require low-impact freshwater aquaculture projects to undergo the same level of assessment as large scale operations (Dean 2014).

State development approvals

Table 3 below summarises the potential development approvals required from the Queensland Government and the processes involved.

Table 3 Potential development approvals required from the Queensland Government

Approval Type	*Process*
Development approval	Development approvals are required for **terrestrial** and **marine** aquaculture as stipulated under the *Sustainable Planning Act 2009* (SP Act). **Terrestrial Aquaculture** The processes involved in obtaining a development approval for terrestrial aquaculture are as follow: • 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. In this case, the Queensland Department of State Development, Infrastructure and Planning (DSDIP) is the concurrence agency. • 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. DSDIP would seek technical advice from the relevant state departments, which include DAFF and the DEHP. However, the decision on whether to grant an approval or attach conditions to an approval lies with DSDIP. **Marine Aquaculture** The processes involved in obtaining a development approval for marine aquaculture are as follow: • DSDIP would be the assessment manager and local government would not be involved. Technical agencies advising DSDIP would include DAFF and the DEHP. However, the decision on whether to grant an approval or attach conditions to an approval lies with DSDIP.

Approval Type	*Process*
	Note that the development approval under SP Act would also cover triggers such as marine plant and/or declared FHA interference for new intake and discharge structure constructed as part of the aquaculture development.
Development approval (coordinated project)	Development approvals for both **terrestrial** and **marine** aquaculture are obtained through the Environmental Impact Statement (EIS) process if a proposal is declared a 'coordinated project' where an EIS is required. **Declaration of a 'coordinated project'** Proponents of a proposed aquaculture development with one or more of the characteristics outlined under the *State Development and Public Works Organisation Act 1971* (SDPWO Act) may apply to the Queensland Coordinator-General (C-G) to have the proposal declared as a 'coordinated project'. However, the C-G may also independently declare a coordinated project if the he or she thinks it is justified. The declaration of a coordinated project implies that the C-G is of the view that the proposed development requires a rigorous and comprehensive environmental impact assessment, involving a whole-of-government coordination. The declaration does not exempt the project proponent from the need to: • obtain the necessary development approvals and • comply with the relevant planning and environmental regulations as well as planning instruments. There are two types of coordinated project declaration: • where an EIS is required • where an EIS is not required (the C-G must be satisfied that the appropriate environmental impact assessment has been, or will be, carried out under other legislation). **Preparation of an EIS** If the coordinated project requires an EIS, the C-G prepares the terms of reference (TOR) for the EIS. During the drafting of the TOR, the C-G will consult with the state departments (advisory agencies) and the public on whether the TOR adequately cover all matters the proponent must address when preparing the EIS. The EIS is prepared by the proponent in accordance with its TOR and describes: • the existing environment • the proposal's environmental and social impacts • methods of avoiding, mitigating or offsetting these impacts. The impacts considered include direct, indirect and cumulative impacts resulting from the construction, commissioning, operation and decommissioning of the proposed project. The C-G will release the EIS prepared by the proponent to the advisory agencies and public to seek feedback on the following matters: • the proposal's potential impacts • whether the EIS adequately addresses the TOR • whether the strategies proposed will effectively manage the proposal's impacts**.** The C-G may also ask the proponent to provide additional information on the EIS which could include: • corrections, clarification and further information to that provided in the EIS (requested in the submissions from the public or advisory agencies) • results from additional studies (requested by the C-G or advisory agencies) • a description of any changes or refinements to the project proposed by the proponent since the EIS was released.

Approval Type	*Process*
	Evaluation of an EIS The C-G prepares a report to outline its evaluation of the proposed development's impacts and proposed mitigation measures. In its report, the C-G will recommend that the proposal either: • proceed subject to conditions and recommendations designed to ensure the proposal's environmental impacts are properly managed or • be refused on the grounds that its environmental impacts cannot be adequately addressed. It is important to note that C-G's report on the EIS is not an approval in itself. The conditions of approval in the report will only gain legal effect when they are attached to a development approval given under other specific legislation (e.g. SP Act). In other words, proponents of coordinated projects are still required to obtain all other development approvals and licences from: • local authorities • state government departments and • Commonwealth authorities (if applicable). The completed C-G's report will be sent to the assessment managers for their consideration. In general, the C-G's report is used by the assessment managers to: • complete assessment documentation and • determine a post-EIS approval and conditioning strategy. The assessment managers will decide ultimately whether development approvals are granted for the proposed project. These assessment managers: • are not limited in their ability to refuse a project even if the C-G's report has recommended that the project be approved • can impose additional conditions on the development approval, provided they are not inconsistent with the conditions stated in the C-G's report • must attach the C-G's conditions to any development approval that is granted.
Works in a state marine park	A permit is required from the DNPRSR for the following activities within a state marine park: • to construct inlet/outlet structures • to conduct aquaculture operation. Note that proponents will only need to apply for a single works in a state marine park permit for developmental and operational related activities in a state marine park. Where works traverse the intertidal areas adjacent to the GBRMP, it should be noted that Queensland and GBRMPA have a joint permitting process that deals with all state and Commonwealth regulatory requirements in a single process.

Source: DAFF, DNPRSR, DSDIP, GBRMPA

Table 4 below summarises the potential environmental related development approvals required from the Queensland Government and the processes involved.

Table 4 Potential environmental related development approvals required from the Queensland Government

Approval Type	*Process*
Environmentally Relevant Activity (ERA) permit	**Marine Aquaculture** An ERA under the *Environmental Protection Act 1994* (EP Act) is required from the DEHP if there is feeding involved in the marine aquaculture production process.

Source: DEHP

Commonwealth development approvals

The Commonwealth has direct regulatory involvement in the development of aquaculture through the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). Furthermore, the Commonwealth's GBRMPA is responsible for regulation of aquaculture in or adjacent to the Great Barrier Reef Marine Park (GBRMP) as stipulated under the *Great Barrier Reef Marine Park Act 1975* (GBRMP Act) and the *Great Barrier Reef Marine Park (Aquaculture) Regulations 2000* (GBRMP regulations). The Commonwealth assesses all Commonwealth regulatory requirements through a single administrative process for both the EPBC Act and the GBRMP Act requirements. A proponent only deals with a single administrative process to fulfil the requirements under these Acts.

The Commonwealth Minister for the Environment accredited Queensland's *Environmental Protection Act 1994* and *Integrated Planning Act 1997* in March 2005. GBRMPA noted that the above accreditation meant that the GBRMP regulations were administratively turned off and have not been applied since 2005. Queensland has sole responsibility for the assessment and approval of aquaculture developments that would have otherwise been assessed by GBRMPA without the accreditation.

The QCA notes that the Commonwealth and the Queensland Government are committed to delivering a 'one stop shop' for environmental approvals. The Commonwealth will accredit state planning systems under the EPBC Act 'ensuring that only one environmental approval that covers both Commonwealth and state requirements is needed for an action' (DOE n.d.a). The approval of the bilateral agreement is expected by September 2014 (Hunt & Powell 2014).

Table 5 summarises the potential development-related approvals required from the Commonwealth and the processes involved.

Table 5 Potential development-related approvals required from the Commonwealth

Approval Type	*Process*
Approval (Environment Protection and Biodiversity Conservation Act 1999)	Development approvals are required for both **terrestrial** and **marine aquaculture** as stipulated under the EPBC Act from the Commonwealth Minister for the Environment (Minister) if an aquaculture facility is likely to have a significant impact on a matter of national environmental significance. Matters of national environmental significance include: • World Heritage properties • Great Barrier Reef Marine Park • wetlands of international importance (Ramsar wetlands) • threatened species and ecological communities • migratory species • Commonwealth Marine Areas. The Minister recently released the EPBC Act referral guidelines for the Outstanding Universal Value (OUV) of the GBR World Heritage Area (DOE 2014). These guidelines are intended to provide proponents with information in when an action should be referred under the EPBC Act. The Minister can accredit a state's developmental assessment process if he or she is satisfied that the process: • ensures that the relevant impacts of the development are adequately assessed • meets the standards (if any) prescribed by the Commonwealth regulations and • ensures that the Minister will receive a report of the outcome of the process which will provide enough information on the relevant impacts of the development to allow the Minister to make an informed decision as to whether to approve the taking of the action as stipulated under s.87 of the EPBC Act. This accreditation will allow the proposed aquaculture development to be subjected to a single assessment process as the findings of the state's assessment process will be used by the Minister in deciding the Commonwealth's approval.
Works in the Great Barrier Reef World Heritage Area/Marine Park	Approvals are required for both **terrestrial** and **marine aquaculture** from GBRMPA as stipulated under the GBRMP Act and GBRMP regulations. Where works traverse the intertidal areas adjacent to the GBRMP, it should be noted that Queensland and GBRMPA have a joint permitting process that deals with all state and Commonwealth regulatory requirements in a single process. **Terrestrial Aquaculture** Permissions are required from GBRMPA for: • the intake of seawater • the discharge of aquaculture waste • the installation, operation and maintenance of structures • the potential impacts on rare and threatened species or ecosystems in the GBRMP as required under the GBRMP Act. **Marine Aquaculture** An approval is required from GBRMPA for an aquaculture facility located in the GBRMP. GBRMPA has advised that due to the high environmental risk posed by intensive marine aquaculture to the OUV of the GBR, it is unlikely that GBRMPA will approve any aquaculture activity of that nature unless the proponents of such activities could demonstrate that the operational procedures and technologies employed substantially mitigate ecological risk (GBRMPA n.d.).

Source: GBRMPA

4.2.3 Approvals related to the operation of aquaculture

In addition to approvals related to access/tenure and development, there is a range of other approvals potentially required for the operation of both terrestrial and marine aquaculture. Table 6 below summarises the potential approvals required for the operation of an aquaculture facility from the Queensland Government.

Table 6 Potential approvals required for the operation of aquaculture facilities from the Queensland Government

Approval Type	*Process*
Environmental authority (EA)	An environmental authority (EA) under the EP Act is required from the DEHP for effluent discharge from a terrestrial aquaculture facility. Discharge limits are guided by state-wide water policy (Environmental Protection (Water) Policy 2009) and regionally based Healthy Waterways Management Plans.
Works in a state marine park	See Table 3: Potential development approvals required from the Queensland government, "Works in a state marine park" for information on the permit required for the operation of marine aquaculture.
General fisheries permit	A permit under the *Fisheries Act 1994* from DAFF is required for collection of regulated species from the wild.
Docket of sale	A docket is required under the *Fisheries Act 1994* from DAFF for the purchase of broodstock from licensed commercial fishers.
Translocation approval	An approval is required under the *Fisheries Act 1994* from DAFF for the translocation of aquatic animals into Queensland from other states.
Approval for removal of marine plants and/or works in declared Fish Habitat Areas (FHA)	An approval is required under the SP Act from DSDIP, with DAFF as a technical advice agency for the removal of marine plants and/or works in a declared FHA for farm maintenance, including intake and discharge structure. Note that the approval is only required if the works do not conform to the self-assessable code for maintenance of existing structures (MPO2).
Food safety compliance	The *Food Production (Safety) Act 2000* is the relevant food safety legislation in Queensland. The administering agency is Safe Food Production Queensland. Compliance with food safety programs is not required, as a simple management statement will suffice.

Source: DAFF, DEHP, DNPRSR, DSDIP, GBRMPA, Safe Food Production Queensland

Table 7 below summarises the potential Commonwealth approvals required for the operation of an aquaculture facility .

Table 7 Potential Commonwealth government approvals required for the operation of aquaculture facilities

Approval Type	*Process*
Import permit	An import permit under the *Quarantine Act 1908* is required from the Commonwealth Department of Agriculture to import aquatic animals from outside of Australia.
Permit for take of protected species	• A permit under the EPBC Act is required from the Commonwealth Department of the Environment (DOE) for collection of protected species from the wild. • A permit under the GBRMP Act is required from GBRMPA for the collection of protected species from the wild within the GBRMP. The Commonwealth government assesses all regulatory requirements through a single administrative process for both the EPBC Act and GBRMPA Act requirements.

Source: DAFF, GBRMPA

5 COMPARISON OF REGULATION

5.1 Introduction

A central theme in this aquaculture review has been the nature of aquaculture regulation in Queensland, and how it compares to regulation in other jurisdictions.

The QCA commissioned the CIE to analyse the regulatory frameworks of Queensland, Tasmania, South Australia and Western Australia. The QCA also contacted regulators in those states to gain a better understanding of the administrative arrangements used to implement aquaculture regulation.

The CIE (2014) report 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.

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 Department of the Environment (DOE) and GBRMPA.
- One significant point of difference with other jurisdictions is that Queensland does not have a marine aquaculture 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. The full CIE report is available on the QCA's website[2].

From an investor's point of view, establishing an aquaculture operation in Tasmania or South Australia is simplified by the existence of marine aquaculture zones, which provide greater predictability in regulation.

A common feature of Tasmania, South Australia and Western Australia is that administration of aquaculture regulation is largely concentrated in one administrative unit, rather than being shared among a number of agencies.

Of the four states that were studied, only South Australia regulates aquaculture through a single dedicated legislative instrument, the *Aquaculture Act 2001*.

[2] http://www.qca.org.au/getattachment/7c69a3db-3fe4-4803-bce9-85b8ae312172/CIE-Report-Comparative-Review-of-Aquaculture-Regul.aspx

5.2 Terrestrial aquaculture

The administrative arrangements for terrestrial aquaculture are more complex than those for marine aquaculture, due to the application of planning parameters and local government planning schemes:

- In Tasmania, terrestrial aquaculture (including hatcheries) requires planning approval under the *Land Use Planning and Approvals Act 1993*, and the state Environment Protection Authority (EPA) if it is a level 2 activity or the activity is referred. Proponents also require a licence to farm under the *Living Marine Resources Management Act 1995* for marine species or the *Inland Fisheries Act 1995* for freshwater species.
- In South Australia, planning approvals are required under the *Aquaculture Act 2001* and local council development plans.
- In Western Australia (WA), planning approval is required under the *Land Administration Act 1997*, and in some cases from the WA Department of Water, Department of Parks and Wildlife, state EPA, and local government authorities. It is worth noting that the Western Australia's licence approval processes for native species on private land are relatively straightforward and brief when compared to marine-based proposals.

Terrestrial aquaculture zones do not exist in Tasmania, South Australia and Western Australia.

The rest of this chapter details the process for establishing and managing marine aquaculture zones in Tasmania, South Australia and Western Australia.

5.3 Marine aquaculture

Tasmania, South Australia, and most recently Western Australia, have created statutory pre-approved marine aquaculture zones that identify suitable locations for marine aquaculture as well as the permissible operational parameters. This is an effective mechanism to promote aquaculture, as the groundwork to determine the environmental impacts, and assimilative capacities, are completed upfront. This essentially de-risks the approvals process and provides proponents with certainty and transparency to make investment decisions.

The regulatory framework in Tasmania, South Australia and Western Australia share many common features:

- These jurisdictions have created statutory pre-approved zones that identify suitable locations for marine aquaculture as well as the permissible operational parameters.
- The administration of these zones is simple and generally concentrated within a unit equivalent to DAFF in Queensland.
- The strategic planning (i.e. the creation of zones) functions are largely separated from the day-to-day management functions.
- The creation of zones is subject to regulatory oversight by the relevant state EPA bodies.
- The role of the Commonwealth Government is very limited in both creating and managing the zones.

For example, the marine farming branch within the Tasmanian Department of Primary Industries, Parks, Water and Environment (DPIPWE) is the planning authority to develop marine aquaculture zones. The zones are subject to the approval of the Marine Farming Planning Review Panel whose membership extends to the Tasmanian EPA and local government

representatives to ensure their interests are addressed. The same branch is also the facilitator to allocate marine aquaculture leases, and the regulator of aquaculture activities.

In 2012, DPIPWE referred the Macquarie harbour expansion (increasing the total leasable area from 564 hectares to 926 hectares) to the DOE under the EPBC Act (SEWPAC 2012a), and the Commonwealth decided it was 'not a controlled action if undertaken in a particular manner' (SEWPAC 2012b). This means the project does not require assessment and approval under the EPBC Act 'as the action will be undertaken in a manner that will ensure that any potential significant impacts are avoided or reduced by mitigation measures to the extent that they will not be significant' (DOE n.d.b).

The process in South Australia is much the same. The fisheries and aquaculture division within the Department of Primary Industries and Regions South Australia (PIRSA) is responsible for identifying zones, facilitating the lease allocation process and ensuring compliance. One notable feature is the time frame for approving leases; when a lease matter is referred to the state EPA, the EPA is required to make a recommendation within six weeks, otherwise it is presumed that the application has been approved.

The WA Minister for Environment recently provided strategic environmental approval for the first marine aquaculture zone, i.e. the Kimberley Aquaculture Development Zone (KADZ). The declaration of the zone by notice published in the government gazette by the WA Minister for Fisheries is anticipated by July 2014.

The strategic planning function in WA to identify zones is similar to the Tasmanian and South Australian model. The WA model differs in the lease and licence allocation process. A proponent wishing to set up a business within a declared zone must submit to the state EPA a derived proposal and apply to the WA Department of Fisheries for an aquaculture licence and lease (WA Department of Fisheries 2014). It is understood that the EPA's role is largely administrative to ensure that applications meet environmental monitoring and management requirements set by the strategic process. The expected approval time for a lease and licence is six to eight weeks.

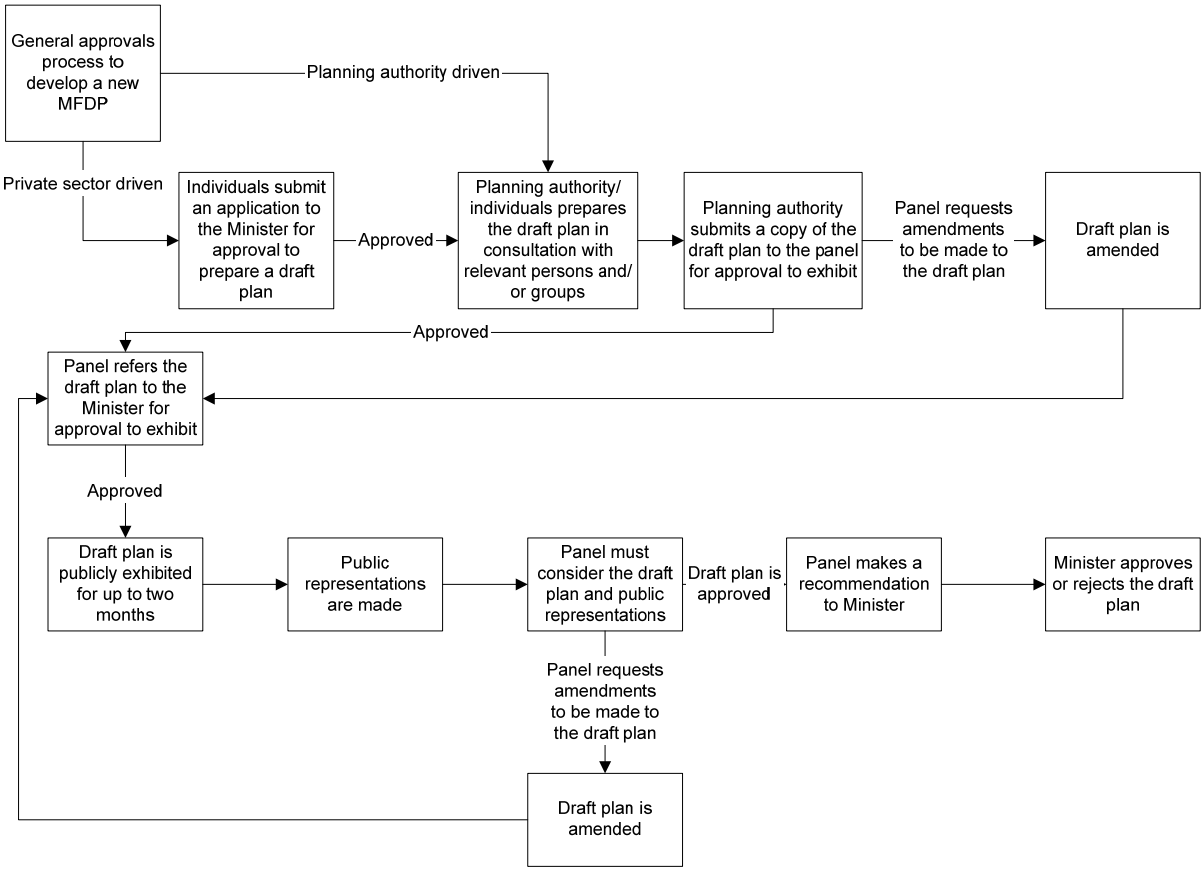
5.3.1 Tasmania

Strategic planning — creating marine aquaculture zones

The purpose of the Tasmanian government's *Marine Farming Planning Act 1995* is to promote marine aquaculture through the establishment of aquaculture zones. The zones and the permissible operational parameters are described in the Marine Farming Development Plans (MFDPs). There are 14 MFDPs and the total leasable area is approximately 11,000 hectares.

In Tasmania, the creation of marine aquaculture zones through the development of a draft plan may be proposed by the planning authority or the private sector. DPIPWE is the planning authority and the marine farming branch within DPIPWE is the facilitator. A draft plan must be accompanied by an EIS and draft management controls. The draft plan is subject to the approval of the Marine Farming Planning Review Panel (Panel) whose membership extends to the state EPA and local government representatives to ensure their interests are addressed. The Panel then makes a recommendation to the Tasmanian Minister for Primary Industries and Water (Minister) and the Minister approves or rejects the draft plan. Figure 2 outlines the general approvals process to develop a new MFDP.

Figure 2 General approvals process to develop a new Marine Farming Development Plan



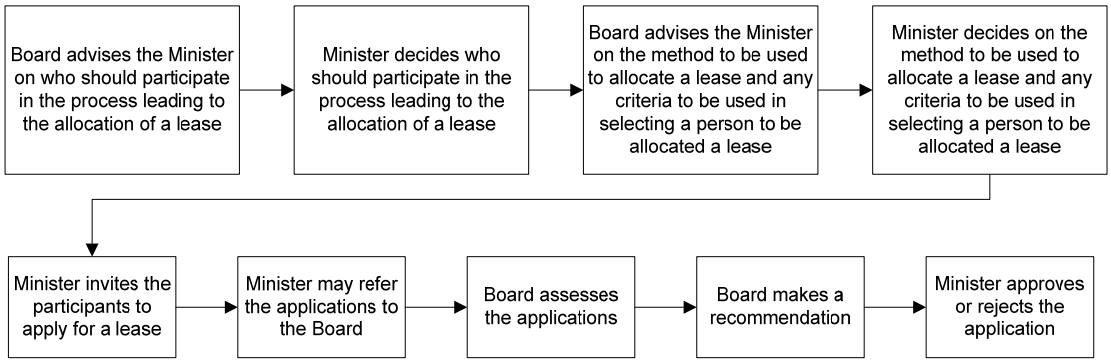
Once a MFDP has been in operations for two years, an entity may request for it to be amended. Amendments cannot delete a marine farming zone, reduce the maximum leasable area within a zone, or make the existing farming areas significantly less viable. Once a request is made to the marine farming branch, the marine farming branch must assess the application and make a recommendation to the Panel. The application is subject to the approval of the Panel and the Minister. The marine farming branch may propose an amendment to the Panel at anytime it sees fit.

Day-to-day management — Leases, licences and compliance

The marine farming branch facilitates the lease allocation process and undertakes compliance activities. The marine farming branch, on behalf of the Minister, issues leases with oversight by the Board of Advice and Reference (Board), a group established by the Minister. The Board may recommend any method to allocate leases, and the assessment criteria to be used. Its membership is made up of: a person who is an Australian legal practitioner, a person with experience and knowledge in marine farming and the seafood industry, and a person with experience in business and commerce. Figure 3 outlines the general process to allocate marine aquaculture leases once a MFDP has been established.

The marine farming branch also undertakes activities to ensure compliance under the *Marine Farming Planning Act 1995*, marine farming management controls contained within MFDPs, marine farming lease conditions, and marine farming licence conditions.

Figure 3 General process for the allocation of marine aquaculture leases once a Marine Farming Development Plan has been established

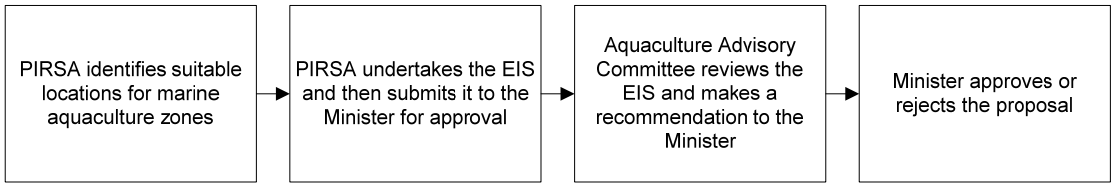


5.3.2 South Australia

Strategic planning — creating marine aquaculture zones

The fisheries and aquaculture division within PIRSA is the facilitator to identify suitable locations for marine aquaculture zones. Once they have identified the zones and carried out the EIS it is subject to approval by the South Australian Minister for Agriculture, Food and Fisheries (Minister) with advice from the Aquaculture Advisory Committee (AAC). The AAC advises the Minister on the creation of the zones and its membership includes the state EPA, Environmental Conservation/Environmental Advocacy and local government representatives. There are 11 zone policies in place and the total leasable area is approximately 11,000 hectares. Figure 4 outlines the general approvals process for creating marine aquaculture zones.

Figure 4 General approvals process for creating marine aquaculture zones in South Australia



Day-to-day management — leases, licences and compliance

Once a zone is created, the fisheries and aquaculture division, on behalf of the Minister, may announce a public call for applications to award an aquaculture production lease which grants the exclusive use of an area. The Aquaculture Tenure Allocation Board (ATAB) assesses the applications against a defined set of criteria and then makes a recommendation to the Minister. The membership of ATAB is balanced to encourage a successful and sustainable growth of the aquaculture industry and must include at a minimum: a person nominated by the Minister, a legal practitioner, a business and commerce representative, a marine biology or environmental management representative and an aquaculture representative.

Lease matters may be referred to the state EPA and the EPA is required to make a recommendation to the Minister within six weeks otherwise it is presumed that the application has been approved. A proponent may also submit an expression of interest outside of the public call process and/or apply for a lease outside of a zone, but the risk then falls to the proponent to demonstrate that the environmental impacts are acceptable. Another form of public call is a competitive tender with monetary bids.

Recent conversations indicate that the fisheries and aquaculture division and the EPA have a good working relationship. The division assists proponents to complete their applications, and where necessary, vary their applications to resolve issues identified by the EPA. Compliance with regulation and licence conditions are also undertaken by the division.

5.3.3 Western Australia

Strategic planning — creating marine aquaculture zones

The WA government is in the process of creating statutory marine aquaculture zones. The aquaculture branch within the WA Department of Fisheries is responsible for identifying zones that are subject to the approval of the state EPA and WA Minister for Fisheries. The experience and governance associated with creating the first zone, the KADZ, is indicative of future administrative arrangements:

- The aquaculture branch, on behalf of the WA Minister for Fisheries, referred the proposal to the state EPA in April 2012.
- The EPA decided to assess the proposal for the KADZ as the Assessment on Proponent Information (API) category A level; this means that the proposal raises a limited number of significant environmental factors that can be readily managed, and for which there is an established condition-setting framework. It is the lowest level out of two possible assessment levels by the EPA.
- In respect of the KADZ, once the EPA provided the scoping guidelines, the aquaculture branch spent the next 18 months preparing a range of documents including: the Kimberley aquaculture development zone management policy, the environmental monitoring and management plan (EMMP) and comprehensive environmental field studies and modelling reports.
- The EPA has recommended that the KADZ be approved. The WA Minister for Environment has recently issued a Ministerial Statement, which provides environmental approval for the zone.
- To finalise the zone, the WA Minister for Fisheries must declare it to be an Aquaculture Development Zone, by way of a Gazette notice.

The planning of the second zone, the Mid West Aquaculture Development Zone, has commenced and the expected launch date is late 2016. The EPA will assess the EIA process being undertaken for this zone at the higher Public Environmental Review level, compared to the KADZ that was assessed at the API category A level. This means the Mid West Aquaculture Development Zone proposal is of regional significance and raises significant environmental factors or issues, some of which may be complex or strategic in nature.

Day-to-day management — leases, licences and compliance

The day-to-day management of the zone will be carried out by the aquaculture branch, with some oversight by the state EPA.

A proponent wishing to set up a business will need to:

- Apply to the WA Department of Fisheries for a lease and a licence, and submit a Management and Environmental Monitoring Plan (MEMP) for approval. The MEMP needs to identify how the proponent plans to manage identified risks to the environment, including biosecurity, and public safety.

- Submit an application for a derived proposal to the state EPA. The role of the EPA is to ensure that the proponent's application for a derived proposal meets the operational requirements established in the EMMP.

The aquaculture branch's role subsequent to the application is to:

- Assist the proponent to comply and complete the MEMP.
- Assess and, subject to approval, issue an aquaculture licence with conditions. The corresponding lease is assessed by the Department of Fisheries but granted by the Minister for Fisheries.
- Manage and regulate environmental matters related to the aquaculture industry that is implemented through a Memorandum of Understanding (MOU) with the Department of Environment and Conservation (now the Department of Environment Regulation).

WA's system of statutory marine aquaculture zones aims to allow an application to be approved in six to eight weeks.

6 SUBMISSIONS AND STAKEHOLDER DISCUSSIONS

6.1 Introduction

The QCA released the aquaculture issues paper in February 2014 (QCA 2014a). The issues paper invited stakeholder submissions, and the QCA directly contacted a broad range of stakeholders, encouraging them to contribute.

The QCA received nine submissions in response to the issues paper from the following individuals and organisations:

- Australian Barramundi Farmers Association (ABFA)
- Australian Prawn Farmers Association (APFA)
- Charles Misi
- Djulin Marine Aboriginal Corporation
- Great Barrier Reef Marine Park Authority (GBRMPA)
- Grofish Australia Pty Ltd
- The Queensland Department of Agriculture, Fisheries and Forestry (DAFF)
- The Queensland Department of National Parks, Recreation, Sport and Racing (DNPRSR)
- Seafarms Group Limited.

The aquaculture draft report was published by the QCA in July 2014 (QCA 2014b). As with the issues paper, the QCA invited stakeholder submissions and contacted a broad range of stakeholders to encourage them to contribute.

Submissions were received by the QCA in response to the draft report from the following individuals and organisations:

- Andrew Hamilton
- APFA
- Burdekin Shire Council
- Cairns Regional Council
- Douglas Shire Council
- GBRMPA
- Gold Coast City Council
- Justin Forrester
- Mackay Regional Council
- Northern Prawn Fishery Industry (NPFI)
- Paul Dean
- The Queensland Department of Environment and Heritage Protection (DEHP)
- Seafarms Group Limited

- World Wildlife Fund (WWF).

6.2 Themes

The most contentious theme to emerge from the stakeholder submissions in response to the issues paper was the influence of regulatory barriers on growth prospects for Queensland aquaculture. A number of stakeholders considered that aquaculture in Queensland has great potential but is being held back by regulatory barriers. Some submissions claimed that GBRMPA is a major source of regulatory barriers (ABFA 2014, APFA 2014b, Seafarms Group 2014a).

Other prominent themes in the submissions concerned the potential usefulness of terrestrial aquaculture development areas (zones), the use of environmental offsets, and the potential for marine aquaculture.

In response to the draft report, many stakeholders endorsed the QCA's draft recommendations. In some cases, stakeholders expressed reservations about specific details in the recommendations.

Most of the themes raised in submissions are examined in greater detail in the relevant chapters of this report.

6.2.1 Industry viability

Many stakeholder submissions stated that further growth in the Queensland aquaculture industry depended on regulation reform. In their view, the long, complex and uncertain approvals process is a major impediment.

> *The view of the ABFA is that the regulatory framework around this industry is excessive developed through a cumulative process by multiple layers of bureaucracy (ABFA 2014).*
>
> *The cost of complying with the current regulatory framework and multiple jurisdiction approach can lead to unprofitable operations and is a genuine disincentive for industry growth (ABFA 2014).*
>
> *Without significant changes to the current legislation in Queensland SGL is unlikely to consider entering into the protracted and convoluted aquaculture development application process required for a development such as Sea Dragon (Seafarms Group 2014**a**).*

At the same time, these stakeholders expressed optimism about future prospects.

> *I am firmly of the view that regulatory restrictions on aquaculture in Queensland have robbed the Queensland people of a large, viable and environmentally sustainable industry (Grofish Australia 2014).*
>
> *There are significant opportunities for future expansion of the aquaculture industry in Queensland. Aquaculture continues to increase globally as wild capture fisheries struggle to meet the growing demand for seafood (DAFF 2014).*

Industry has noted that the economic returns from aquaculture far outweigh those from other agricultural industries in the regions. Seafarms Group (2014a) estimated the potential growth in the value of aquaculture that could result from industry expansion.

> *By comparison, the Queensland aquaculture industry – largely land-based prawn and barramundi farming – in the same period grossed $83M. We believe that with only some modest and sustainable expansion the industry could readily produce 10 times this production revenue. Moreover, this production could be achieved at a higher economic return per hectare than the other coastal land farming industries and – significantly for the context of this review – with a lower environmental impact per hectare than these industries (Seafarms Group 2014a).*

GBRMPA (2014b), however, questioned whether the regulatory regime is the only factor which restricts development in this industry given that there were no new prawn farms developed anywhere in Australia in the last 10 years despite less stringent regulatory requirements in other states. On this basis, GBRMPA questioned the claims that the regulatory regime is restricting further development. The GRMBPA submission highlighted the opportunity for the industry to expand without obtaining new permissions and using the latent capacity within existing approvals.

> *There are 71 licences granted for prawn farming and 305 licences granted for barramundi farming in Queensland. Currently, only 20 prawn and 17 barramundi farms are operating on these licences (GBRMPA 2014b).*
>
> *These figures indicate that there is significant latent capacity in existing approvals that could facilitate expansion of these industries if the demand exists without the need for new approvals to be granted (GBRMPA 2014b).*

GBRMPA also submitted that the major impediment to growth of the industry in Queensland is:

> *..... the identification of locations that possess the ability to assimilate the discharge of aquaculture wastes from these facilities without significantly impacting on the ecological form and function of the coastal ecosystems and adjacent waterway (GBRMPA 2014b).*

6.2.2 Environmental impacts and the Great Barrier Reef

In response to the issues paper:

- GBRMPA (2014b) highlighted the importance of maintaining the environmental qualities of the GBRMP as:

  > *.... it must be clearly understood that we are dealing with a World Heritage Property that has Outstanding Universal Value (GBRMPA 2014b).*

- GBRMPA (2014b) included a detailed exposition on the condition of the Reef, commenting that the state of the GBRMP had deteriorated south of Cooktown, but that the northern third is in better condition:

  > *It is clear that a business-as-usual approach to managing these impacts will not be enough. Additional management intervention is required to protect these matters of national environmental significance (GBRMPA 2014b).*

- GBRMPA (2014b) also provided a list of past activities (such as the clearing and harvesting of species, a history of high nutrient and sediment loads entering catchments and a decade of extreme environmental conditions) that contributed to the deterioration of the marine park. As such, any further development in the aquaculture industry, adjacent to the Reef, must also deliver net benefits to the affected reef catchment:

  > *Further development of an aquaculture industry adjacent to the Great Barrier Reef World Heritage Property will be reliant on delivering a net environmental benefit as identified in the Great Barrier Reef Coastal Zone and Great Barrier Reef Regional Strategic Assessments (GBRMPA 2014b).*

- Industry submissions highlighted the industry's sense of obligation towards the GBR, as this resource underlies their production capacity:

  > *ABFA members seek to operate in such a way as to minimise environmental impacts from their operations, but at the same time provide valuable fish protein within the Australian regulatory framework (ABFA 2014).*

> *Members of the ABFA support appropriate controls to protect the environment as their businesses rely on a clean and healthy environment (ABFA 2014).*

- GBRMPA (2014b) also emphasised conditions imposed under the EPBC Act for the Guthalungra prawn farm approval, which require producers to deliver a 'zero net increase in sediment and nutrient loads' into the receiving environment. However, industry does not support use of the nil-discharge condition and contends that this condition has limited its expansion:

> *The attention on achieving 'zero net discharge' for aquaculture also provides little environmental benefit, is stifling development, and is a distraction from the broader discharge issues which come from many diffuse sources (ABFA 2014).*
>
> *In a move towards this, Qld DEHP is currently working on a revised Operational Policy for aquaculture. However if this policy is developed per GBRMPA's zero net discharge with offsets agenda, our industry will not expand (APFA 2014b).*
>
> *Conditions set by coastal zone regulators requiring aquaculture operations to have zero nutrient discharges are arbitrary, disproportionate and discriminatory (Seafarms Group 2014a).*
>
> *The EPBC Act condition requires the permittee to deliver a zero net increase in sediment and nutrient loads in Abbott Bay and not at the end of the discharge pipelines (GBRMPA 2014b).*

- GBRMPA (2014b) stated that both aquaculture and agriculture are 'required to be assessed' under the EPBC Act. However, industry stated that environmental restrictions are more severe for aquaculture than other rural sectors, even where both are discharging into the same environment:

> *Aquaculture operations, having to compete with other food producers who do not have the same regulatory burden placed on them, even though they have discharges into the same environment. ..... The ABFA does not wish to restrict the operations of other authorised operators, only to be treated in the same way (ABFA 2014).*

- Furthermore, industry stakeholders believe that environmental restrictions placed on aquaculture have progressively been tightened in the past decade. While the aquaculture industry has developed innovations to improve best management practices, it has also noted that these measures are becoming more costly:

> *The focus on continual improvement in discharge performance (from an incredibly efficient and small base) is a poor use of resources, which could be targeted on other areas to get better environmental, social and economic benefits. The attention on achieving 'zero net discharge' for aquaculture also provides little environmental benefit, is stifling development, and is a distraction from the broader discharge issues which come from many diffuse sources (ABFA 2014).*

In response to the draft report:

- GBRMPA (2014c) noted that the Commonwealth and the Queensland governments have released the following reports on the GBR:
  - Great Barrier Reef Region Strategic Assessment: Strategic Assessment Report
  - Great Barrier Reef Region Strategic Assessment: Program Report
  - Great Barrier Reef Outlook Report 2014.

  The above reports outline the long-term outlook of the GBR and initiatives designed to strengthen the environmental management of the GBR.

- WWF (2014) noted that the GBR is under threat from a range of factors including degraded water quality from poor land management practices.

6.2.3 Precautionary principle

Industry does not support application of the precautionary principle to aquaculture. Submissions highlighted the extensive body of research that analysed the discharge from aquaculture, and proposed compliance measures to minimise and manage effects. A widespread view is that the precautionary principle should not apply, as the environmental impacts of aquaculture are well documented and the risks are known.

> *Peer reviewed research shows that the impacts of pond based aquaculture in Australia is generally undetectable and is readily assimilated into the near environment. After 30 odd years of operation in Queensland there is no discernible impact on the receiving environment. This shows that the precautionary principle is not being applied as it should be (ABFA 2014).*
>
> *The issues around the real environmental impacts of aquaculture in Australia have been extensively researched and investigated by eminent scientific organisations such as the CSIRO, Australian Institute of Marine Science and various State Fisheries bodies. The overwhelming findings from this work are that properly designed and managed aquaculture operations are low impact and low risk to receiving environments along the Queensland coast (Seafarms Group 2014a).*
>
> *APFA believe that the precautionary principle has been misused with regard to aquaculture development in Queensland. It may have been an appropriate tool when the industry was first developed but 30 years after development there have been no adverse environment affects and over those years research has been carried out that supports industry development. Farms themselves are continually adopting best practice, adopting relevant research and implementing cutting edge technology that has enabled them to farm sustainably and profitably (APFA 2014b).*
>
> *The goal of zero net emissions imposed in 2008 by SEWPAC/GBRMPA can be seen as the application of the precautionary principle imposed in an ad hoc manner, unsupported by science. While the goal may be technically possible, it is likely that it will be economically unviable. And while the constraint is in place, the industry will continue to be deterred from investment and unable to expand (Seafarms Group 2014a).*

6.2.4 Terrestrial aquaculture development areas (or zones)

In response to the issues paper:

- APFA (2014b) suggested that the development of aquaculture zones should use the same principles as the strategic cropping areas detailed in the *Strategic Cropping Land Act 2011*.
- Stakeholders considered that zones are mechanisms that may facilitate development (especially for individuals not familiar with the industry) and increase transparency and certainty on a site's suitability for aquaculture. Examples of comments are as follows:

  > *Up-front identification of sites by government, as evident in other States, would address many of the critical issues applicants currently face through the assessment process .The identification of appropriate sites would provide an opportunity to address both State and Commonwealth regulatory requirements and provide greater certainty for investors establishing new aquaculture developments (DAFF 2014).*
  >
  > *Supported in principle, so long as the industry is consulted and areas are appropriate - not just convenient (ABFA 2014).*

- Seafarms Group (2014a) highlighted the establishment of zones in South Australia and Tasmania as contributing to a better regulatory environment conducive to increased industry development:

  > *.....South Australia and Tasmania have made some substantial progress in areas of aquaculture tenure, zoning and regulatory streamlining and that combined with a determined industry and other government and corporate financial support has in the case of Tasmania, seen the farmed*

> *salmonid industry become Australia's largest and most successful single fishery grossing $513 million in 2011-12 (Seafarms Group 2014a).*

- Grofish Australia (2014) highlighted the following concerns:
  - Zones may inflate the price (or value) of land.
  - The concentration of aquaculture in restricted areas may increase the incidence of disease.
  - The development of zones will be time consuming.

The draft report recommended that the Queensland Government create terrestrial aquaculture development areas. The QCA noted that identified areas should be located where the receiving environment can assimilate discharge without significant adverse impact. The draft report led to a generally positive, though sometimes qualified, response.

- APFA (2014c) supported the QCA's recommendation, noting that a joint James Cook University, Queensland University of Technology and CSIRO proposal submitted for the Ag North CRC program may deliver a comprehensive method to identify suitable development areas.
- DEHP (2014b) supported the QCA's recommendation where the receiving environment can assimilate additional nutrients and sediments:

> *The key environmental issue with aquaculture facilities relates to whether the receiving environment has the assimilative capacity to accept the additional nutrients and sediment without affecting environmental values. As discharge limits are guided by the Environmental Protection (Water) Policy 2009 and healthy waterways management plans, it will be important to consider the net assimilative capacity and water quality objectives of the receiving environment when identifying development areas and setting discharge limits (DEHP 2014b).*

- Similarly, GBRMPA (2014c) was supportive of development areas in appropriate locations:

> *Identification of these areas must include a full assessment of the ability of the receiving environment to assimilate aquaculture wastewater discharges without significantly impacting on the form and function of these aquatic ecosystems (GBRMPA 2014c).*

- WWF (2014) was supportive, noting that the areas must consider the short, medium and long terms targets of the 'Reef 2050 Long Term Sustainability Plan'. WWF stated that the GSRMP could serve as an example of how development areas can be developed and accredited by the relevant Queensland and Commonwealth agencies.
- NFPI (2014) agreed with the QCA and recommended 'a 'risk-based' approach should be taken to identify appropriate areas, including through Environmental Impact and Risk Assessment processes'
- Seafarms Group (2014b) was supportive.
- Andrew Hamilton (Hamilton 2014) generally agreed with the QCA's recommendation.
- The Gold Coast City Council (2014) did not provide specific comments on aquaculture development areas. However the council recognised that reform is necessary, and that aquaculture is a valuable industry that can enhance and boot economic growth:

> *[It] seems appropriate that regulation reform for this specific industry should be seriously considered and possibly simplified and enacted by state government to allow the aquaculture industry to have much more (Gold Coast City Council 2014).*
>
> *Enhancement of aquaculture in the City of Gold Coast would accord with the policy of council to enhance and diversify industry and boost economic growth (Gold Coast City Council 2014).*

- Burdekin Shire Council (2014) did not provide specific comments on development areas, however the council considered aquaculture to be an acceptable land use in some areas:

  > *Aquaculture proposals within our Shire are considered to be an acceptable land use in identified areas. Suitable areas must have the appropriate zoning and the intended use must fit within our defined uses. The use will be included in our new planning scheme with appropriate maps and codes drafted to ensure appropriate control measures are able to be imposed.*

- Cairns Regional Council (2014) was supportive and proposed:

  > *Further work could be done to identify suitable aquaculture sites in the Cairns Region (Cairns Regional Council 2014).*
  >
  > *Aquaculture may also be suitable in industry areas close to estuarine waters (Cairns Regional Council 2014).*

- Mackay Regional Council (2014) did not agree or disagree with the QCA's recommendation. Instead, the council questioned if aquaculture development areas would stifle innovation of the industry:

  > *By limiting Aquaculture development to particular 'suitable' lots at the time of the review, may lead to the perception that other areas are not suitable. Impact assessable applications in rural areas may be able to demonstrate how aquaculture can be accommodated on a particular site by addressing the impacts on surrounding areas. The identification of specific areas may further reduce future opportunities for innovation of new Aquaculture development outside of such ADAs and changes in market conditions (Mackay Regional Council 2014).*
  >
  > *It is recommended that the identified sites be provided to local councils for consideration in planning scheme reviews. Planning schemes should provide for appropriate provisions to enable such development to occur (Mackay Regional Council 2014).*

- Isaac Regional Council (2014) broadly supported the creation of aquaculture development areas and stated that:

  > *Aquaculture development presents a key economic diversification opportunity for the Isaac LGA. Council recognises the economic benefits to the regional economy and reduction in pressure on wild fish stocks, and broadly supports the creation of land based aquaculture development areas to facilitate investment in the Isaac region. The coastal strip of the Isaac LGA hosts one aquaculture operation (prawn farm) at present, with opportunity for further development along the remainder of the regions 100 kilometres of sparsely populated coastline. The coastal strip of the Isaac LGA has access to supply of both salt and fresh water and existing rural blocks of a size suitable to aquaculture operations (Isaac Regional Council 2014).*

The draft report also recommended the government set a target for establishing aquaculture development areas. The target could be the identification of areas to enable 450 hectares of aquaculture operations within two years of the government's response to the QCA's report.

- NFPI (2014) would like more work done to determine whether 450 hectares is sustainable:

  > *NPFI recommends that a 'risk-based' approach should be taken, including through Environmental Impact and Risk Assessment processes EIS, to determine whether the proposed 450 hectares target for aquaculture development is sustainable (NFPI 2014).*

- Seafarms Group (2014b) was supportive of the target, noting that 'the need to achieve commercial scale may lead to a single company becoming majority operator of suitable land within a designated aquaculture development area'.

- Andrew Hamilton (Hamilton 2014) generally agreed, and saw a benefit in multiple farms being located within one development area or areas totalling 450 hectares.

> *This will not only allow the possible entry of several new entrants into Queensland Aquaculture as well as allowing possible expansion for existing operators with the multiple areas spreading the biosecurity, and environmental risk as well as to spreading the potential financial benefits over multiple regions (Hamilton 2014)*

Another recommendation of the draft report was that development applications in development areas be assessed against public criteria set out in a code applicable to each area.

- APFA (2014c) agreed with the QCA's approach:

  > *APFA agrees that when identifying suitable aquaculture sites, there is a need for this to be done in conjunction with provision of a more predictable and transparent regulatory approvals process, one that is linked to set time lines for all agencies involved in approval processes, including the Commonwealth (AFPA 2014c).*

- DEHP (2014b) generally agreed with the QCA's recommendation, noting that appropriate environmental standards could be achieved through a code that encompasses appropriate model operating conditions and an operational policy:

  > *While establishing aquaculture development areas may be challenging , I envisage that the most appropriate mechanisms to set environmental standards in these development areas will be through a combination of model operating conditions and an operational policy.*

- NPFI (2014) supported codes to be developed for each terrestrial aquaculture development area.

- WWF (2014) questioned the sustainability of the target, and then stated that codes could go some way to address the issues. WWF proposed that these codes should adopt the certification standards established by the Aquaculture Stewardship Council (ASC), an organisation co-founded by WWF.

- The Gold Coast City Council (2014) was supportive of the QCA's recommendation:

  > *A proper and complete process of engagement between the state agencies and local governments must be undertaken to ensure that any new code produced specifically for the aquaculture industry accommodates all necessary local planning provisions.*

- Burdekin Shire Council (2014) agreed, and stated that:

  > *Any proposed 'code for assessment' must contain outcomes acceptable to all potentially affected stakeholders (Burdekin Shire Council 2014).*
  >
  > *A clear 'code for assessment' of development applications needs to be developed with the involvement of all three tiers of Government and any other stakeholder that can contribute towards achieving acceptable outcomes for all parties (Burdekin Shire Council 2014).*

- Douglas Shire Council (2014) stated they would be concerned if the code allowed aquaculture to be exempt under the SP Act, and therefore did not consider the Council's unique environmental concerns.

- Andrew Hamilton (Hamilton 2014) generally agreed, and provided a further suggestion. Hamilton (2014) suggested that some development such as a new hatchery or recirculating system could be subjected to a self-assessable framework, whereas others could be assessed under a code.

6.2.5 Environmental offsets

In response to the issues paper:

- Industry stakeholders expressed reservations about environmental offsets on two grounds: equity and potential regulatory difficulty. The industry considers that offsets are inequitable

because other industries in the same locations, with similar impacts, are not required to undertake them:

> *The original conversation with respect to this review was around setting up a new reduced regulatory framework. However zero net discharge and offsets are now appearing in every document that is being generated through this process. Far from reducing burden it appears there will just be another added, which will not encourage industry development, but stifle it further (ABFA 2014).*
>
> *Offsets are not applied to the management of nutrient run-off from any other agricultural enterprises and should not be considered for aquaculture (APFA 2014b).*

- Industry concerns regarding the implementation of a state offset scheme, such as the proposed Environmental Offsets Bill 2014, were provided by APFA (2014b) and ABFA (2014):

> *.....there is not sufficient information available with regard to offsets. APFA understand that there is currently no offset policy and this may be available in June this year. Such an offset policy should include all industries and contributors- not just point source or new industries (APFA 2014b).*
>
> *The ABFA is particularly concerned with the major focus of the review on offsets. It may be seen by regulators as a simple accounting approach to dealing with complex systems, but to industry it is just another ill thought out environmental tax - like the Carbon Tax (ABFA 2014).*

- Specifically , ABFA (2014) posed the following questions:
  - What is being offset?
  - How is it measured (net, gross, background)?
  - What impacts are being offset?
  - Whose impacts are being included?
  - Why have a 150 per cent offset?
  - What is the environmental capacity at the regional level?
- APFA also proposed an alternative offsets policy based on nutrient monitoring in the receiving environment after the commencement of operations. This would work in tandem with 'end of pipe' restrictions on discharges with a localised impact:

> *In order to address this impasse [of GBRMPA's requirement for zero net discharge after offsets] we propose a new twostep monitoring system as part of this operational policy [being developed by DEHP].*
>
> *1) Set limits at the outlet for factors that may have a localised impact, for example oxygen and ammonia*
>
> *2) Monitor at the boundary of the mixing zone/Marine Park for any nutrients that are not assimilated within the estuarine system. Any offset system should be based on the residual nutrients at this point. (APFA 2014b)*

- GBRMPA (2014b) and DNPRSR (2014) were more concerned with the effective delivery of offset activities, assuming that offsets were required. GBRMPA reiterated the Commonwealth's policy position on offsets and provided a wide range of possible costs of offsets:

> *In order to achieve a net benefit, an environmental offset in excess of 100 % would be required. The Australian Government's Minister for the Environment has recently interpreted this requirement to mean a 150% offset to be applied to a recently approved significant development in the Great Barrier Reef World Heritage Area (GBRMPA 2014b).*

> *Based on these articles (e.g. Rolfe and Windle 2011 and Start et al 2012) the investment required to offset 26 tonnes of nitrogen from catchment based sources could be in the range of $6,000 to $120,000 depending on the location and type of offset applied (GBRMPA 2014b).*

The draft report recommended that the Queensland Government provide potential proponents with the maximum possible certainty about the future price and availability of offsets. Stakeholders generally agreed with this recommendation.

- As with its response to the issues paper, APFA (2014c) expressed strong reservations about the implementation of offsets, stating that:

  > *Prawn farms practice environmental offsets on a daily basis. Most farms have set aside approximately 30% of productive farm area as settlement systems, science undertaken when farms were initially developed in Australia suggested that this was the best method of mitigation, capturing nutrients and allowing them to settle prior to discharge of water.*
  >
  > *Whilst the concept of the Reef Trust as a mechanism for delivering offsets would be the preferred method, the APFA would like to reinforce that this should be done across all new industries that contribute to nutrient loads in the GBR. If this is done equitably across all new developments then the likely costs involved will be more viable (APFA 2014c).*

  APFA supported the need for the Queensland government to provide potential proponents with the maximum possible certainty about the future price and availability of offsets, should offsets be implemented.

- Andrew Hamilton (Hamilton 2014) expressed strong reservations about offsets:

  > *How can industries with similar impacts to aquaculture either not be required to participate in an offset program at all or have differing requirements to that of aquaculture and even aquaculture developments of similar natures have such a greatly varying range of investment ($6000 - 120,000)? How does this create a stable platform with which to encourage investment? (Hamilton 2014).*

- NPFI (2014) did not provide specific comments on the QCA's recommendation. Instead NPFI (2014) supported 'the mandatory requirement for environmental offsets for all existing and future aquaculture development'.

- Seafarms Group (2014b) was supportive of the QCA's recommendation noting that 'a consistent offsets framework is a desirable goal'. Seafarms Group (2014b) also noted that aquaculture is being disadvantaged as a point source operator compared to diffuse source operators where the run-off is not measurable.

6.2.6 Marine aquaculture

The issues paper asked stakeholders to provide feedback on Queensland's potential for cage aquaculture, where it might be located, and what species might be suitable. Stakeholders interested in marine aquaculture highlighted a range of potential development opportunities, and regulating organisations, such as GBRMPA and DNPRSR, outlined the regulatory conditions that dictate marine aquaculture developments in marine parks.

- Seafarms Group (2014a) reported the findings of a Food and Agriculture Organisation study (FAO 2013) that assessed the potential for marine aquaculture in Australia. The study also highlighted cobia as a suitable finfish species within the marine park.

- Djulin Marine Aboriginal Corporation (2014) expressed an interest to commercialise the production of giant clams on Palm Islands.

- Charles Misi (Misi 2014) highlighted general potential for marine aquaculture developments in remote North Queensland:

> *There is a huge demand for aquaculture projects in the Torres Strait and other Cape York communities to promote investment in sustainable aquaculture infrastructure and economically viable industries. The remote locations provide pristine marine ecosystems and environments suitable for many highly demanded finfish, molluscs, crustaceans and holothurians (Misi 2014).*

- GBRMPA (2014b) and DNPRSR (2014) highlighted the opportunities for extensive and cage aquaculture in the GBRMP. GBRMPA (2014b) highlighted that the two marine parks, Moreton Bay Marine Park and Great Sandy Marine Park, allow extensive aquaculture. However, GBRMPA (2014b) and DNPRSR (2014) submitted that there are no cage aquaculture operations in the marine parks given that most zones prohibit cage aquaculture involving the addition of feed. GBRMPA (2014b) provided the following comment regarding cage aquaculture in the GBR:

> *Current and international experience with cage aquaculture indicates that the ecological risks associated with this type of aquaculture (at the current level of technological development) are likely to be unacceptable because of its potential impacts on the surrounding environment in the Great Barrier Reef World Heritage Area (GBRMPA 2014b).*

- APFA (2014b) and ABFA (2014) supported terrestrial aquaculture developments over marine aquaculture. APFA (2014b) considers that the lack of interest in developing aquaculture facilities in areas defined by the Great Sandy Region Marine Aquaculture Plan, linked to the fact that the strengths of Queensland producers lie in terrestrial aquaculture, not in extensive systems. ABFA (2014) was also more interested in terrestrial aquaculture developments:

> *The ABFA does not at this stage see the need to push this production method in waters adjacent to Queensland, particularly adjacent to the GBRMPA. There are concerns a focus on Sea Cage production will shift focus from existing issues (ABFA 2014).*

The draft report recommended that the government investigate the potential for marine aquaculture development areas in less populated areas, such as the Torres Strait and Gulf of Carpentaria.

- Submissions from WWF (2014) and NPFI (2014) noted that marine aquaculture is in conflict with other uses of the marine environment:

> *...conflict with existing users and local residents is a key consideration for the expansion of the marine cage culture in Queensland (WWF 2014).*
>
> *Notes that it can conflict with other uses such as commercial, recreational and indigenous fishing and boating, and iconic environmental values (NPFI 2014).*

- WWF (2014) stated that other issues such as water quality, level of waste generated and genetic contamination as a result of marine aquaculture would need to be considered:

> *.....receiving water quality has been identified as a key issue for cage culture development in Queensland's marine parks. Significant planning considerations will be required to address the waste levels generated through the deployment of cage culture systems in Queensland, irrespective of the proposed locations. Furthermore, greater consideration is required to address potential biodiversity issues associated with the escapement of large volumes of genetically similar farm stock during cyclonic events like that which destroyed the State's sole cage farm in Hinchinbrook Channel..... significant investigations are required to address disease control vectors between farmed species and adjacent wild stocks, and also to address interactions between farm operations and wildlife, particularly listed species (WWF 2014).*

- NPFI (2014) expressed concerns about the Torres Strait and Gulf of Carpentaria as prospective areas for marine aquaculture development, due to ' considerable potential for fisheries resources and their productivity systems to be negatively impacted by future aquaculture development in the Gulf of Carpentaria, particularly in relation to water

diversion, salinity changes, pollution, sediment run-off and the introduction of exotic pests/diseases'.

- Andrew Hamilton (2014) noted that many reports have demonstrated that marine aquaculture has 'minimal or negligible impact'.

6.2.7 Single aquaculture unit

In response to the issues paper, APFA and Grofish Australia provided the following comment:

> *We would like to see Qld DAFF and or DEHP as the single environmental regulator for Qld aquaculture. This will require endorsement by the federal government, including GBRMPA (APFA 2014b).*
>
> *A single administrative unit focused on aquaculture, without the support of a single piece of legislation is bound to fail. The State Labor Government under Premier Peter Beattie, tried using the Department of State Development and Projects of State Significance of which the Guthalungra license was one, to achieve aquaculture development. Inter-departmental jealousies, disagreement over science and different departmental objectives all contrive to complicate and delay the process of approval (Grofish Australia 2014).*

However, APFA also submitted that it is uncertain that a one-stop-shop would work for aquaculture. The concern was that, if aquaculture developments triggered the EPBC Act, final approval would revert to the Commonwealth.

The draft report recommended the government consider the best structure to implement the review's recommendations. The options presented included a task force, or a dedicated administrative unit. The draft report also suggested DAFF as a possible candidate to undertake the lead agency role.

- APFA (2014c) agreed in part with the QCA's recommendation, and provided further suggestions. APFA suggested the establishment of both an aquaculture unit, and a task force or industry advisory board to provide an oversight role ensuring targets are met on time, and problems are resolved:

  > *APFA strongly proposes that the lead agency [of the aquaculture unit or task force] should be the Department of State Development Infrastructure & Planning (APFA 2014c).*
  >
  > *Senior State Development and DEHP officers along with the DG of DAFF should be appointed to the advisory board, as well as a qualified legal practitioner (APFA 2014c).*
  >
  > *The APFA does not envisage an Advisory Board becoming a permanent fixture. Initial arrangements for establishing such a body should include a 'sunset clause' of say three years for winding it up. The Board should meet twice yearly or on request from the dedicated aquaculture unit on a needs basis (APFA 2014c).*

- APFA(2014c) further stated that:

  > *APFA are currently scoping a Stewardship Action Plan and part of this process will be to engage with key stakeholders throughout the project..... this is being done to help facilitate reform for our industry and as a management tool to assist with moving the regulatory impasse forward (APFA 2014c).*

- Seafarms Group (2014b) stated that 'Seafarms agrees in general with the case made by QCA regarding the best structure to implement the review's recommendations'.

- Andrew Hamilton (Hamilton 2014) supported a simplified process through an aquaculture unit or interagency task force stressing that it 'be supported by specialist aquaculture legislation without the interference of the Commonwealth especially in light of GBRMPA veto powers and their seeming anti-aquaculture stance'.

6.2.8 Single aquaculture Act

In response to the issues paper, ABFA and Grofish Australia provided submissions in support of a single aquaculture Act. Grofish Australia (2014) stated that a single Act is fundamental to support the development of a single aquaculture unit (see Chapter 6.2.7). ABFA (2014) supported the development of a single Act but believes that without GBRMPA support the Act is insufficient:

> *The value of a single piece of legislation extends to negotiations with federal accreditation of aquaculture licensing to the State. ..... If a level of complexity can be removed at the State level, then negotiations should be simpler and more successful sooner (Grofish Australia 2014).*
>
> *Subject to addressing the issues raised by the ABFA, particularly overlapping jurisdictional responsibilities, the ABFA support the concept of a single piece of legislation (ABFA 2014).*
>
> *Without addressing the issue of GBRMPA veto powers over any changes to the regulatory framework, it will not provide any real value to industry (ABFA 2014).*

The draft report recommended the government defer consideration of the merits of a single legislative instrument for regulating aquaculture until after the recommended reforms in this report have been well established.

- Seafarms Group (2014b) agreed with the recommendation and stated that 'the more urgent need is for regulatory reform rather than legislative reform'.
- Mackay Regional Council (2014) stated:

  > *a new single act..... will not necessarily result in an increase in Aquaculture development and economic growth. Contrary to the purpose of a proposed single Act, the time-lapse and funding for a 'task-force', administration support, training and implementation will have significant impacts on the State, with limited benefits to the Aquaculture industry (Mackay Regional Council 2014)*

- Andrew Hamilton (Hamilton 2014) supported an eventual move towards a single aquaculture Act.
- WWF (2014) did not support a single Act as it may be a precedent for Acts to accommodate point source operations like waste treatment plants and other intensive farming industries.
- APFA (2014c) did not provide specific comments, but noted:

  > *Despite assurances from Ministers going as far back as Henry Palaszczuk, that an Aquaculture Act could be developed, there appears to be a distinct lack of will to make this happen (APFA 2014c)*

6.2.9 Bonds or bank guarantees

Stakeholder views on the use of bonds or bank guarantees for aquaculture are mixed. Government departments support the use of bank guarantees for marine aquaculture to ensure the department has sufficient funds to cover remediation, so long as the bond mechanism minimises the cost to producers. DAFF does not require bonds for terrestrial developments. DNPRSR's position on bonds is as follows:

> *Current NPRSP policy requires permit holders to have appropriate insurance as part of their permit conditions, and the use of bonds can be imposed if considered necessary (DNPRSR 2014).*

ABFA and Grofish Australia do not support the use of financial guarantees for aquaculture**:**

> *As a principle, for large scale operations (equivalent to a major mining operation or port development) this is supported**...**Additional details would be needed in respect to the relatively small scale and negligible impact of aquaculture operations in Queensland (ABFA 2014).*

> *Drawing parallels between mining and aquaculture when considering financial safeguards for rehabilitating the environment is inappropriate. ..... Imposing financial safeguards suggests that the environment will be irrevocably damaged. There is no evidence to suggest Australian aquaculture has ever irrevocably damaged the environment. It has certainly changed it, but so has building cities to live in, growing crops and building fences to control stock. No---one would sensibly suggest that organisations engaged in these activities should provide financial safeguards for restitution of the environment (Grofish Australia 2014).*

The draft report did not make a recommendation on bonds and guarantees.

In response to the draft report:

- NPFI (2014) recommended that bonds and guarantees should be 'mandatory to fund 'clean up' operations and compensation payable for any diminution in the future value and/or productivity of fishing rights resulting from aquaculture developments'.
- WWF (2014) stated that bonds and guarantees 'should be retained as a requirement for all marine based aquaculture operation'. WWF further noted that bonds and guarantees are relevant to terrestrial aquaculture operations especially when infrastructure is required to be installed outside the bounds of private property.

  WWF does not agree that bonds and guarantees are not relevant to terrestrial aquaculture operations where the land is freehold:

  > *WWF disagrees that the use of bonds and guarantees are not relevant to terrestrial aquaculture operations where the land is freehold. Bonds and guarantees will be important particularly where infrastructure is required to be installed outside the bounds of private property. Equally, such provisions should be implemented to help restore impacts from the farm to the environment, e.g. a fish escape to an aquatic environment (WWF 2014).*

6.2.10 Research and marketing levies

Aquaculture has one mandatory levy for prawns and a range of voluntary levies for individual industries. Stakeholders had mixed views on the benefits of marketing or industry levies. Grofish Australia (2014) cautioned against the use of marketing to promote the environmental credentials of a product:

> *In the author's experience, marketing environmental credentials does not increase consumption or achievable price. Consumers expect an industry to be environmentally sound and if it is not, for the government to do something about it (Grofish Australia 2014).*

ABFA (2014) commented as follows:

> *This is an industry issue and should not be in this review. The ABFA collects a voluntary levy and directs its expenditure to where it provides the greatest return on investment to industry (ABFA 2014).*

The draft report did not make a recommendation on research and marketing levies.

In response to the draft report, NPFI (2014) noted that research is necessary to 'to identify impacts of aquaculture development on other industries/stakeholders' and should be 'paid for by the proponents of the [aquaculture] development'.

7 BARRIERS TO GROWTH AND DEVELOPMENT

7.1 The policy aim — growth and development

The Queensland Government aims to double agricultural production by 2040 (DAFF 2013c). As arable land in Queensland is a limited resource, lifting production will generally require more productive use of existing land, or use of previously unused marine resources. Aquaculture is a highly productive use of land. The value of aquaculture output per hectare is around 20 times greater than that for existing crops such as sugar cane (QCA estimate), for example, which uses similar flat, low-lying coastal land.

The Queensland Government is committed to the Northern Australia Development Strategy, which aims to develop Australia north of the Tropic of Capricorn[3]. In Queensland, the area north of the Tropic of Capricorn is the most prospective for aquaculture. Existing aquaculture is mainly concentrated on Queensland's east coast above the Tropic of Capricorn, in the GBR region, as this region has the appropriate combination of warm climate and access to infrastructure (such as electricity). There are also prospective areas in the Torres Strait and the Gulf of Carpentaria, which both fall within the ambit of the Northern Australia Development Strategy.

7.2 What is the problem?

Queensland's east coast has the right physical attributes (warm climate, affordable and reliable electricity, and good transport links) for prawn pond farms, fish pond farms and marine fish farms. However, building one of these farms is perceived to be a risky proposition. Rightly or wrongly, industry believes that regulatory approval is a complex and protracted process, with no certainty about the outcome. In particular, two projects are often cited as cautionary examples:

- The Guthalungra prawn farm, proposed to be established on grazing land near Bowen, has been seeking regulatory approval since 2001 (Coordinator-General 2008). This project received Queensland government approval in 2008, but is still in the process of negotiating with the Commonwealth government for workable operating conditions. Further details are at Appendix E.
- The Sun Aqua proposal was for snapper and yellowtail kingfish production in cages on the eastern side of Moreton Bay. The proposal was made in 2001 and refused by the Queensland Government in 2004 (Coordinator-General 2004b). Of the 56 coordinated projects assessed by the Queensland Coordinator-General (C-G) since 2000, the Sun Aqua proposal was one of only two proposals to be refused (DSDIP 2014a). At the end of the process, the then Queensland Government reportedly paid significant compensation to the proponents (Moreton Island Protection Committee Inc 2005, Crikey 2005). Further details are at Appendix F.

No major aquaculture project has been built on the Queensland east coast for over a decade. Whereas Tasmania's aquaculture industry has grown at a compound annual rate of 14 per cent over the last decade, Queensland's aquaculture has grown at 4 per cent (CIE 2013). Tasmania's

[3] http://www.northernaustralia.dpmc.gov.au/

aquaculture production has grown to around $500 million annually, while Queensland's production is $80 million.

7.2.1 A protracted process

The assessment and approvals process for aquaculture varies according to the location, impact, significance and complexity of the project. The regulation is most complex when the project has the potential to significantly affect a Matter of National Environmental Significance (MNES). In this case, both state and Commonwealth approvals are required.

The most likely first step for an aquaculture project of significant scale is for the C-G to declare it a 'coordinated project' requiring an Environmental Impact Statement (EIS). The proponent submits the EIS to the C-G, who coordinates the state government's evaluation of the project and consults with advisory agencies, as well as local government. The C-G, taking into account the input from the advisory agencies, then makes a recommendation to the assessment manager. The C-G's report on the EIS must state the conditions for approval. However, the conditions for approval do not relieve the proponent of their obligation to obtain other relevant approvals. The C-G does not approve a project; only the assessment manager can make the final decision to approve or refuse a project. The assessment manager may be the local council, or DSDIP.

If a project has the potential to significantly affect a MNES then the proponent must refer it to the Commonwealth Minister for the Environment for assessment under the EPBC Act. The Commonwealth has accredited Queensland law for EPBC purposes, allowing the EIS to be assessed under the state's EIS process to minimise unnecessary duplication. This means that the findings of the C-G's report on the EIS will be used by the Commonwealth Minister for the Environment in the Commonwealth's assessment. The C-G cannot approve a project under the EPBC Act; only the Commonwealth Minister can make the decision whether to approve or refuse a project. Should the development also require approval from GBRMPA, then all Commonwealth regulatory requirements can be dealt with through a single administrative process, with all relevant approvals granted at the same time.

In both submissions and discussions, stakeholders have pointed to GBRMPA as being a major source of regulatory risk. GBRMPA, by contrast, has pointed out that it only has regulatory involvement in aquaculture developments that discharge directly into the GBRMP. All other aquaculture developments that discharge waste to waterways leading to the GBRMP are assessed and approved by the Queensland Government and the DOE.

DAFF administers self-assessable code AQUA01, which can facilitate development of small-scale freshwater aquaculture as a complement to other agricultural activities. One stakeholder has submitted that application of this code is being held back by local governments. (Dean, P 2014)

7.3 Stakeholder submissions and discussions

A number of stakeholders identified regulation as a major impediment to growth in the aquaculture industry.

The ABFA (2014) was of the view that:

> *the regulatory framework around this industry is excessive developed through a cumulative process by multiple layers of bureaucracy (ABFA 2014).*
>
> *The cost of complying with the current regulatory framework and multiple jurisdiction approach can lead to unprofitable operations and is a genuine disincentive for industry growth (ABFA 2014).*

Similarly, Seafarms Group (2014a) stated that:

> *.....the multi-layered aquaculture regulatory framework has blocked the growth of aquaculture. The result is the message to industry and potential investors in aquaculture is that 'Queensland is closed for business'. Without significant changes to the current legislation in Queensland SGL is unlikely to consider entering into the protracted and convoluted aquaculture development application process required for a development (Seafarms Group 2014a).*

Grofish Australia (2014) described the approval process of aquaculture development as follows:

> *.....negotiating a license, as I was involved with doing for Pacific Reef Fisheries, required discussions and negotiations at times with 3 or 4 experts from 3 or 4 departments, many of whom didn't agree. Coming to terms with 3 or 4 people who are supposedly representing a government view and who don't agree is frustrating, expensive and at times absurdly comedic. Certainly, it doesn't engender a sense of confidence in the process on the part of the applicant (Grofish Australia 2014).*

Additionally, Grofish Australia pointed specifically to Commonwealth regulation as a barrier to development:

> *The environmental standards for Queensland aquaculture as negotiated with the Queensland government in the case of, for example, the application for a license by Pacific Reef Fisheries at their Guthalungra site, are strict but achievable. The Commonwealth subsequently overrode those negotiations and conditions and using the EPBC act imposed even more onerous conditions on that approval. The conditions imposed by the Commonwealth can't actually be met in practical terms and ignore the significant scientific analysis and discussions engaged in at the State level. They are unreasonable and effectively prevent development of that project (Grofish Australia 2014).*

Industry participants have frequently noted that the regulatory constraints applied to terrestrial aquaculture projects are not applied to comparable agricultural activities on similar coastal land. As an example, industry stakeholders have pointed to two recent agricultural developments in the Ayr/Bowen region, not far from Guthalungra. The combined area of these two developments is likely to include 800 hectares of sugar cane, 100 hectares of rockmelons, and 80 hectares of capsicum (APFA 2014b, Netafim n.d., Chapman 2013). However, in contrast to the regulatory restrictions that a prawn farm would attract, the two developments are not required to purchase offsets, have not been assessed by the Commonwealth government under the EPBC Act, and their discharges of nutrients and suspended solids will not be monitored.

The aquaculture industry views this disparity as a sign that aquaculture is being singled out for harsh regulatory treatment. In turn, this treatment is said to discourage investment in new developments.

APFA (2014b) stated that:

> *Aquaculture is being deliberately targeted..... while others who cause damage to the Great Barrier Reef are allowed to grow and develop and continue to release unknown quantities of nutrients and pesticides onto the reef without any of the rigorous testing that is applied to prawn farming APFA (2014b).*

ABFA (2014) concurred:

> *The current regulatory arrangements see the production of fish, through licensed and authorised Aquaculture operations, having to compete with other food producers who do not have the same regulatory burden placed on them, even though they have discharges into the same environment. The aquaculture industry often has to bear the costs to 'clean' other's water before use in their operation, as well as bear the burden of its own production ABFA (2014).*

Similarly, Seafarms Group (2014a) stated that:

> *The [Queensland aquaculture] industry has not been on a 'level playing field' in terms of the development-critical issue of environmental impact assessment and approval processes..... the aquaculture industry is the only primary industry that requires a water quality discharge; and the industry operates under the strictest water quality discharge standards in the world (Seafarms Group 2014a).*

Grofish Australia (2014) put its view as follows:

> *Current proposals for aquaculture, a point source of nutrient discharge and therefore easily measured, to have the economic imposition of offsets designed to clean up a broadly polluting industry, such as cane farming, imposed upon it are not fair, equitable or sound environmentally. It would pose a fundamental injustice where one industry, which is relatively clean and utilizes high levels of technology is paying for an arguably dirtier industry generally utilizing lower levels of technology simply because it's nutrient input can be measured easily. This imposes an economic cost on aquaculture and removes incentives from cane farmers (for example) to clean up their industry (Grofish Australia 2014).*

Regulators take a different view of the reason for aquaculture receiving regulatory scrutiny that does not apply to comparable agricultural activities. Aquaculture waste-water is a 'point source' discharge which is easily identified and measured. Agricultural run-off is 'diffuse source pollution', which is more difficult to predict and monitor.

7.4 The need for reform

The aquaculture industry is clear about the need for reform. Potential investors view Queensland as risky. At the same time, aquaculture presents a great opportunity for growth, consistent with the Queensland Government's policy aims.

This report aims to identify issues and recommend options for the removal of disproportionate regulatory constraints, while ensuring a continued improvement in environmental outcomes. The findings take account of the high conservation value of the GBR, and the need to improve water quality adjacent to the GBR.

8 PROPOSED ADMINISTRATIVE ARRANGEMENTS IN QUEENSLAND

A reformed regulatory framework should provide greater certainty for investors, impose only reasonable costs, and avoid unnecessary complexity. The regulatory framework must also take account of the high conservation value of the GBR, and the need to improve water quality adjacent to the GBR.

The CIE's comparative study of aquaculture regulation noted that Queensland's regulatory framework was comparable to other jurisdictions, albeit with the added complexity of significant Commonwealth regulation.

At the same time, stakeholders have commented in discussions that the application of the regulatory framework lacks coordination. Proponents can be required to deal with numerous agencies, and have the impression that no agency has ownership of the overall process. As a result, it appears that regulatory matters take longer than necessary to resolve.

For this reason, the QCA's recommendations in this chapter are not aimed at changing individual elements of Queensland's aquaculture regulation. Rather, the aim is to create a system that is simpler and more coordinated from the proponent's point of view.

This review considered four possible elements of a reformed regulatory framework:

- Creation of aquaculture development areas allowing investors to identify suitable sites and have some confidence in the conditions which will need to be satisfied to obtain regulatory approval.
- The use of environmental offsets to mitigate the environmental impact of aquaculture.
- Creation of a single administrative unit dedicated to aquaculture.
- A single Act to regulate aquaculture in Queensland, as occurs in South Australia.

After extensive analysis and discussion, the QCA recommends the first two measures, leaves open the question of a dedicated administrative unit, and recommends deferral of action on a single Act to regulate aquaculture.

8.1 Terrestrial aquaculture development areas

Background

An improved regulatory framework should provide potential investors with predictable outcomes and minimal delays. The QCA considers that the single best mechanism to achieve this is the establishment of terrestrial aquaculture development areas allowing investors to know in advance the regulatory requirements of any aquaculture operation.

Spatial planning is a valuable tool that can help to achieve safe and sustainable development in the marine and coastal environment and assist in addressing and reconciling resource allocation conflicts. Strategic planning of specific land/marine use development areas in Queensland has a recent precedent in the identification of strategic cropping areas in Queensland under the *Regional Planning Interest Act 2014*.

Similar development areas have successfully been used in South Australia and Tasmania for marine aquaculture, and are being introduced in Western Australia. Terrestrial aquaculture

development areas have more complex requirements than marine aquaculture zones, as they need to incorporate more parameters from existing mechanisms for land use planning. For example, the impact of aquaculture on neighbouring land uses is a major consideration. Discussions with stakeholders suggest that the impact of saltwater ponds on the water table used by neighbouring irrigators can be a particularly sensitive issue.

Key steps involved in creation of development areas

DAFF has already undertaken significant work towards the identification of terrestrial aquaculture development areas, but has not brought that work to a conclusion. DAFF's work to date consists mainly of mapping topography and permitted land uses.

This is the first of the following three steps in the identification of development areas:

- GIS modelling to identify a stock of physically suitable and acceptable areas. The modelling must consider the physical attributes required for terrestrial aquaculture and the existing local, state and Commonwealth planning and development restrictions that affect aquaculture.
- Local consultation/monitoring to determine the environmental baseline (including water quality) and strategic environmental assessments to determine the operational constraints and management controls required (e.g. allowable species, densities and biomass).
- Incorporating the development areas into local planning schemes.

Appendix G contains a set of illustrative maps for the region around Ayr showing how the first steps of identifying prospective development areas might work in practice. Similar maps for Bundaberg, the coast from Daintree to Port Douglas, the Fitzroy River, and the Logan River are on the QCA's website[4]. These maps do not encompass the full range of possibilities along Queensland's east coast, and are only offered as examples. It is likely that there are many other areas along the east coast with the right physical characteristic.

Considerations

Rather than recommending a detailed process for creation of aquaculture development areas, the QCA will make recommendations for outcomes, with only general comments on process considerations.

Planning considerations

Planning and identification of development areas for aquaculture development should be done in consultation with the industry (investors) and ideally should include commercial considerations, such as labour availability and costs, transport constraints (e.g. seasonal road closures due to flooding), access to affordable power supply and logistics before addressing land-ownership issues (lease and tenure), biological and technical requirements.

Public debate should be encouraged as part of identifying zoning and development priorities, as local acceptance of aquaculture development varies widely across Queensland. Local government authorities are well placed to elicit local preferences, and deal with any sensitivities.

[4] http://www.qca.org.au/Productivity/Productivity-Projects/Review-of-Queensland-Aquaculture-Regulation

In Tasmania and South Australia the creation of aquaculture zones and the identification of operational constraints are subject to approval by environmental regulators. In Queensland, the equivalent process involves the DOE/GBRMPA and the DEHP.

Creation of development areas needs to take account of any impacts on existing operators and on land values of sites within the development areas. If development area parameters are more advantageous than existing licence conditions, it may be desirable to give existing operators the option of transferring to a development area arrangement. This would have the advantage of greater standardisation of regulatory requirements across the industry.

To avoid distortions in land value, development areas should cover a greater area than the eventual permitted operations. For example, if investigations indicate that a certain area can support 500 hectares of aquaculture operations, the development area should encompass some multiple of that area, so that no single landowner has a monopoly of the designated land. Otherwise the impact of development areas is likely to be a windfall gain to land owners, which at the same time imposes excessive costs on potential aquaculture operators.

Development areas involve a trade-off between biosecurity and efficiency of operations. Closer clustering of operations leads to greater efficiencies, but biosecurity considerations suggest there should be a minimum distance between aquaculture operations. DAFF has indicated that it is aware of these considerations, and has taken them into account in its preliminary work.

Development areas need to take into account the area required for settlement ponds, processing operations and similar. The QCA understands that production ponds generally take up 60 per cent of the area of an aquaculture operation.

Environmental considerations

A critical component of the assessment process is to demonstrate the ability of the receiving environment to assimilate waste products from proposed aquaculture operations without significantly affecting the ecological functioning of coastal ecosystems and adjacent waterways. This is part of the second step, and there has been significant stakeholder discussion about the availability of necessary information. It is possible that information exists for some specific areas, but most potential sites will require a monitoring program of 16—24 months' duration (GBRMPA, pers. comm., 16 May 2014).

The aquaculture development area should also address issues of groundwater quality, to avoid future litigation risk. The QCA is aware, for example, of controversy surrounding the possible impact of the Alva Beach prawn farm on the salinity of groundwater used for irrigation by neighbouring sugar cane farms. When the Commonwealth Scientific and Industrial Research Organisation (CSIRO) undertook a study to determine whether the prawn farm had had an impact, it was unable to reach a definitive conclusion because there was no baseline information on groundwater quality before the establishment of the prawn farm (CSIRO 2006). Collecting such information would allow speedier and more definitive resolution of possible disputes with neighbouring landholders once an aquaculture operation is established. Collection of this information should also provide a degree of assurance to neighbouring landholders that any damage caused by an aquaculture operation can be quickly detected, quantified, rectified or compensated as necessary.

Groundwater data could be collected as part of the process of creating the development area, or they could be collected by the proponent as part of the development application. The first option could involve a larger than necessary expense, since groundwater data would be collected for the whole development area, which will be larger than the eventual operations

area. The second option would entail a smaller expense, but could introduce a delay into the development application process.

Another option suggested in stakeholder discussions was to specify construction parameters for saltwater ponds to ensure no seepage of salt water. The QCA is generally not in favour of regulatory solutions based on inputs rather than outputs. It is also not certain that neighbouring landholders would consider this to be a sufficient safeguard in the absence of data on groundwater quality.

Administrative considerations

The process of creating aquaculture development areas will probably need to include input from local government, DAFF, DSDIP, DEHP, DNPRSR, GBRMPA, and the DOE. DAFF would seem well placed to be the lead agency in the process.

Creation of development areas is a relatively complex process, involving cooperation between a number of agencies, including Commonwealth government agencies. In order to ensure that development area creation does not stagnate, the government should set measurable goals.

Terrestrial aquaculture operations in Queensland cover around 1,900 hectares (Jacobs SKM 2014). As previously discussed, the proposed Guthalungra prawn farm has a pond area of around 260 hectares, and a total site area of around 400 hectares (Coordinator-General 2008).

In discussions, GBRMPA has noted that collection of receiving environment water quality data to underpin the creation of development areas will take 16-24 months (GBRMPA, pers. comm., 16 May 2014).

The QCA considers that a reasonable milestone is to aim for the creation of one or more aquaculture development areas allowing for 450 hectares of aquaculture operations within two years of the government's response to this review's recommendations. As a matter of context, the Guthalungra project consists of three discrete stages, so the target of 450 hectares could result in a number of variants:

- One development area containing one farm of 450 hectares.
- One development area containing multiple farms with a total area of 450 hectares.
- A number of development areas containing farms with a total area of 450 hectares.

Input from industry stakeholders should clarify which of these variants is preferable, particularly once specific locations have been identified.

The recent history of aquaculture projects in Queensland, and the large number of agencies involved, suggest that there is a high risk of slippage in a program stretching over two years. The milestone is more likely to be met if the government specifies progress reporting at reasonable intervals, such as every six months. If the progress reports are public documents, the process will be more transparent, and there will be more pressure to address any slippage.

As noted above, 450 hectares of aquaculture operations will require a development area of some multiple of that number, to ensure that landholders in a specific location do not have a monopoly on investment-ready land.

GBRMPA and DAFF have pointed to the existence of unused prawn farm and barramundi farm licences. There is a lack of clarity about the reasons for these farms ceasing (or not commencing) operations. It is possible that their locations were not suitable, or that they were too small to be viable. It is also possible that they are not operating for other reasons, and that they are nonetheless an indicator of a good location for aquaculture development zones. The

creation of aquaculture development areas should include investigation of unused aquaculture sites, both to gain a better understanding of factors affecting viability, and as a possible way of finding good sites for development areas. It is possible that some suspended operations obtained water quality data as part of their licensing process, which would be of assistance in this process.

Creation of aquaculture development areas is an expensive process, particularly in the latter two stages. The financing of this process is beyond the QCA's terms of reference, but discussions with stakeholders have touched on a number of options:

- Cost recovery as part of the licensing process.
- Application of Northern Australia development funds. It is noteworthy that the Commonwealth Parliament's Joint Select Committee on Northern Australia recommended in September 2014 that the Commonwealth Government 'facilitate the development of the aquaculture industry in Northern Australia by improving the regulatory framework' (Parliament of Australia 2014). It is uncertain to what extent this might lead to at least partial Commonwealth funding of regulatory reform in Queensland.
- A one-off contribution from general revenue, with the expectation that the resulting economic development will benefit all Queenslanders, and will eventually lead to increased government revenue.

The QCA understands that creation of aquaculture zones in Tasmania and South Australia is at least partially financed by their respective governments. In those states, there are few alternative uses of the marine resource and creation of aquaculture zones stimulates economic activity. However, terrestrial aquaculture in Queensland competes with other potential uses of the land. Creating development areas at government expense (without cost recovery) would amount to a subsidy for aquaculture at the expense of competing uses of the same resource.

Even with cost recovery, it is likely that creation of aquaculture development areas will require additional resources at the outset. The process involves a number of agencies, and possibly external expertise for tasks such as water quality testing.

There is also the risk that there will be little commercial interest in developing aquaculture operations in the development areas. In discussions, stakeholders have pointed to the GSRMAP as a cautionary example, as there has been limited interest in taking up available leases. Firstly, it is possible to mitigate this risk by ensuring industry input in the process. Secondly, as discussed in Chapter 3, this should be viewed in the context of the asymmetric risk of reforming or not reforming aquaculture regulation. A lack of reform may lead to a large potential being unrealised, while reform followed by lack of commercial interest results only in the loss of the resources assigned to the reform.

Potential constraints

It is worth noting that aquaculture development areas will only offer a solution if their discharge conditions and offset prices are within feasible limits. For example, in its submission to this review, GBRMPA (2014b) estimated that 'the investment required to offset 26 tonnes of nitrogen from catchment based sources could be in the range of $6,000 to $120,000 depending on the location and type of offset applied'. In discussions, industry stakeholders have commented that costs at the high end of this range would be likely to affect project viability. Uncertainty about offset prices would present a major risk for investors. Ideally, development areas should be located where offsets are affordable, and the likely range of offset prices should be known in advance. Further discussion of this issue is in Chapter 8.2.

DAFF's mapping of potential aquaculture locations has shown that the choice of locations could be severely restricted by declared Fish Habitat Areas (FHAs). Declared FHAs cover over one million hectares (DAFF 2012) of Queensland waters, and are often adjacent to potential aquaculture sites. The majority of declared FHAs are classified as management A areas, and this category does not allow the construction of aquaculture intake or discharge structures. This means that properties adjacent to these declared FHAs are not able to be used for aquaculture unless they are able to establish intake and discharge structures at some other location.

Discussions with DNPRSR have offered a potential solution to this problem. When creating declared FHAs, DNPRSR conducts a comprehensive consultation and is careful to design their boundaries to cater for proposed new or expanded intake and discharge structures. It also ensures that existing structures are able to be maintained. DNPRSR is able to alter existing declared FHA boundaries to accommodate new structures. However, this is a relatively difficult process requiring significant justification and legislative change. For this reason, DNPRSR prefers to avoid this course of action. At the same time, DNPRSR can see some benefit in concentrating aquaculture activity in specified development areas, informed by a rigorous planning process. During the creation of the area, it would be feasible to modify a declared FHA boundary to provide the area with intake and discharge structures. This is more efficient than undertaking the task numerous times for individual operations outside a development area. However, some thought will need to be given to the feasibility of more than one operation sharing use of a structure. Alternatively, the fact that a development area has only one intake and one discharge structure would be an incentive for the whole area to be occupied by a single company. Where single intake and discharge structures are not feasible, development area planning could be used to identify a limited number of suitable intake and discharge locations for an area to inform any proposed changes to declared FHA boundaries.

Options

There are three broad options for creating terrestrial aquaculture development areas, each with varying degrees of certainty for investors.

One method is the identification of physically suitable but non-statutory areas where aquaculture may be allowed to proceed subject to approvals. Under this scheme, the onus is placed on the proponent to demonstrate the environmental impacts are acceptable, and navigate the approvals process with inputs from eight government organisations. This approach provides little or no improvement on the regulatory status quo, as it leaves proponents exposed to an unknown amount of regulatory risk. Under this scenario, a development would be '*impact assessable*'.

The second approach is the identification of physically suitable statutory development areas. These areas would include aquaculture as an acceptable land use, but would still require local and state government planning approvals in order for developments to proceed. Investor risk would be reduced significantly by using a pre-determined set of criteria to assess a development application. Under this scenario, a development would be '*code assessable*', and governments could use a model planning scheme code that would, to a large extent, standardise procedures in different locations.

The third approach is the identification of pre-approved statutory development areas. Under this variant, aquaculture developments would be automatically approved as long as they met pre-determined criteria. Proponents would not need to seek local or state government approval, meaning that a development would be '*self-assessable*'.

Table 8 summarises the relative merits of options 2 and 3.

At first glance, option 3 appears to provide most certainty to proponents, as a project requires no development assessment. However, in practice this approach would entail more prescriptive and intrusive regulation. In order to ensure protection of environmental values, regulators could only allow self-assessment if the development area specifications included detailed operational parameters. The most serious consequence of this approach would be a stifling of innovation, as the operational parameters would necessarily be set to reflect existing technology and practices, and would not be able to anticipate future advances. The QCA is conscious of the industry's need for constant innovation in order to remain competitive, so considers any limitation on innovation to be a major concern.

Table 8 Merits of code assessable (option 2) and self-assessable (option 3) area development

Consideration	*Option 2. Code-assessable*	*Option 3. Self-assessable*
Certainty	Proponent has less certainty at beginning of development application process, but more certainty once development is approved.	Proponent is able to develop project without delay. However, once development is complete, proponent is exposed to greater risk, since the operational parameters have not been tested. Risks only become apparent after the investment has been made.
Flexible/prescriptive code	Code can be high-level and flexible, specifying outcomes rather than procedures. Procedures for each project can be assessed as part of development application.	Code must be detailed and prescriptive, to avoid undesirable consequences. Regulators will be tempted to include catch-all clauses in order to retain some discretion, which will have the effect of increasing uncertainty for the proponent.
Community concerns	Community concerns can be assessed (and addressed) as part of the development application process.	Community concerns only become apparent after the project has commenced. Major concerns may trigger litigation or ad hoc government intervention. For example, the Armstrong Beach project, where community concern triggered first Commonwealth intervention (DOE 2000).
Innovation	Outcomes-based code allows proponents to use innovative procedures.	Prescriptive code limits innovation. This limits productivity growth, and may perversely result in worse environmental outcomes if proponents are not able to adopt newer low-impact procedures.
Litigation	Litigation is likely to occur at the start of the process, if the aim is to challenge the validity of the process. Litigation is more likely to target regulators rather than the proponent.	Litigation can occur at any point, once impacts are more apparent. Proponent is more exposed once the investment has been made.
Enforcement/ audit	Enforcement and audit focus on outcomes, so are less intrusive.	Enforcement and audit cover both outcomes and procedures, so are more expensive and more intrusive.

Other consequences of a self-assessable approach would include a need for more intrusive audit and enforcement, to ensure that operators are complying with pre-set operational parameters. The self-assessment approach would also raise the risk of litigation in response to community concerns, as these concerns could not be assessed and addressed as part of the process of assessing a development application. In the worst case, it could lead to pressure for ad hoc government intervention. In the course of discussions, many stakeholders have raised

the precedent of the Armstrong Beach prawn farm, whose development permit did not address community concerns. In response to the Armstrong Beach development, the Commonwealth introduced specific regulations covering terrestrial aquaculture in Queensland, which had previously been a matter for the Queensland government (DOE 2000).

By contrast, option 2 allows a more flexible approach that deals with risk at the start of the process. Because a development will go through an assessment process, the applicable code can focus on outcomes, and allow regulators to assess whether the proposed development is likely to satisfy those outcomes. If there are major community concerns, the development can be approved subject to conditions to address those concerns. The proponent does not have absolute certainty about the outcome of the assessment process, but has the advantage of dealing with the uncertainty at the start, before major capital expenditure takes place.

Given the considerations set out above, the QCA considers that option 2, a code-assessable development process, is the preferable option for aquaculture development areas.

Development areas can either be created through a 'big bang' approach, where the whole of Queensland is assessed and graded, or through an incremental approach, commencing with the most prospective areas and working through other areas over time. The QCA considers that the incremental approach is more likely to deliver results in a reasonable time. Because of information gaps (particularly regarding water quality), it is not possible to assess the whole of Queensland immediately.

The QCA's recommended approach is consistent with the State Assessment and Referral Agency (SARA) model that has been applied by the Queensland government to other development proposals. As clarified below in Chapter 8.3, the QCA's approach is to maintain existing administrative responsibilities, and apply them to the creation and administration of aquaculture development areas.

Codes as a clearer process for regulatory approvals

Approvals required to establish and operate an aquaculture facility fall into three broad categories: access/land tenure, development, and operations. In order to ensure that developments are fully code-assessable the applicable code needs to cover all three areas. Alternatively, separate codes should be developed for each phase of approval. The choice between these alternatives is a practical matter to be resolved by the agencies creating the codes. One code for each development area has the benefit of simplicity. On the other hand, separate codes may be of benefit if different agencies have primary carriage of the three approval stages, with each agency able to exercise greater ownership of its portion of the process. Precedents for such codes include:

- For access (e.g. access across neighbouring land for water intake and discharge), a precedent is the Queensland Land Access Code. The purpose of the Land Access Code is to foster good relationships between the agriculture and resources sectors, and the code aims to achieve this by specifying best practice guidelines for communication, and by specifying conditions related to authorised activities on private land (DEEDI 2010).
- For development, precedents are the State Development Assessment Provision (SDAP) and the Queensland Development Code (QDC). Both codes cover performance criteria and acceptable outcomes required for a development approval. The SDAP module for aquaculture is particularly relevant (DSDIP 2014b).
- For operations, useful precedents are the Model Operating Conditions applied to Environmental Authorities (EA), and the Prawn Operational Policy (DEHP 2013a). Both codes

provide investors with an indication of operational conditions likely to be imposed on their projects.

Regulatory constraints on aquaculture projects are generally site-specific, due to variations in key environmental factors such as existing water quality or proximity to residential housing. As a result, each development area requires its own specific code, rather than a generic code.

The code for each development area needs to specify as many parameters as possible in order to give investors maximum knowledge about likely costs and constraints. Previously proposed developments have encountered difficulties and delays largely because of undefined parameters. Based on extensive discussions, the QCA considers that essential parameters for a code include the following:

- The species that can be farmed in the development area.
- The maximum load and concentration of nutrients and suspended solids that can be discharged each year from the development area.
- The amount of environmental offsets required to offset the permitted discharge of nutrients and suspended solids.
- Approved locations for water intake and discharge structures.
- Construction conditions related to matters such as acid sulphate soils, impact on threatened species, clearance of native vegetation and impact on marine plants.
- Operational restrictions such as disease management precautions, noise restrictions, setback from residential housing, traffic restrictions, and permitted hours of operation.

WWF has suggested that development area codes should adopt 'ASC [Aquaculture Stewardship Council] standards or better for those species where the standards exist, or to use the standards as a reference point where ASC standards are currently not available' (WWF 2014). In discussions, WWF has noted that ASC standards are increasingly being adopted by large retailers, so their application to development areas would be a step towards standardisation of operating conditions. The technical details of eventual codes are beyond the scope of this review. The QCA also has reservations about effectively legislating a standard developed and maintained by a non-government organisation (in this case WWF and its partners).

Stakeholder submissions

Issues paper

Stakeholder submissions and discussions in response to the issues paper broadly supported the creation of development areas as a mechanism to facilitate the expansion of aquaculture activities. Consistent with previous terminology, most stakeholders referred to 'zones' or 'overlays'.

- APFA (2014b) suggested that aquaculture zones should be developed along the same principles applied to strategic cropping areas under the *Strategic Cropping Land Act 2011*.
- ABFA (2014) supported the concept of overlays in principle as long as the industry is consulted on selected areas during the development of zoning.
- DAFF (2014) indicated that aquaculture planning such as the Great Sandy Regional Marine Aquaculture Plan (GSRMAP) would address many of the critical issues associated with development assessment process.

> *Up-front identification of sites by government, as evident in other States, would address many of the critical issues applicants currently face throughout the assessment process. The identification of appropriate sites would provide an opportunity to address both state and Commonwealth regulatory requirements and provide greater certainty for investors establishing new aquaculture developments (DAFF 2014).*

Some stakeholders also expressed reservations about aquaculture zoning:

- GBRMPA (2014b) stated that despite DAFF's extensive study to identify suitable locations for aquaculture development, DAFF did not assess the final impact of potential developments on the GBR catchments, as it did not:

  > *...demonstrate the ability of the receiving environment to assimilate the discharge of waste products from any proposed facilities (GBRMPA 2014b).*

- APFA (2014b) observed that the lack of interest of investors in aquaculture development in the areas under GSRMAP is due to the fact that it only allows extensive aquaculture, while 'Queensland's traditional strengths are in prawns and barramundi'. Furthermore, it noted that if zoning only 'addresses 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'.

- Grofish Australia (2014) highlighted a range of potential problems associated with zoning including the inflated cost associated with acquiring suitable sites, concentration of aquaculture activities in restricted areas which has a major impact on the environment, and the fact that zoning is a time consuming process that doesn't necessarily lead to development.

- NPRSR (2014) stated that the restrictions placed on aquaculture developments in the state marine protected areas need to be taken into account, including:

  > *Aquaculture is not permissible in management A declared FHAs (DNPRSR 2014).*
  >
  > *While aquaculture can be approved in management B declared FHAs, NPRSR policy only supports construction of intake/discharge structures for land-based aquaculture operations (DNPRSR 2014).*
  >
  > *State marine park zoning plans, in general, prohibit the addition of feed for aquaculture operations. While an application could be made to operate a feed-based aquaculture facility in the Great Barrier Reef area, the proponent would need to demonstrate that the operational procedures and technologies employed would substantially mitigate any ecological risk arising from the operation (DNPRSR 2014).*

Draft Report

As with the submissions in response to the issues paper, stakeholders are broadly in favour of the creation of development areas to facilitate the expansion of aquaculture activities.

- APFA (2014c) endorsed the use of GIS modelling to identify suitable aquaculture sites. It stated that a proposal[5] jointly submitted for the Ag North Cooperative Research Centre (CRC) by the James Cook University, Queensland University of Technology and CSIRO could serve as a comprehensive method to identify prospective aquaculture sites.

  Furthermore, APFA noted that:

[5] The proposal is entitled 'Regulatory reform, spatial planning and enhanced investment to secure quality aquaculture outcomes across Northern Australia'

> *when identifying suitable aquaculture sites, there is a need for this to be done in conjunction with provision of a more predictable and transparent regulatory approvals process, one that is linked to set time lines for all agencies involved in approval processes, including the Commonwealth (APFA 2014c).*

APFA highlighted the need to investigate the assimilative capacity of suitable aquaculture areas identified as part of the GIS mapping process.

- Seafarms Group (2014b) supported the creation of development areas but noted that 'the need to achieve commercial scale may lead to a single company becoming majority operator of suitable land within a designated aquaculture development area'.
- DEHP (2014b) supported the recommendation to develop development areas with clear regulatory conditions set in public codes:

> *I envisage that the most appropriate mechanisms to set environmental standards in the development areas will be through a combination of model operating conditions and an operational policy (DEHP 2014b).*

Moreover, DEHP emphasised that the major environmental concern with aquaculture activities relates to assimilative capacity of the receiving environment to accept additional nutrients and sediment without affecting its environmental values. DEHP stated:

> *The key environmental issue with aquaculture facilities relates to whether the receiving environment has the assimilative capacity to accept the additional nutrients and sediment without affecting environmental values. As discharge limits are guided by the Environmental Protection (Water) Policy 2009 and healthy waterways management plans, it will be important to consider the net assimilative capacity and water quality objectives of the receiving environment when identifying development areas and setting discharge limits (DEHP 2014b).*

- GBRMPA (2014c) supported the recommendation for the identification of development areas:

> *Identification of these areas must include a full assessment of the ability of the receiving environment to assimilate aquaculture waste discharge without significantly impacting on the form and function of these aquatic ecosystems (GBRMPA 2014c).*

- WWF (2014) agreed with the creation of development areas, noting that the areas must consider the short, medium and long terms targets of the 'Reef 2050 Long Term Sustainability Plan'. It stated that the GSRMAP could serve as an example of how development areas can be developed and accredited by the relevant Queensland and Commonwealth agencies.

  WWF questioned the 450 hectare target, but stated that codes could go some way to addressing its reservations:

> *WWF questions the basis of this target, particularly its sustainability. Given the current level of nutrient pollution to the GBR is known to be unsustainable (WWF 2014).*
>
> *The development of 'codes' could go some way to addressing this issue if those codes included no net increase in nutrients and other suitable mitigation of other potential impacts, as minimum requirements (WWF 2014).*

  WWF proposed that development area codes should adopt the certification standards established by the Aquaculture Stewardship Council (ASC), an organisation co-founded by the WWF. For those species where ASC standards are not available, WWF suggested that ASC standards should be used as a reference point.

  WWF also stated that future aquaculture developments should be required to be consistent with ASC standards:

> *..... future aquaculture developments should be developed to be consistent with the Aquaculture Stewardship Council (ASC) standards and be required to implement the accreditation process. By developing to these standards or greater, the Queensland aquaculture industry will ensure appropriate standards of environmental management are adhered to and also enhance market access to key retailers who are implementing sourcing programs to meet increasing consumer demands for sustainably sourced seafood (WWF 2014).*

In addition WWF stated 'the code needs to specify details in relation to the genetics of the species being farmed based on current best practice understanding of risks to local genetic biodiversity'.

In relation to construction conditions, WWF submitted that best practice construction practices should be required for pond construction, water management, fish processing plants and fish husbandry within development areas.

- NPFI (2014) supported the creation of development areas with public codes applicable to each area. It recommended a 'risk-based' approach be adopted to identify suitable sites and determine the sustainability of the proposed target to create development areas enabling 450 hectares of aquaculture operations.

> *NPFI recommends that a 'risk-based' approach should be taken to identify appropriate areas, including through Environmental Impact and Risk Assessment processes. NPFI recommends that a 'risk-based' approach should be taken, including through Environmental Impact and Risk Assessment processes EIS, to determine whether the proposed 450 hectares target for aquaculture development is sustainable (NPFI 2014).*

- Cairns Regional Council (2014) supported the notion of development areas with public codes and noted that further work will be necessary to incorporate other important considerations. It stated that:

> *To support this notion, further work could be done to identify suitable aquaculture sites in the Cairns Region..... The report and associated mapping should identify and provide further guidance on the appropriate integration of other important considerations such as: avoiding the fragmentation of rural land; minimising of adverse off site impacts; avoiding conflicts with surrounding land uses; and access to infrastructure networks (Cairns Regional Council 2014).*

- Isaac Regional Council (2014) broadly supported the creation of aquaculture development areas and stated that:

> *Aquaculture development presents a key economic diversification opportunity for the Isaac LGA. Council recognises the economic benefits to the regional economy and reduction in pressure on wild fish stocks, and broadly supports the creation of land based aquaculture development areas to facilitate investment in the Isaac region. The coastal strip of the Isaac LGA hosts one aquaculture operation (prawn farm) at present, with opportunity for further development along the remainder of the regions 100 kilometres of sparsely populated coastline. The coastal strip of the Isaac LGA has access to supply of both salt and fresh water and existing rural blocks of a size suitable to aquaculture operations (Isaac Regional Council 2014).*

- The Gold Coast City Council (2014) and the Burdekin Shire Council (2014) noted that consultation will be necessary to accommodate local planning provisions and maintain effective environmental protection.

  The Gold Coast City Council stated that:

> *..... it is also the City Officers view that, as is referenced in the QCA Draft Report, a proper and complete process of engagement between the state agencies and local governments must be undertaken to ensure that any new code produced specifically for the aquaculture industry accommodates all necessary local planning provisions. The City Officers support the QCA proposal to form a working group to resolve a new code for this valuable industry because*

> *enhancement of aquaculture in the City of Gold Coast would accord with the policy of council to enhance and diversify industry and boost economic growth (Gold Coast City Council 2014).*

Burdekin Shire Council submitted that:

> *...[Council] agree strongly that a clear 'code for assessment' of development applications needs to be developed with the involvement of all three tiers of Government and any other stakeholder that can contribute towards achieving acceptable outcomes for all parties. The code needs to identify acceptable 'methodology techniques' to ensure that modelling and testing of any ponds associated with land-based aquaculture development is achievable to the developer and acceptable to adjoining landholders. The adopted methodology needs to be comprehensive enough to ensure that any action whereby salt water may negatively impact on surrounding land uses, including aquifers, can be managed effectively. (Burdekin Shire Council 2014).*

- Douglas Shire Council (2014) raised concerns about the possibility of having certain aquaculture activities exempted under the SP Act or regulated solely via a State Code, which would not adequately consider the Council's unique environmental concerns. It emphasised the need for consultation with local governments.
- Mackay Regional Council (2014) questioned if the creation of development areas will stifle innovation within the aquaculture industry:

> *By limiting Aquaculture development to particular 'suitable' lots at the time of the review, may lead to the perception that other areas are not suitable. Impact assessable applications in rural areas may be able to demonstrate how aquaculture can be accommodated on a particular site by addressing the impacts on surrounding areas. The identification of specific areas may further reduce future opportunities for innovation of new Aquaculture development outside of such ADAs and changes in market conditions.*
>
> *It is recommended that the identified sites be provided to local councils for consideration in planning scheme reviews. Planning schemes should provide for appropriate provisions to enable such development to occur (Mackay Regional Council 2014).*

Mackay council raised further questions on how to integrate the creation of development areas into local government planning schemes.

> *Uncertainty is raised with regards to: how ADAs will be integrated or implemented through local planning schemes; what impacts this will have on the drafting phases of and/or adopted new local planning schemes; and the level of regulation imposed on Local Governments to map ADAs in local planning schemes(Mackay Regional Council 2014).*

- Andrew Hamilton (2014) generally agreed with the creation of development areas and suggested that some development such as a hatchery and recirculating system could be subjected to a self-assessable framework, while others could be assessed under a code.

Recommendation

- **To assist investors with identifying prospective aquaculture sites, the QCA recommends that the Queensland Government create terrestrial aquaculture development areas.**
  - **The QCA notes that the Queensland Government has already undertaken some development work.**
  - **Broad community and industry consultation will be essential, as will support from relevant local, Queensland, and Commonwealth government agencies.**
  - **An audit of approved but unused sites may assist in the early identification of development areas.**
  - **The aquaculture development area should address issues of groundwater quality, to address future litigation risk from neighbouring landholders concerned about the impact of saltwater aquaculture ponds.**

Recommendation

- **The QCA recommends that the Queensland Government set a target for establishing aquaculture development areas.**
  - **The target could be the identification of development areas enabling 450 hectares of aquaculture operations within two years of the Queensland Government's response to the QCA's recommendations. Public reporting of progress against this target could be provided at six-monthly intervals.**

Recommendation

- **The QCA recommends that development applications in terrestrial aquaculture development areas be assessed against public criteria set out in a code applicable to each area. The code would address key issues such as:**
  - **The species that can be farmed in the development area.**
  - **The maximum load and concentration of nutrients and suspended solids that can be discharged each year from the development area.**
  - **The amount of environmental offsets required to offset the permitted discharge of nutrients and suspended solids.**
  - **Approved locations for water intake and discharge structures.**
  - **Construction conditions related to matters such as acid sulphate soils, impact on threatened species, clearance of native vegetation and impact on marine plants.**
  - **Operational restrictions such as disease management precautions, noise restrictions, setback from residential housing, traffic restrictions, and permitted hours of operation.**

8.2 Environmental offsets

Background

The Queensland Government is committed to an 'avoid, mitigate and offset' framework as a way of managing the environmental impact of development projects (DEHP 2013b). Environmental offsets are a mechanism to compensate for adverse residual impacts of development proposals, when the 'avoid' and 'mitigate' strategies are not sufficient. The Queensland offsets framework is in transition from a notably complex system to a more streamlined approach.

In the past, offset requirements could be imposed by the Queensland Government through any one of the five offset policies in place, or by the Commonwealth Government under the EPBC Act, or by the local government under the SP Act for the same impact. This meant that an offset condition imposed by the Commonwealth could supersede, or be an additional requirement to, Queensland Government offset conditions. Offsets were set on a case-by-case basis. This framework had obvious inefficiencies and did not provide proponents with the certainty to make investment decisions. The degree of uncertainty is demonstrated by the range of costs suggested by GBRMPA: between $6,000 and $120,000 for 26 tonnes of nitrogen (GBRMPA 2014b).

The complexity of the Queensland offsets framework was the subject of comment by the Commonwealth's Productivity Commission and the DEHP:

> *Environmental offset policies may be imposing unnecessary costs on the community, and failing to deliver on their objectives (Productivity Commission 2013).*
>
> *Multiple policies have led to an inconsistent, complex and onerous regulatory framework with little coordination in the assessment and delivery of environmental offsets across the state (Queensland government 2014b).*

In response to such concerns, the Queensland Government introduced the *Environmental Offsets Bill 2014* to establish a more consistent and coordinated framework for offsets. The Bill consolidates the five existing Queensland policies and removes duplication between Queensland and Commonwealth environmental assessments. The Bill establishes the Queensland Environmental Offsets Policy as a decision-making support tool for regulators. However, the Policy is of limited relevance to this review, as it does not cover discharge of nutrients and suspended solids into the marine environment. The regulation of those discharges is a Commonwealth matter, particularly in any waterway adjacent to the GBR.

The Reef Trust, a joint Commonwealth and Queensland initiative, is more relevant to this review. Part of the Reef Trust's funding will be derived from offset payments, and will be applied to projects aimed at improving water quality and coastal habitat (Hunt2013b). While arrangements are not yet finalised, the QCA understands that they are the subject of negotiations between the Queensland and Commonwealth governments. Depending on the outcome of these negotiations, the Reef Trust is likely to offer financial offsets, allowing an aquaculture proponent to offer a known sum of money to offset a certain tonnage of nitrogen, phosphorus or suspended solids.

In 2014, GBRMPA released the final report, 'Great Barrier Reef Region Strategic Assessment — Program Report', which proposed a number of initiatives including a net benefit policy (GBRMPA 2014a). This means offsets and additional activities will need to deliver a positive impact, to halt and reverse water quality impacts in the GBR. The Commonwealth Minister for the Environment has recently interpreted this requirement to mean a 150 per cent offset (GBRMPA 2014b). The actual cost of an offset varies. GBRMPA's submission to this review

suggests that the cost to offset 26 tonnes of nitrogen could be in the range of $6,000 to $120,000. The cheapest offsets are likely to be found in catchments with poor farming practices, where it is relatively cheap to improve farm performance. Catchments with best practice farming will have the most expensive offsets.

GBRMPA also specifies that offsets should be as close as possible to the impact that is being offset, and should be sought according to the following hierarchy:

- same local government area
- same sub-region
- same bio-region
- adjacent bioregion.

There is a risk that this type of hierarchy, if applied inflexibly, is likely to restrict the range of possible locations for aquaculture.

Submissions and discussions with stakeholders

Issues paper

In response to the issues paper, the aquaculture industry has expressed strong reservations about the implementation of offsets to halt and reverse water quality impacts in the GBR. The industry argues firstly on the grounds of equity: why should aquaculture be compelled to use offsets when neighbouring agricultural activities do not? The industry's other, and more significant, concern is that offsets present the risk of becoming yet another complex and costly regulatory requirement.

- APFA (2014b) stated:

  > *Aquaculture farms should not need to consider any offsets at all...according to respected science none is required for prawn farming activities within an estuarine environment (APFA 2014b).*
  >
  > *Offsets are not being considered for new developments in other agricultural enterprises, not just existing enterprises. This is neither equitable nor logical from a GBR management perspective (APFA 2014b).*
  >
  > *If this policy is developed per GBRMPA's zero net discharge with offsets agenda, our industry will not expand (APFA 2014b).*

- ABFA (2014) stated:

  > *The original conversation with respect to this review was around setting up a new reduced regulatory framework. However zero net discharge and offsets are now appearing in every document that is being generated through this process. Far from reducing burden it appears there will just be another added, which will not encourage industry development, but stifle it further (ABFA 2014).*
  >
  > *It may be seen by regulators as a simple accounting approach to dealing with complex systems, but to industry it is just another ill thought out environmental tax - like the Carbon Tax ...if an offset approach is taken, operators in the aquaculture industry should be exempt, or provided with no cost offsets (ABFA 2014).*

- Grofish Australia (2014) stated:

  > *Offsets should have a clear and reasonable basis for their imposition and be codified such that they can be incorporated on a justifiable and equitable basis. Thus the proponent will know ahead of time, what the offset for a given impact is likely to be rather than having it "made up on the run" as is current practice (Grofish Australia 2014).*

> *It would pose a fundamental injustice where one industry, which is relatively clean and utilizes high levels of technology is paying for an arguably dirtier industry generally utilizing lower levels of technology simply because it's nutrient input can be measured easily (Grofish Australia 2014).*

However GBRMPA (2014b) was in favour of offsets:

> *In order to achieve a net benefit, an environmental offset in excess of 100% would be required. The Australian Government's Minister for the Environmental has recently interpreted this requirement to mean a 150% offset...the investment required to offset 26 tonnes of nitrogen from catchment based sources could be in the range of $6,000 to $120,000 depending on the location and type of offset applied (GBRMPA 2014b).*

Draft report

The draft report recommended that the Queensland Government provide potential proponents with the maximum possible certainty about the future price and availability of offsets.

- As with its response to the issues paper, APFA (2014c) expressed strong reservations about the implementation of offsets, stating that:

  > *Prawn farms practice environmental offsets on a daily basis. Most farms have set aside approximately 30% of productive farm area as settlement systems, science undertaken when farms were initially developed in Australia suggested that this was the best method of mitigation, capturing nutrients and allowing them to settle prior to discharge of water.*
  >
  > *Whilst the concept of the Reef Trust as a mechanism for delivering offsets would be the preferred method, the APFA would like to reinforce that this should be done across all new industries that contribute to nutrient loads in the GBR. If this is done equitably across all new developments then the likely costs involved will be more viable (APFA 2014c).*

  APFA supported the need for the Queensland Government to provide potential proponents with the maximum possible certainty about the future price and availability of offsets, should offsets be implemented.

- Andrew Hamilton (Hamilton 2014) also expressed strong reservations about offsets on the grounds of equity.

  > *How can industries with similar impacts to aquaculture either not be required to participate in an offset program at all or have differing requirements to that of aquaculture and even aquaculture developments of similar natures have such a greatly varying range of investment ($6000 - 120,000)? How does this create a stable platform with which to encourage investment? (Hamilton 2014).*

- NPFI (2014) supported a 'mandatory requirement for environmental offsets for all existing and future aquaculture development'.

- Seafarms Group (2014b) supported the QCA's recommendation, noting that 'a consistent offsets framework is a desirable goal'. However, it also noted that:

  > *"point source" measurement of aquaculture waste water means that regulators might be likely to continue their focus on aquaculture, rather than on larger scale, or more polluting, non-point source operations. This would see aquaculture continue being placed at a comparative disadvantage compared to other industries (Seafarms Group 2014b).*

Options and considerations

Offsets can be a good mechanism to facilitate development while preserving environmental values. However, offsets can be a barrier to development if their price and availability are unknown. The Queensland Environmental Offsets Policy seeks to resolve this through an offsets calculator (DEHP 2014a). While this calculator covers marine triggers such as marine plants, declared FHAs and state marine parks, it does not incorporate marine discharge impacts.

As stated by GBRMPA, the cost and availability of offsets is location-specific. In addition, the cheapest offsets are likely to be exhausted first, leading to a gradual rise in their price.

One option for consideration is the status quo, where aquaculture proponents negotiate a level of offsets for their project, and then negotiate the acceptability of offset projects. The QCA considers that this is not a satisfactory approach, due to its inherent uncertainty. The QCA understands that this approach has been a contributing factor in the extremely slow approvals process for the Guthalungra project.

Another option is for the Queensland Government to reduce uncertainty by offering offsets at a fixed price, known in advance. In order to do this, the government would either first need to purchase the offsets, or to bear the risk of its eventual acquisition price being higher than the fixed price at which it undertakes to sell to proponents. Either course of action suggests a greater than ideal involvement of government in commercial decisions and activities.

A better alternative is for proponents to use offset arrangements likely to be introduced as part of the Reef Trust. This approach requires little further action from the government beyond confirming with the Commonwealth that aquaculture operations will be eligible for Reef Trust offsets.

Recommendation

- **The QCA is aware of discussions between the Commonwealth and the Queensland governments to establish a consistent environmental offsets framework. The QCA recommends that the Queensland Government provide potential proponents with the maximum possible certainty about the future price and availability of offsets.**
  - **Mechanisms for providing certainty might include the provisions for financial offsets likely to be included in the Reef Trust.**

8.3 Who implements the reforms?

Background

Administration of aquaculture in Queensland is divided among a number of departments, with significant involvement by DAFF, DEHP, DSDIP, DNPRSR and the Queensland Coordinator-General. In addition, there is a further layer of Commonwealth regulation involving mainly GBRMPA and the DOE.

This review has had extensive discussions with the relevant Queensland government departments, and has gained the impression that they have a generally good working relationship arising from many years of shared experience. The creation of the GSRMAP is an example of a project that required extensive cooperation and goodwill among these agencies (DEEDI 2011). In the absence of a formal template or set procedure, the agencies worked together to create a new regulatory framework.

However, the complex division of responsibilities does lead to inefficiencies and delays. Agencies have commented, for example, that the GSRMAP took longer to achieve than it might have done with more efficient arrangements.

At least one industry stakeholder has described the inefficiencies of existing regulatory arrangements as quite significant:

> *Negotiating a license ... required discussions and negotiations at times with 3 or 4 experts from 3 or 4 departments, many of whom didn't agree. Coming to terms with 3 or 4 people who are*

> *supposedly representing a government view and who don't agree is frustrating, expensive and at times absurdly comedic. Certainly, it doesn't engender a sense of confidence in the process on the part of the applicant (Grofish Australia 2014)*

Discussions with other stakeholders confirm that a proponent is likely to deal with a range of agencies, with no single agency having ownership of the overall assessment process.

The additional layer of Commonwealth regulation can further complicate matters. Industry stakeholders have frequently pointed to the Guthalungra project, where the Commonwealth regulatory process has imposed conditions additional to those imposed by Queensland regulators.

By contrast, Tasmania has much simpler arrangements. Aquaculture regulation is concentrated in one section of the Department of Primary Industries, Parks, Water and Environment (DPIPWE). This section is responsible for both development of new projects, and day-to-day regulation of existing operations[6].

Tasmania's arrangements are of particular interest to this review, as its aquaculture sector is six times larger than Queensland's, having grown at a compound annual rate of 14 per cent over the last decade (CIE 2013). This review has sought to discover any lessons that Tasmania may present when seeking to design an optimal system of regulation for aquaculture.

Tasmania has minimal involvement by the Commonwealth Government in assessment of development proposals. For example, the proposed expansion of aquaculture zones in Macquarie Harbour (adjacent to the Tasmanian Wilderness World Heritage Area) was referred to the Commonwealth Minister for the Environment for possible assessment under the EPBC Act. The Minister decided in 2012 that, subject to some minor conditions, the development was not of national environmental significance, which meant that further Commonwealth Government approval was not required (SEWPAC 2012b).

While the Tasmanian DPIPWE aquaculture section encompasses a broad range of responsibilities, its work entails a close working relationship with the Tasmanian EPA. The aquaculture unit cooperates with the EPA when establishing marine aquaculture zones. The EPA also has broad oversight of the environmental impacts of aquaculture, to mitigate any potential conflict of interest arising from the concentration of development and regulatory functions in one aquaculture unit.

South Australia and Western Australia have similar administrative arrangements to Tasmania, with aquaculture regulation concentrated in one administrative unit in their equivalent of Queensland DAFF. Western Australia does not yet have the full concentration of functions in one section, but is moving to implement this gradually.

At the same time, the arrangements in Tasmania, South Australia and Western Australia provide only a limited precedent for Queensland. The regulatory regimes in those states are designed mainly for marine aquaculture, while the dominant form in Queensland is terrestrial aquaculture. Marine aquaculture is generally outside the scope of the complex planning schemes applying on land, so its regulatory regime can be correspondingly simpler.

[6] DPIPWE is equivalent to a combination of Queensland's DAFF and DEHP, and the aquaculture function is located entirely in the DAFF portion of the department.

Submissions and discussions with stakeholders

Issues paper

Stakeholder submissions and discussions in response to the issues paper suggested no direct opposition to the idea of a single administrative unit responsible for aquaculture. However, a number of stakeholders commented that a single unit would only be effective subject to certain conditions:

- The Seafarms Group (2014a) stated that a single unit, combined with aquaculture zoning, 'is a step in the right direction. However it is important to note that these changes will have no substantive effect on facilitating the sustainable expansion of the industry whilst zero nutrient conditions for approvals remains in place for aquaculture ... [while] other coastal industries with diffuse source nutrient runoffs to coastal environments are not regulated within the same framework'.
- APFA (2014b) stated that a single unit would not work where aquaculture developments have an impact on the GBR, as this will lead to the involvement of Commonwealth decision-makers.
- ABFA (2014) supported 'the redistribution of responsibilities to the State for all Queensland waters', with state law to take precedence 'in any areas of overlap with other authorities'. The ABFA (2014) also supported the removal of 'GBRMPA veto powers to any changes to aquaculture policy ... in all State waters'.
- As previously mentioned, Grofish Australia (2014) has described the division of responsibilities as frustrating and expensive. Grofish Australia (2014) also commented that 'a single administrative unit focussed on aquaculture, without the support of a single piece of legislation is bound to fail'.

Draft report

In response to the draft report, some stakeholders expressed an opinion on the structure to implement this review's recommendations.

- APFA (2014c) expressed its preference for a dedicated aquaculture unit led by the DSDIP and proposed the establishment of both a dedicated unit and an industry advisory board.

  > *APFA strongly proposes that the lead agency [of the dedicated unit or task force] should be the Department of State Development Infrastructure & Planning as the whole review has been about development of the industry.*
  >
  > *There is a strong case for the APFA to make for the establishment of both a task force or better still an aquaculture industry based advisory board to oversight the work and progress of a dedicated aquaculture unit.*
  >
  > *Senior State Development and DEHP officers along with the DG of DAFF should be appointed to the advisory board, as well as a qualified legal practitioner.*
  >
  > *The APFA does not envisage an Advisory Board becoming a permanent fixture. Initial arrangements for establishing such a body should include a 'sunset clause' of say three years for winding it up. The Board should meet twice yearly or on request from the dedicated aquaculture unit on a needs basis (APFA 2014c).*

- Seafarms Group (2014b) stated that it 'agrees in general with the case made by QCA regarding the best structure to implement the review's recommendations'.
- Andrew Hamilton (2014) agreed in general with the need for a dedicated unit or task force but noted further that it has to 'be supported by specialist aquaculture legislation without

the interference of the Commonwealth especially in light of GBRMPA veto powers and their seeming anti-aquaculture stance'.

Options

Implementing the reforms set out in this report will require a coordinated effort from government agencies and the industry. Responsibility for developing and implementing the reforms needs to be clearly allocated by government. The major options are as follows:

- The status quo. This is not a desirable option, due to the inefficiencies identified by stakeholders.
- A task force, consisting of representatives of relevant agencies, dedicated to the implementation of regulatory reform.
- The existing division of responsibilities among departments, but with a dedicated aquaculture unit within at least one department.
- A greater focus of responsibilities in a single aquaculture unit in one Queensland government department, including the transfer of some Commonwealth government administration to this unit. This would most closely replicate the successful arrangement used in Tasmania and South Australia.

The first question to address is the trade-off between a centralised arrangement (as in Tasmania and South Australia) and a looser arrangement. A centralised arrangement presents efficiencies for the aquaculture industry, but has other disadvantages. Rearranging administrative responsibilities requires negotiation among a number of agencies, and raises questions of reallocation of resources. It is also likely to entail a greater cost to government, as the centralised unit would need to replicate expertise that exists in other departments.

After extensive discussion with stakeholders, the QCA considers that the costs of centralisation outweigh the benefits, for two main reasons:

- The benefits of centralisation are limited, as regulation of terrestrial aquaculture is more complex than regulation of marine aquaculture. Development of terrestrial aquaculture requires the involvement of local government (to address local sensitivities) and the input of state-level planning authorities to navigate the planning framework most efficiently.
- The range of necessary expertise is spread across a number of departments, including DAFF, DSDIP and the DEHP. A transfer of personnel would lead to a skills gap in the agency giving up staff. Rather than transferring staff, functions would need to be centralised by duplicating them in the dedicated aquaculture unit. This would be an inefficient use of government resources.

A central recommendation of this review is the creation of aquaculture development areas, with future development likely to be concentrated in these areas. A key question arising from this is the distribution of administrative functions related to the development areas. The major functions (in chronological order) relate to:

- Creation of aquaculture development areas.
- Processing of development applications within development areas.
- Day-to-day administration of aquaculture once operations are established in development areas.

The purpose of development areas is to facilitate development, and their creation is unlikely to change the day-to-day administration of aquaculture once established. Under existing arrangements, primary carriage of this function resides with Fisheries Queensland (within DAFF), with input as required from agencies such as the DEHP. From submissions and discussions, the QCA has learnt of no reason why this function should move elsewhere.

The processing of development applications for terrestrial aquaculture (as opposed to marine aquaculture) requires input from local government and numerous Queensland government agencies, as well as Commonwealth government agencies. Ideally, this input should be coordinated by one agency that also forms the point of contact for the proponent. Under existing arrangements, this coordination (and single point of contact) is undertaken by DSDIP (through the SARA model) or by the Queensland C-G. The expertise for this process is planning-related rather than aquaculture-specific. There is an argument for moving this function to a centralised aquaculture unit. However, as discussed above, the costs of centralisation would probably outweigh the benefits. The QCA therefore considers this function should stay with DSDIP and the Queensland C-G.

The creation of aquaculture development areas is probably the most sensitive function in the new regulatory framework proposed in this report. The successful implementation of development areas will require a strong focus on outcomes to ensure that the work does not end inconclusively, as happened with previous attempts to create a similar mechanism. If aquaculture development areas are just one among a range of responsibilities, a focus on outcomes is less certain.

Once the status quo and increased centralisation are ruled out, the remaining options are a dedicated aquaculture unit and a taskforce. Each of these options has specific strengths and weaknesses. A dedicated aquaculture unit is likely to develop a better long-term work program extending beyond the creation of the first milestone in aquaculture development areas. This is more likely to benefit the long-term development of the aquaculture sector in Queensland. On the other hand, a task force is more likely to ensure that the immediate work program is achieved with minimal resources that can be redeployed once the aims of regulatory reform have been achieved. This is not a trivial consideration at a time of significant budgetary pressure on all agencies.

There is also the question of mandate and buy-in. A task force with a mandate from Cabinet to create aquaculture development areas is more likely to overcome barriers to reform, particularly if task force membership is weighted towards more senior representatives of key agencies.

However, one disadvantage of the task force approach is that it does not resolve what happens once the development areas have been created. In the absence of a dedicated aquaculture unit, it is possible that no-one will have ownership of the process, leading to problems with commercialisation of the development areas. Since development areas are a new mechanism, someone will need to resolve implementation issues as they arise. For example, what happens if more than one proponent applies to develop a certain area? What happens if a local government wishes to negotiate a slight variation in operating conditions? If no-one is clearly responsible for resolving these issues, and ensuring that development occurs, the process could once again end in a stalemate.

Both the task force and the dedicated unit can incorporate industry and other stakeholder input. There are many options for achieving this, and as non-exhaustive examples we might consider an advisory committee for a dedicated unit, and direct industry membership of a taskforce. All arrangements face a trade-off between very broad membership/input, which

tends to make consensus more difficult to achieve, and narrow membership/input, which can simplify decision-making but possibly not give sufficient weight to important considerations.

One option is to have both a task force and a dedicated aquaculture unit. In this arrangement, the task force would focus on implementing the reforms recommended by this review, while the dedicated unit would focus on longer-term issues and day-to-day administration. However, such an arrangement, which includes both options, would probably require more resources than a solution involving only one or the other. Nevertheless, this increased level of resources may be necessary to ensure that reforms do not stall part-way through the process.

One example of a day-to-day issue that may need to be resolved is low-impact freshwater aquaculture. In response to the draft report, one stakeholder has submitted that this type of aquaculture can encounter over-regulation from local governments (Dean 2014). Assessing the potential for development of small-scale freshwater aquaculture, and the extent to which development is held back by local government over-regulation, is a task beyond the immediate scope of this review. However, it may merit examination by any structure established by the Queensland Government in response to this review's recommendations.

The location of a dedicated unit, or the leadership of a taskforce, is a matter for negotiation between agencies. Among the agencies involved in existing aquaculture administration arrangements, DAFF and the DEHP appear to have the most relevant technical expertise, while DSDIP has relevant planning expertise. Based on the Tasmanian model, DAFF is the agency most suited to host a specialised aquaculture unit or lead a taskforce, with the DEHP providing general oversight. DAFF's primary aim of doubling Queensland's agricultural production by 2040 is consistent with the goal of developing aquaculture. The most recent APFA submission favours DSDIP as a lead agency, but general stakeholder discussions do not point to any particular agency as a clear favourite.

Stakeholders have also raised doubts about the future development of aquaculture if the Commonwealth maintains an effective power of veto. The QCA understands that the likely transfer of powers from the Commonwealth to the Queensland Government is being negotiated as part of a broader agreement between the two governments (Hunt & Powell 2014). In any case, the recommendation is for Commonwealth agencies to be involved in the creation of aquaculture development areas, meaning that their requirements are likely to be addressed from the outset. Once a development area is in place, Commonwealth assessment of development applications will proceed according to pre-defined criteria. It is unlikely that Commonwealth agencies would exercise a veto in this context.

Recommendation

- **The QCA recommends that the Queensland Government consider the best structure to implement this review's recommendations.**
  - **Options include a temporary task force drawn from relevant agencies, industry and other stakeholder groups with the sole aim of establishing the proposed aquaculture development areas, or a dedicated administrative unit with additional, ongoing industry development and regulatory responsibilities.**
  - **The structure should incorporate input from the aquaculture industry through an advisory committee or similar mechanism, to ensure a focus on the commercial viability of proposed solutions.**

Recommendation

- **The QCA recommends that the structure created to implement this review's recommendations also examine possible barriers to the expansion of low impact freshwater aquaculture.**

8.4 A single Act for aquaculture?

Background

Aquaculture in Queensland is regulated through a combination of planning, fisheries, environmental and food safety legislation. An alternative is the creation of a single Act to regulate the aquaculture sector.

The option of a single Act featured in the AREC (2012) recommendation to review aquaculture regulation. AREC's recommendation is reflected in the Direction for this review, which specifies that '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.

Before commencing this review, the QCA commissioned a comparative review of aquaculture regulation by the CIE, with the question of a single, dedicated piece of legislation among key matters to be examined. The CIE study covered four jurisdictions (Queensland, South Australia, Tasmania and Western Australia), and noted that 'of the selected jurisdictions, South Australia is the only one with dedicated aquaculture legislation' (CIE 2014).

The South Australian *Aquaculture Act 2001*, combined with the *Aquaculture Regulations 2005* and other regulatory instruments (including a range of policies) sets out a very well-defined system of operations, tenure and general governance of the industry. One point worth noting is that South Australia's regulation deals to a large extent with marine aquaculture, so there is a strong emphasis on issues that are less significant for Queensland's terrestrial aquaculture. For example, regulation of marine aquaculture requires a greater focus on definition of property rights, whereas terrestrial aquaculture is more likely to be established on freehold land with inherently well-defined property rights.

An interesting aspect of South Australian aquaculture regulation is the establishment of governance mechanisms such as the Aquaculture Advisory Committee (AAC) and the Aquaculture Tenure Allocation Board (ATAB). These governance structures are closely specified to ensure input from a broad range of stakeholders and experts. For example, one member of

the 11-member AAC 'must be a person chosen by the Minister from a panel of 3 persons nominated by the Local Government Association of South Australia'. Similarly on the six-member ATAB, at least one member 'must be a qualified legal practitioner' and 'at least one must have qualifications and experience in marine biology or environmental management'.

Submissions and discussions with stakeholders

Issues paper

In response to the issues paper, stakeholder views on a single Act varied significantly, ranging from those who consider it absolutely necessary to those who view it as a minor improvement, or not material.

For example, Grofish Australia (2014) considered that 'a single administrative unit focussed on aquaculture, without the support of a single piece of legislation is bound to fail'. ABFA (2014) 'support the concept of a single piece of legislation', but noted that 'without addressing the issue of GBRMPA veto powers over any changes to the regulatory framework, it will not provide any real value to industry'. Overall, the strongest argument in favour of a single Act was the simplification in administration that this would be likely to bring about.

In February 2013, the QCA discussed the operation of the single Act (the *South Australian Aquaculture Act 2001*) with officers of Primary Industries and Regions South Australia (PIRSA), the department responsible for administering the Act. This provided useful insights into the operation of aquaculture regulation in South Australia. PIRSA noted some important features of the South Australian Act, such as the allocation mechanisms for leases, and the ability to mortgage a lease.

Discussions with administrators at Queensland government agencies suggested that a single Act is a low priority. Administrators (particularly those in DAFF) pointed to the fact that Tasmania does not have a single Act, yet Tasmania has achieved a 14 per cent compound annual growth rate in aquaculture over the past decade (CIE 2013). Administrators consider that necessary mechanisms to achieve growth in aquaculture are already available in existing regulatory instruments. Combining these mechanisms into a single instrument would involve significant resources, at a time when these resources could be devoted to issues of higher priority.

Discussions with Queensland government agencies occasionally touched on the idea of creating State Development Areas (SDAs) to facilitate development as a way of circumventing the complex planning framework, and providing aquaculture with a tailor-made legislative basis. However, agencies generally considered this option to be impractical due to the necessary effort and expense. It is also likely that local governments would not be comfortable with the idea of aquaculture SDAs, as the SDA mechanism removes local government input into the assessment of development applications.

Draft report

The draft report recommended that the Queensland Government defer consideration of the merits of a single Act for regulating aquaculture until the recommended reforms in this report have been well established.

- APFA (2014c) noted that 'despite assurances from Ministers going as far back as Henry Palaszczuk, that an Aquaculture Act could be developed, there appears to be a distinct lack of will to make this happen.'
- Seafarms Group (2014b) agreed with the QCA's draft recommendation and stated that 'the more urgent need is for regulatory reform rather than legislative reform'.

- Mackay Regional Council (2014) stated:

  > *a new single act..... will not necessarily result in an increase in Aquaculture development and economic growth. Contrary to the purpose of a proposed single Act, the time-lapse and funding for a 'task-force', administration support, training and implementation will have significant impacts on the State, with limited benefits to the Aquaculture industry (Mackay Regional Council 2014)*

- WWF (2014) did not support a single Act for aquaculture, noting that 'it [a single Act] would potentially see a proliferation of Acts to accommodate point source release operations like waste treatment plants and other intensive farming industries.'

- Andrew Hamilton (Hamilton 2014) supported an eventual move towards a single aquaculture Act.

Options and considerations

A major aim of this report is to minimise regulatory risk and uncertainty for the aquaculture industry. The most relevant recommendation to address this aim is to create aquaculture development areas to give proponents predictable criteria according to which development applications will be assessed. This review considers other regulatory options (such as the creation of a single Act) from the perspective of how they minimise risk and uncertainty, and how they might interact with the proposal to create aquaculture development areas. This review also bears in mind the cost of other regulatory options.

All agencies consulted agree that aquaculture development areas can be implemented under existing legislation. Furthermore, agencies emphasised the complexities of the existing planning framework, and how aquaculture might best be developed within this framework. An additional legislative instrument would be unlikely to assist with this. The QCA therefore considers that the priority of this review (and of subsequent work) should be a focus on addressing the underlying concerns which have prompted calls for a single Act.

At the same time, a single Act would be a logical complement if the government moves to centralise regulation of aquaculture in a single administrative unit, as is the case in Tasmania and South Australia. This report recommends the creation of a task force or dedicated aquaculture unit to be responsible for creating aquaculture development areas, however the report does not recommend the centralisation of regulation through machinery of government changes. Nevertheless, the report does not rule out the possibility that changed circumstances in the future might make it feasible. If and when the Queensland Government considers implementing machinery of government changes to centralise aquaculture regulation, it may wish to consider once again the option of a single Act to regulate the sector.

A further question is the extent to which Queensland might choose to replicate the governance structures included in South Australian aquaculture regulation, particularly the AAC and the ATAB. These structures could provide a long-term way of dealing with many of the issues arising from aquaculture development, but establishing such mechanisms is far from being a trivial task. In the immediate future, these mechanisms would not reduce regulatory risk and uncertainty. However, the government may wish to consider the creation of such structures after more high priority reforms have been implemented.

Recommendation

- **The QCA recommends that the Queensland Government defer consideration of the merits of a single legislative instrument for regulating aquaculture.**
  - **The QCA recommends that the Queensland Government consider a single legislative instrument for regulating aquaculture after the regulatory reforms recommended in this report have been well established.**

9 MARINE AQUACULTURE

9.1 Less controlled than terrestrial, more potential problems

Marine aquaculture is divided into two categories: extensive and intensive. Intensive operations include the addition of feed, while extensive operations do not. A typical example of extensive aquaculture is oyster farming, and a typical example of intensive aquaculture is Tasmania's salmon farming. Extensive aquaculture generally has a smaller impact on the marine environment.

Intensive aquaculture, in particular cage aquaculture, has a potentially greater environmental impact than terrestrial aquaculture, as there is significantly less control over the operation's interaction with the environment. The impacts and effectiveness of mitigation measures depend on a range of factors, such as species farmed, stocking densities, types of cage and infrastructure used, types and amount of feed used, nutrient losses and how often cages are moved. The impact also depends on the characteristics of the environment, such as the depth of water and speed of currents.

The potential impacts from marine aquaculture include:

- 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 cannot be mitigated in the same manner as terrestrial aquaculture. In some cases it can be mitigated through new technology that can ensure that a higher proportion of food is eaten.
- Cage aquaculture can enable disease and parasite transmission to the wild population through increased water flow and through occasional direct contact between farmed and wild individuals. 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 in part of western Victoria.
- The introduction of structures can alter the habitat and attract fouling organisms that previously were not in the vicinity.
- Structures may block out the sun and reduce seagrass growth, a common source of food and shelter for marine creatures such as dugongs and turtles.

Nevertheless, it is possible to avoid, mitigate or offset many impacts of marine aquaculture. For example, the Australian Institute of Marine Science (AIMS) carried out an environmental impact study of a cage farm and concluded that 'the footprint of the farm on the benthos appears to be restricted to the lease area' (AIMS 2008). At the same time, while it is possible to find technical solutions to marine aquaculture impacts, most recently the largest barrier to development has been local opposition rather than technical difficulties.

9.2 Opposition to intensive marine aquaculture

Marine aquaculture often faces local opposition, as it can compete with other uses of marine resources, such as tourism, commercial fishing, recreational fishing and boating. In some cases, there is local concern about environmental impacts. An example was the Sun Aqua sea cage proposal to farm snapper and yellowtail kingfish in the eastern portion of Moreton Bay. There was significant opposition from tourist operators, recreational users of Moreton Bay, and environmental groups (Coordinator-General 2004b). In response to the Sun Aqua EIS, the C-G

received over 1,000 public submissions and the Commonwealth Minister for the Environment received approximately 4,000 public submissions (Coordinator-General 2004a). The C-G refused the project in August 2004, and to date it is only one of two coordinated projects to be rejected (DSDIP 2014a).

Similarly, during the creation of the Great Sandy Regional Marine Aquaculture Plan, there was opposition from a range of groups to the possibility of cage aquaculture being included in the plan. However a range of other extensive aquaculture operations were supported in the GSRMAP, for example oysters, rack and line, and sea ranching.

This suggests that there is likely to be local opposition to intensive cage aquaculture in most potential locations in south east Queensland, and elsewhere on the east coast where there are tourist operations and competing uses of marine resources. Extensive aquaculture generally receives less opposition; however, there may be instances where extensive aquaculture could also be opposed due to potential impacts on other users.

This opposition to marine aquaculture is markedly different to the situation in Tasmania, South Australia and New South Wales. Tasmania's marine aquaculture zones have broad-based support, as do South Australia's. New South Wales is reportedly experimenting with expansion of marine aquaculture in Port Stephens (intensive aquaculture including yellowtail kingfish and mulloway) and Jervis Bay (extensive aquaculture including mussels). The locations chosen as test sites in New South Wales are also popular for recreational uses, so it will be interesting to see whether the outcome will result in a working compromise allowing all groups to share the marine resource. It is worth noting that the Jervis Bay operation does not include cage farming, and the Port Stephens development is a research lease rather than a commercial operation.

9.3 Possibilities in the Torres Strait and Gulf of Carpentaria

The Torres Strait is a shallow tropical marine environment with significant seagrass meadows. The Protected Zone Joint Authority (PZJA) is responsible for managing commercial and traditional fishing in the Australian area of the Torres Strait Protected Zone (TSPZ) and designated adjacent Strait waters. It supplies wild stock of prawns, rock lobster, crab, beche-de-mer, Spanish mackerel and other finfish species.

The Torres Strait may be a prospective area for marine aquaculture., A pilot project to farm 25 species of fin fish, lobster, bugs and prawns known to naturally occur in the Torres Strait was approved in February 2014.

The Gulf of Carpentaria may be another prospective area. It is generally unsuitable for terrestrial aquaculture, since it has limited road access and limited electricity supply. As with the Torres Strait, these limitations are less of a barrier for marine aquaculture. Marine aquaculture is less energy-intensive, so is able to use diesel-generated electricity, as occurs in Tasmania.

It is uncertain to what extent an adequate labour supply is available in the Torres Strait and the Gulf of Carpentaria. This points to a potential paradox of marine aquaculture in Queensland: it is most likely to be acceptable in sparsely populated regions, but at the same time these regions may not be able to supply the necessary labour. Other industries in remote regions, such as mining, are able to create their own labour supply by building residential facilities or flying in the labour force. Without ruling out any possibilities, stakeholder discussions give the impression that aquaculture is more labour-intensive than mining, and operates on profit margins that would not allow the sector to create its own labour supply.

The FAO study on potential for mariculture has identified both the Torres Strait and the Gulf of Carpentaria as having potential (FAO 2013). However, it is worth noting that the FAO study is very high-level and more detailed work is required to identify actual sites and suitable species.

Both the Torres Strait and the Gulf of Carpentaria are susceptible to cyclones, which can destroy a marine aquaculture operation (for example, cyclone Yasi in 2011 destroyed the marine aquaculture operation in the Hinchinbrook Channel). This is not always an insurmountable barrier. In sufficiently deep water, cage aquaculture can be designed to be lowered to the sea floor when a cyclone approaches. Alternatively, if production is sufficiently profitable, the operation can be rebuilt after a cyclone.

9.4 Stakeholder submissions and discussions

Issues paper

Discussions with a number of stakeholders have highlighted the technical feasibility of marine aquaculture along the Queensland coast. A 1996 study for the then Department of Primary Industries by WBM Oceanics reportedly identified extensive areas with suitable physical characteristics. However, some of these areas have since been designated as marine parks or FHAs, where there are restrictions to the type of aquaculture permitted, for example aquaculture involving the addition of feed is not permitted within the Great Sandy or Moreton Bay Marine Parks. The Seafarms Group referred to a study by the FAO on mariculture potential. This study identified Australia as one of the countries with the greatest potential area suitable for mariculture. 'The high-level results indicated that for the tropical representative species cobia, Australia ranked highly in potential for sites for offshore cage culture' (Seafarms Group 2014a).

The Djulin Marine Aboriginal Corporation (2014) referred to a project it has been undertaking (jointly with James Cook University and the Australian Centre for International Agriculture Research) to grow giant clams in the waters around the Palm Islands (north of Townsville). According to the Corporation, this would have a minimal impact on the environment (there is no added feed), and the project could provide indigenous employment opportunities for the Palm Islands, where there are few alternative sources of employment.

GBRMPA noted a number of practical problems with marine aquaculture, such as the conflict between security requirements for high-value aquaculture and the amenity of continued general access to the marine park. GBRMPA also noted community opposition to cage culture in Moreton Bay and the Great Sandy regions. Given all these factors, GBRMPA states that 'it is likely that permissions for cage aquaculture in General Use Zones in the Marine Park would be granted only if the applicant can demonstrate, to the satisfaction of the Authority, that there have been operational and technological advances that substantially mitigate ecological risk'. This is consistent with GBRMPA's previously published position statement on aquaculture, which states that intensive aquaculture (involving the addition of feed) in the GBRMP would probably be unacceptable:

> *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 (GBRMPA n.d.).*

Draft report

The draft report recommended that the Queensland Government investigate the potential for marine aquaculture development areas in less populated areas, such as the Torres Strait and Gulf of Carpentaria.

- APFA (2014c) noted that prawn farming is not suitable in areas such as the Torres Strait and Gulf of Carpentaria given that it 'lacks access to labour, reliable power source and infrastructure such as transport required to get product to markets in a cost effective manner'.
- WWF (2014) stated that besides the conflict with other uses of the marine environment, other issues such as water quality, level of waste generated and genetic contamination as a result of marine aquaculture will need to be taken into account.

> *.....receiving water quality has been identified as a key issue for cage culture development in Queensland's marine parks. Significant planning considerations will be required to address the waste levels generated through the deployment of cage culture systems in Queensland, irrespective of the proposed locations. Furthermore, greater consideration is required to address potential biodiversity issues associated with the escapement of large volumes of genetically similar farm stock during cyclonic events like that which destroyed the State's sole cage farm in Hinchinbrook Channel..... significant investigations are required to address disease control vectors between farmed species and adjacent wild stocks, and also to address interactions between farm operations and wildlife, particularly listed species (WWF 2014).*

- NPFI (2014) expressed concerns about the Torres Strait and Gulf of Carpentaria as prospective areas for marine aquaculture development, due to ' considerable potential for fisheries resources and their productivity systems to be negatively impacted by future aquaculture development in the Gulf of Carpentaria, particularly in relation to water diversion, salinity changes, pollution, sediment run-off and the introduction of exotic pests/diseases.'
- Andrew Hamilton (2014) noted that many reports have demonstrated that marine aquaculture has 'minimal or negligible impact'.

9.5 Suggested approach to marine aquaculture

This review has noted the technical possibilities of marine aquaculture, including cage aquaculture, and has also noted opposition to some marine aquaculture operations, notably cage aquaculture, particularly from groups who may compete for the same marine resources. This situation is somewhat analogous to that of terrestrial aquaculture, whose development is often constrained by the concerns of neighbouring landholders and alternative users of suitable land.

In the case of terrestrial aquaculture, the QCA has recommended aquaculture development zones as a mechanism to enable development. This mechanism could also be applied to marine aquaculture, as it has been in Tasmania and South Australia. As with terrestrial aquaculture, a practical approach would be to pre-identify the most prospective sites and conduct necessary environmental testing at those sites. Apart from technical considerations such as water depth and currents, selection of sites needs to take into account local sensitivities and potential conflict with other users of the marine resource. This suggests that the best sites will be in less populated areas, or that the permitted species should have a minimal impact (with giant clams possibly being an example of this). World Heritage Areas, marine parks and declared FHAs on the other hand, are less likely to be feasible locations, due to the legislation and policies of the DOE, GBRMPA and DNPRSR, potential impacts on other users, and concerns about impacts environmental impacts.

The QCA understands that little work has been done to date on identification of suitable locations for marine aquaculture, unlike the extensive work that has been done for terrestrial aquaculture. At a high level, it appears that marine aquaculture has the potential for

development in Queensland. The QCA considers that a closer assessment of possibilities is appropriate. At the same time, the infrastructure constraints inherent in more remote areas of Queensland make marine aquaculture likely to be less prospective than terrestrial aquaculture on the east coast. Bearing in mind the limited resources available for aquaculture development, work on terrestrial aquaculture should take precedence over work on marine aquaculture.

The responsibility for any work on marine aquaculture is a matter for negotiation among agencies. The QCA understands that DAFF has undertaken some preliminary analysis of possibilities. As with terrestrial aquaculture, the process should include input from local government, Queensland government agencies and Commonwealth government agencies.

Recommendation

- **The QCA recommends that the Queensland Government investigate the potential for marine aquaculture development areas.**
  - **The most prospective areas are likely to be in the Torres Strait, Gulf of Carpentaria and other less populated areas with a low possibility of conflict with other users of marine resources.**

10 OTHER ISSUES

10.1 Bonds and guarantees

Background

Some industries are required to establish financial safeguards for environmental remediation. These safeguards are most commonly applied when the activity has a limited life (such as a mining operation), or when it uses a resource that is not fully owned by the operator of the activity. The aim of the safeguard is to ensure that remediation costs are internalised by the operation, removing the risk that these costs will be borne by taxpayers or other third parties.

There are instances where an aquaculture operation uses a resource not fully owned by the operation. Marine aquaculture falls into this category, as it uses publicly owned marine resources. Terrestrial aquaculture can sometimes fall into this category where the operation includes easements for water intake or water discharge.

Arrangements for financial safeguards for aquaculture operations differ across Australia:

- Queensland requires a bank guarantee for marine aquaculture developments.
- Tasmania does not require financial safeguards. It previously required a $1,000 bond, but removed this requirement on the grounds that it would have little practical effect.
- South Australia and Victoria require aquaculture operations to have a bond.
- New South Wales requires a financial safeguard and gives operators a number of options, including a cash deposit, a bank guarantee, or a non-refundable amount contributed each year which is based on the size of the operation.

In Queensland, GBRMPA has a long-standing requirement for financial guarantees for development projects within the GBRMP. GBRMPA considers this to have been a useful mechanism in instances where large projects were not completed due to financial difficulties, and GBRMPA was able to use the guarantees to ensure completion.

DAFF is the government agency responsible for regulating the use of bonds (or guarantees) in aquaculture in Queensland waters. DAFF has a financial guarantee policy for marine aquaculture only and has modelled this policy on GBRMPA's policy (DAFF 2013b).

DAFF considers that this policy is necessary to avoid difficulties that have arisen in the past, when it proved difficult or impossible to recover remediation costs from operations that had ceased.

Marine aquaculture developments in Queensland waters require a development approval under the SP Act and a Resource Allocation Authority (RAA) issued under the *Fisheries Act 1994*. The RAA provides aquaculture operators with access to public waters and sets out a range of conditions that they must meet, to commence and manage an aquaculture facility. One condition for new marine aquaculture projects and the renewal of existing marine licences or permits is the lodgement of a bond, as legislated in the *Fisheries Act 1994*.

When an aquaculture operation ceases, is cancelled or surrendered, it is a condition of the RAA that that the area must be 'clean and tidy' and left in its original condition; all infrastructure from the operation must be removed and disposed of appropriately. The regulations require that all cleanup be completed within three months of cessation, cancellation or surrender of the

operation. Non-compliance will result in the state seizing the bond and undertaking the cleanup.

DAFF requires its bonds in the form of a bank guarantee. Bank guarantees are preferred as:

- An upfront cash deposit is not required by the operator.
- Working capital is freed up for other investments.
- It is easier for the state administrating agent to receive funds for administering remediation activities.
- The risk of default is not held by the state and the operator does not have to prove their creditworthiness to the state to meet their contractual obligations.

DAFF's procedures and conditions for bank guarantees are outlined in Appendix H.

By contrast, terrestrial aquaculture is usually established on freehold land, so most environmental impacts are internalised in the value of the land. One common exception is easements on neighbouring land to establish access for water intake and discharge structure. However, easements are generally established as a matter of commercial negotiation with neighbouring landholders. It is likely that the agreed terms include provisions for any necessary remediation. The value of the freehold land provides some degree of financial assurance if the business ceases to operate. The QCA is not aware of specific problems arising from the need to remediate easements.

Stakeholder submissions and discussions

Issues paper

Stakeholder opinions on bonds and financial guarantees for aquaculture are mixed.

Queensland government departments (DAFF and the DNPRSR) supported the use of bonds for marine aquaculture to account for the possibility that a farm may be abandoned leaving the state to undertake remediation or maintenance activities. In discussions, DAFF indicated it does not require a bond for terrestrial aquaculture developments as this industry has not faced such problems.

ABFA (2014) supported the use of bonds for large-scale operations (such as a major mining operation or port development), but provided the following comment regarding their suitability for aquaculture.

> *Additional details would be needed in respect to the relatively small scale and negligible impact of aquaculture operations in Queensland (ABFA 2014).*

Grofish Australia (2014) pointed out that financial safeguards in mining arise from the fact that mining projects have a finite life. Aquaculture, on the other hand, is more similar to agriculture, where the activity can continue indefinitely. Grofish Australia (2014) considered that imposing financial safeguards on aquaculture would imply that aquaculture damages the environment, whereas:

> *.....there is no evidence to suggest Australian aquaculture has ever irrevocably damaged the environment (Grofish Australia 2014).*

Draft report

In response to the draft report, NPFI (2014) recommended that bonds and guarantees should be 'mandatory to fund 'clean up' operations and compensation payable for any diminution in the future value and/or productivity of fishing rights resulting from aquaculture developments'.

WWF (2014) stated that bonds and guarantees 'should be retained as a requirement for all marine based aquaculture operation'. It further noted that bonds and guarantees are relevant to terrestrial aquaculture operations especially when infrastructure is required to be installed outside the bounds of private property.

> *WWF disagrees that the use of bonds and guarantees are not relevant to terrestrial aquaculture operations where the land is freehold. Bonds and guarantees will be important particularly where infrastructure is required to be installed outside the bounds of private property. Equally, such provisions should be implemented to help restore impacts from the farm to the environment, e.g. a fish escape to an aquatic environment.*

Options

In Queensland, financial safeguards are now required for new marine aquaculture projects but are not required for terrestrial aquaculture projects. In Queensland waters, financial safeguards are enforced by DAFF. In the GBRMP they are enforced by GBRMPA.

Options for financial safeguards include:

- Maintain the status quo.
- Remove the need for financial safeguards for new marine aquaculture projects in Queensland waters.
- Impose a requirement for financial safeguards for terrestrial aquaculture. This could apply to easements or to projects with concerns about groundwater salinity, or to all projects.

Removing the need for financial safeguards for marine aquaculture would lower aquaculture development costs. However, it could leave taxpayers exposed to significant financial risk in the event of a business failure. In this sense, it would be a taxpayer subsidy to new developments.

Imposing a financial safeguards requirement on terrestrial aquaculture would be a sensible response in the event of significant experience with remediation problems. The QCA is not aware of such problems.

On balance, the QCA considers that DAFF's approach to date has been appropriate. DAFF has introduced a requirement for financial safeguards in marine aquaculture as a result of identified problems with past operations. Since there has been no identified problem with terrestrial aquaculture, DAFF has not required financial safeguards. The QCA's assessment is that DAFF, with its daily contact with the industry, is best placed to set policies on financial safeguards.

Recommendations

There is no recommendation regarding financial safeguards for new developments.

10.2 Research and marketing levies

Background

Many agricultural industries have established levies on production. The purpose of a levy is to provide producers with a mechanism to pool finances and invest in solutions that address their common goals and interests. Industry bodies can use funds for research and development (R&D) activities, marketing campaigns, product testing, and plant and animals health programs (DOA 2014).

Queensland aquaculture producers contribute to two levies: an industry-wide levy for all farmed prawns produced in Australia and a voluntary levy for ABFA, with the majority of producers located in Queensland (as summarised in Table 9). The farm prawn levy is only used

to fund R&D activities. ABFA collects a voluntary levy for the barramundi industry, and may direct the investment of funds to any activity (such as marketing or R&D). The remaining aquaculture industries collect levies through a voluntary system as outlined in Table 9, with funds also provided to the Fisheries Research and Development Corporation (FRDC) by means of state governments.

It is compulsory for all producers to pay the farmed prawn industry levy, which generates up to $500,000 per annum for R&D (APFA 2014a). Levies are collected by the Commonwealth Department of Agriculture, and disbursed by the FRDC. The FRDC has funded R&D at research organisations such as AIMS, CSIRO, University of Queensland and James Cook University (RidgePartners 2006). For example, CSIRO scientists have selectively bred a new Black Tiger prawn which significantly increased industry average yields (CSIRO 2013).

Table 9 Arrangements for funding aquaculture research and development

Jurisdiction	*Arrangements for funding R&D*	*Arrangements for funding marketing*
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 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 Australian Seafood Cooperative Research Centre (CRC).	Previous attempts to establish collective marketing arrangements have not succeeded. 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 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: • 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 CRC.	Section 240 of the *Fish Resources Management Act 1994* details the 'Fishing Industry Promotion Training and Management Levy Account', from which the Minister can apply to programmes relating to: • seafood promotion • promotion of the fishing or aquaculture industry • fishing or aquaculture industry training • fishing or aquaculture industry management

Recent changes to the *Commonwealth Primary Industries and Energy Research and Development Act 1989* (re-named the *Primary Industry Research and Development Act 1989*) have extended to the FRDC the possible use of levies for marketing (Parliament of Australia 2013). However, if FRDC were to allocate levy funds to marketing activities the proportion allocated must be legislated, and the Commonwealth will not match this portion. The FRDC does not allocate levy funds to marketing activities.

Extensive detail on aquaculture and agriculture levies is provided in of the QCA's aquaculture issues paper[7].

Submissions

Issues paper

Stakeholder submissions on the benefits of an industry levy for marketing were limited and mixed. The ABFA (2014) stated that a marketing levy for aquaculture is an industry issue that should not be addressed in this review and added:

> *The ABFA collects a voluntary levy and directs its expenditure to where it provides the greatest return on investment to industry (ABFA 2014).*

Grofish Australia (2014) provided the other comments and cautioned use of marketing campaigns to promote the environmental credentials of a product, but supported them to promote other qualities of a product.

> *In the author's experience, marketing environmental credentials does not increase consumption or achievable price. Consumers expect an industry to be environmentally sound and if it is not, for the government to do something about it. Notably, none of the successful product marketing programs have discussed sound environmental practices (Grofish Australia 2014).*

Draft report

In response to the draft report, NPFI (2014) noted that research is necessary ' to identify impacts of aquaculture development on other industries/stakeholders' and should be ' paid for by the proponents of the [aquaculture] development'.

Options

The focus of this review is the removal of regulatory barriers to the development of aquaculture in Queensland. The review's issues paper asked for comments regarding the possibility of industry levies being used for marketing purposes. The limited stakeholder response suggests that levies are not a regulatory barrier to development. The QCA will therefore make no recommendation on levies.

Recommendations

There is no recommendation on levies.

[7] http://www.qca.org.au/getattachment/ad448807-5712-4dc9-a7b9-55508c097b22/Aquaculture-Regulation-in-Queensland.aspx

GLOSSARY

A	
AAC	Aquaculture Advisory Committee
ABARES	Australian Bureau of Agricultural and Resource Economics and Sciences
ABFA	Australian Barramundi Farmers Association
AIMS	Australian Institute of Marine Science
APFA	Australian Prawn Farmers Association
API	Assessment on Proponent Information
AQUA01	Code of self-assessable aquaculture development (AQUA01)
AREC	Agriculture, Resources and Environment Committee of the Queensland Parliament
ASC	Aquaculture Stewardship Council
ATAB	Aquaculture Tenure Allocation Board
C	
C-G	Queensland Coordinator-General
CIE	Centre for International Economics
CRC	Australian Seafood Cooperative Research Centre
CSIRO	Commonwealth Scientific and Industrial Research Organisation
D	
DAFF	Queensland Department of Agriculture, Fisheries and Forestry
DEEDI	Queensland Department of Employment, Economic Development and Innovation
DEHP	Queensland Department of Environment and Heritage Protection
DNPRSR	Queensland Department of National Parks, Recreation, Sport and Racing
DNRM	Queensland Department of Natural Resources and Mines
DOA	Commonwealth Department of Agriculture
DOE	Commonwealth Department of the Environment
DPIPWE	Tasmanian Department of Primary Industries, Parks, Water and Environment
DSDIP	Queensland Department of State Development, Infrastructure and Planning
E	
EA	Environmental authorities
EIS	Environmental Impact Statement
EMMP	Environmental monitoring and management plan
EMS	Early Mortality Syndrome
EP Act	[Queensland] Environmental Protection Act 1994
EPA	Environmental Protection Agency/Environment Protection Authority/Environmental Protection Authority
EPBC Act	[Commonwealth] Environment Protection and Biodiversity Conservation Act 1999

ERA	Environmentally Relevant Activity
F	
FAO	Food and Agriculture Organisation
FHA	Fish Habitat Area
FRDC	Fisheries Research and Development Corporation
G	
GBR	Great Barrier Reef
GBRMP	Great Barrier Reef Marine Park
GBRMP Act	[Commonwealth] Great Barrier Reef Marine Park Act 1975
GBRMP Regulation	[Commonwealth] Great Barrier Reef Marine Park (Aquaculture) Regulations 2000
GBRMPA	Commonwealth Great Barrier Reef Marine Park Authority
GIS	Geographic Information Systems
GSRMAP	Great Sandy Regional Marine Aquaculture Plan
K	
KADZ	Kimberley Aquaculture Development Zone
M	
MEMP	Management and Environmental Monitoring Plan
MFDP	Marine Farming Development Plan
MNES	Matter of National Environmental Significance
MOU	Memorandum of understanding
MPO2	Self-assessable code for maintenance of existing structures (MPO2)
N	
NPFI	Northern Prawn Fishery Industry
NSW	New South Wales
NT	Northern Territory
O	
OUV	Outstanding Universal Value
P	
PIRSA	Department of Primary Industries and Regions South Australia
PRF	Pacific Reef Fisheries
PZJA	Protected Zone Joint Authority
Q	
QAIF	Queensland Aquaculture Industries Federation
QCA	Queensland Competition Authority
QDC	Queensland Development Code
QLD	Queensland
QLD Health	Queensland Department of Health

R	
R&D	Research and development
RAA	Resource allocation authority
S	
SA	South Australia
SARA	State Assessment and Referral Agency
SDA	State Development Area
SDAP	State Development Assessment Provision
SDPWO Act	[Queensland] State Development and Public Works Organisation Act 1971
SDPWO Regulation	[Queensland] State Development and Public Works Organisation Regulation 1999
SEWPAC	Commonwealth Department of Sustainability, Environment, Water, Population and Communities
SGL	Seafarms Group Limited
SP Act	[Queensland] Sustainable Planning Act 2009
T	
TAS	Tasmania
TOR	Terms of reference
TSPZ	Torres Strait Protected Zone
V	
VIC	Victoria
W	
WA	Western Australia
WWF	World Wildlife Fund

APPENDIX A: TERMS OF REFERENCE

QLD COMPETITION AUTHORITY

17 SEP 2013

DATE RECEIVED

TRY-04803

16 SEP 2013

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 Malcolm,

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.

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100 George Street Brisbane
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Queensland 4001 Australia
Telephone +61 7 3224 6900
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Email treasurer@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.

1

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

2

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: THE GREAT BARRIER REEF

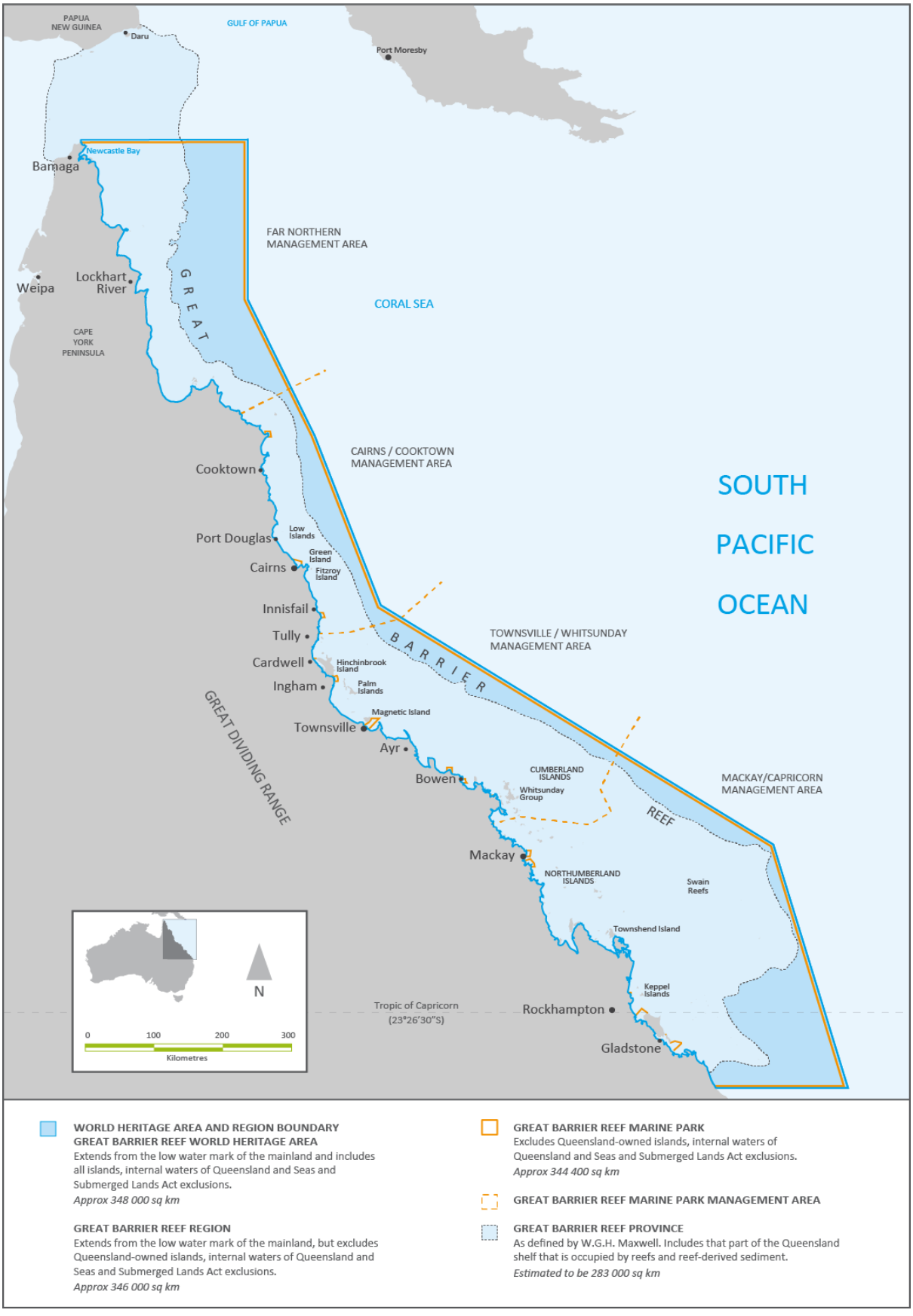
The GBR stretches for 2,300 km along the east coast of Queensland from north of Bundaberg (around 24 degrees latitude) to the Torres Strait (around 10 degrees latitude). The GBR was declared a World Heritage Area in 1981 due to its 'outstanding universal value'. The GBR World Heritage area covers an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

The boundaries of the GBR and surrounding areas are outlined in Table 10 and Figure 5.

Table 10 Boundaries of the Great Barrier Reef and surrounding areas

Area	*Description*
Great Barrier Reef Region	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. 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.
Great Barrier Reef World Heritage Area	Same boundaries as the GBR Region, however it includes all the islands and waters within the boundary, regardless of tenure.
Great Barrier Reef Marine Park	Same boundaries as the GBR 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 GBR Intergovernmental Agreement, this is contiguous with the GBRMP and covers the area between low and high water marks and many waters within the limits of Queensland.
Queensland coastal water	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. It overlaps with the Great Barrier Region and GBR World Heritage Area.

Figure 5 Boundaries of the Great Barrier Reef and surrounding areas



Source: GBRMPA 2009

The Great Barrier Reef Marine Park Authority

GBRMPA was established by the (Commonwealth) *Great Barrier Reef Marine Park Act 1975* (GBRMP Act) 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 GBRMP 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 plans 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 (GBRMP regulations) and

(c) Great Barrier Reef Marine Park (Prohibition of Drilling for Petroleum) Repeal Regulations 1999.

Great Barrier Reef Marine Park (Aquaculture) Regulations 2000

The GBRMP regulation 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 GBRMP 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 EPBC Act.

On 2 March 2005 the Commonwealth Minister for Environment and Heritage accredited Queensland law, under the GBRMP Regulation, 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 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 11 outlines the legislation related to GBRMPA.

Table 11 Legislation related to the Great Barrier Reef Marine Park

Legislation specific to the Great Barrier Reef Marine Park	*Other Commonwealth legislation related to the Great Barrier Reef area*	*Queensland legislation*	*International conventions*
• 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	• 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	• Coastal Protection and Management Act 1995 • Environmental Protection Act 1994 • Fisheries Act 1994 • Marine Parks Act 2004 • Native Title (Queensland) Act 1993 • Nature Conservation Act 1992 • Sustainable Planning Act 2009 • Transport Operations (Marine Pollution) Act 1995 • Transport Operations (Marine Safety) Act 1994 • Workplace Health and Safety Act 1995	• 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: GBRMPA 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 (GBRMPA 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 (GBRMPA n.d.a,).*

Aquaculture impacts on the Great Barrier Reef

Table 12 summarises aquaculture's impact on the Great Barrier Reef.

Table 12 Aquaculture impact on the Great Barrier Reef

Report	*Impacts*
GBRMPA's position statement—Aquaculture within the Great Barrier Reef Marine Park (GBRMPA n.d.a)	• 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 (DSDIP 2013)	• 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 2014 (GBRMPA 2014e)	• Nine assessments, including biodiversity, ecosystem health, resilience, and long-term outlook. • Climate change, coastal development land-based run-off and direct use of the GBR are key factors influencing the GBR's values. • The GBR ecosystem is under pressure. Many heritage values are declining. Underwater aesthetic values will likely continue to decline.
Great Barrier Reef Region Strategic Assessment: Strategic Assessment Report (GBRMPA 2014d)	• The strategic assessment report makes 38 recommendations aligned to the Queensland Government's recommended improvements. The recommendations on offsets are most relevant to this review.
Great Barrier Reef Region Strategic Assessment: Program Report (GBRMPA 2014a)	• The program report outlines GBRMPA's 25-year management program designed to implement the 38 recommendations set out in the strategic assessment report.

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 development (DAFF 2013a) administered by 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 13 outlines the division of assessment responsibilities among levels of government.

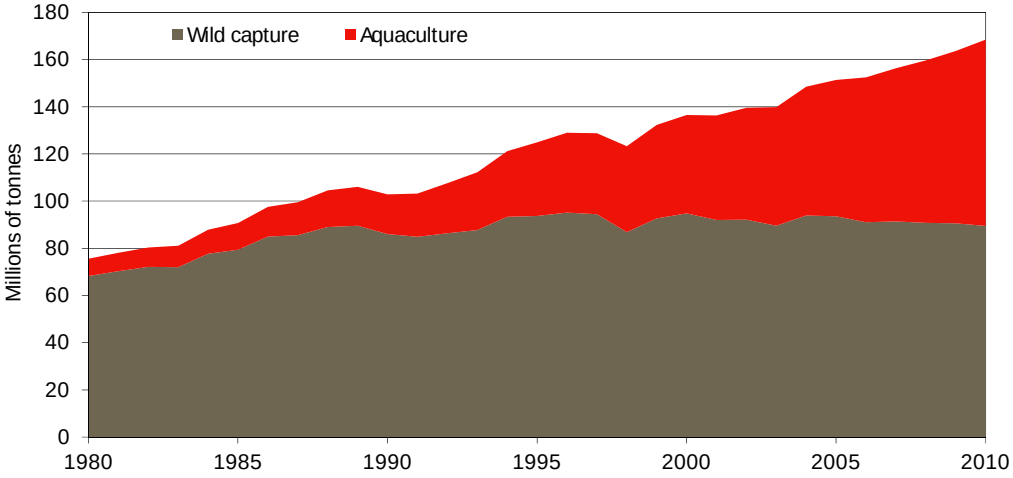
Table 13 Division of assessment responsibilities

Level of government	***Land-based aquaculture***		***Marine aquaculture***
	Discharge waste to a waterway leading to the GBRMP	Direct discharge waste to the GBRMP	Discharge waste to the GBRMP
Local government	• 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.	• None	• None
State government	• 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 DNRM for inlet and outlet structures on tidal land. • Discharge: DEHP assesses waste discharge as accredited under the GBRMP Regulation.	• Same as "Discharge waste to a waterway leading to the GBRMP"	• Development permit: Marine aquaculture requires a development approval under the SP Act. The proponent must apply to DSDIP which is the assessment manager. • ERA development permit: Required from the DEHP if feeding is involved. • Resource Allocation Authority (RAA): Required for aquaculture activities in state waters, other than inlet/outlet structures. • Marine park permit: Required for areas within state marine parks.
Commonwealth	• Discharge: Commonwealth legislation (the GBRMP Act and the EPBC Act) is triggered when a proposed facility is likely to have a significant impact on the Marine Park. These facilities require approvals by the state and GBRMPA.	• Discharge: A direct discharge to the GBRMP triggers Commonwealth legislation (the GBRMP Act and the EPBC Act). These facilities require approvals by the state and GBRMPA.	• Discharge: Marine aquaculture triggers Commonwealth legislation (the GBRMP Act and the EPBC Act). These facilities require approvals by the state and GBRMPA.

APPENDIX D: 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.

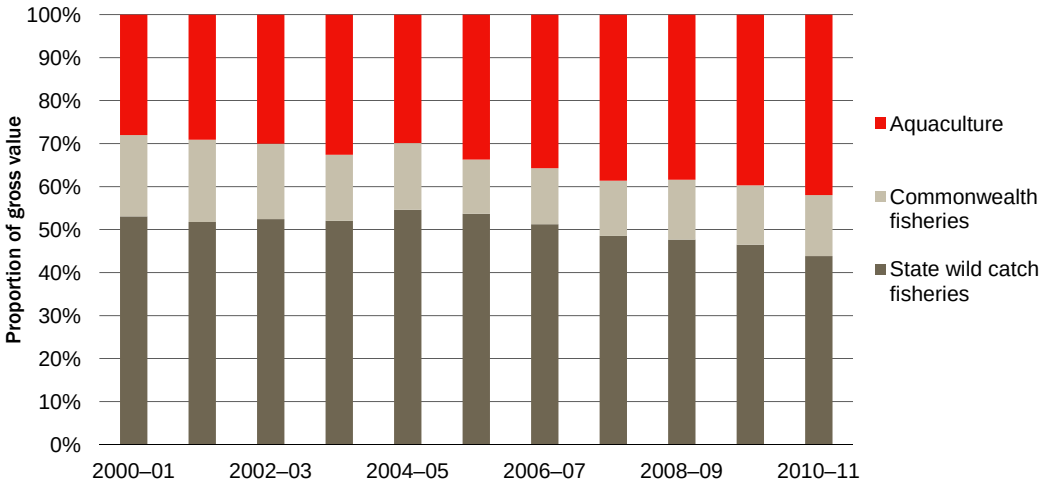
Figure 6 Global fisheries production, aquaculture versus wild capture



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.

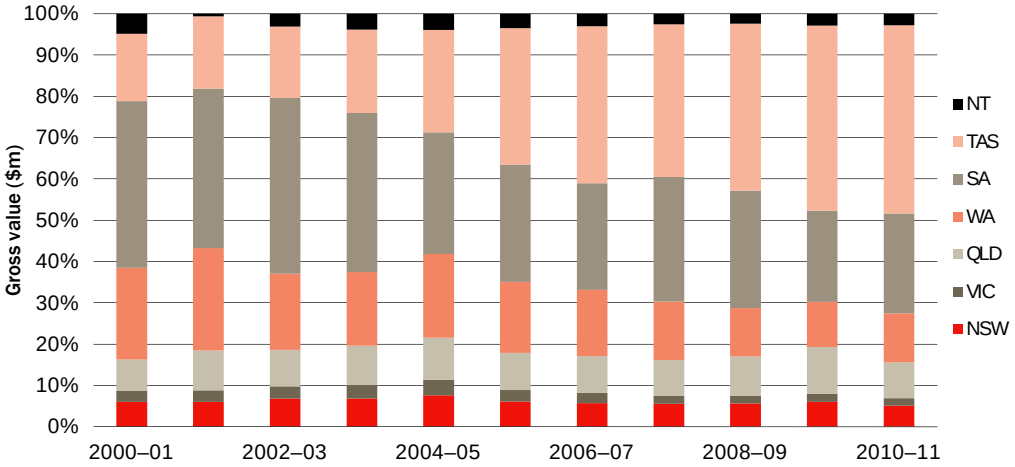
Figure 7 Fisheries production in Australia by value



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 Tasmania accounted for 46 per cent of the value of Australia's aquaculture production, followed by South Australia with around 24 per cent.

Figure 8 Australian aquaculture by value, states/territories

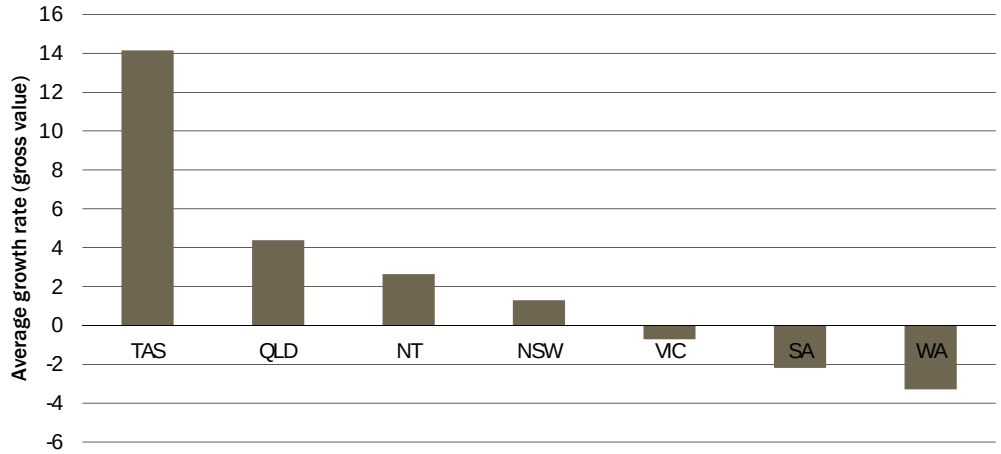


Source: CIE 2013

Queensland 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 a compound 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.

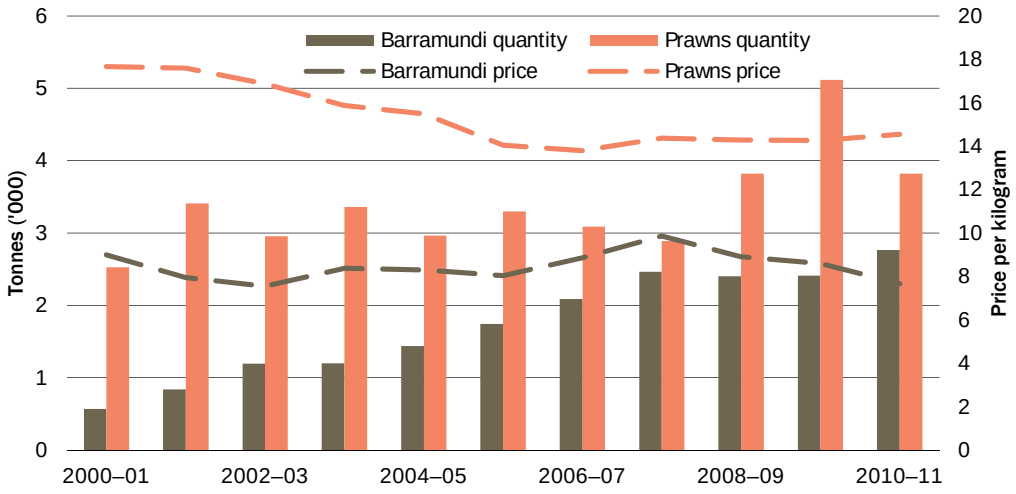
Figure 9 Average annual growth rate over the past decade, by value



Source: CIE 2013

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

Figure 10 Price and quantity of Queensland barramundi and prawns



Source: CIE 2013

Table 14 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: ABARES 2012

Table 15 Fisheries production in 2011–12, by state, Australia

	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**

Australian totals include aquaculture but exclude hatchery production and are preliminary.

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: ABARES 2012

Table 16 Aquaculture production in 2011–12, by state, Australia

	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**

Australian totals include aquaculture but exclude hatchery production and are preliminary.

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: ABARES 2012

APPENDIX E: GUTHALUNGRA CASE STUDY

Background

The Guthalungra aquaculture development was first proposed by Pacific Reef Fisheries (PRF) in January 2001. It underwent an impact assessment process lasting approximately 10 years. This culminated in the approval of the project by the Commonwealth Minister for the Environment subject to 19 conditions in March 2010 (SEWPAC 2010). Following an appeal by PRF and negotiations regarding the offsets and waste water discharge conditions, the Minister amended the approval and subjected it to 21 conditions in November 2011 (SEWPAC 2011).

A key sticking point for the proponents has been the requirement for the project to source an environmental offset to achieve no net increase in the load of nutrients and suspended solids associated with the discharge of aquaculture waste from this facility to Abbot Bay. PRF is negotiating to achieve the above requirement while maintaining the financial viability of the project.

The Commonwealth approval requires PRF to prepare and submit for the Minister's approval an environmental offsets strategy to manage the impacts of the proposed development on the values of the Great Barrier Reef World Heritage Area. PRF also requires a development approval from the Whitsunday Regional Council (formerly the Bowen Shire Council) to proceed with this development.

Key features of project

PRF propose to construct an aquaculture facility near the coastal town of Guthalungra, adjacent to the Elliot River in the Bowen region, to produce black tiger prawns (*Penaeus monodon*). The proposed facility is located within the Don River catchment area. The Queensland Coordinator-General (C-G) noted in his report that the proponent has incorporated a number of important innovations unique to this proposed facility to minimise the environmental impacts (Coordinator-General 2008, PRF 2003). These include:

- The facility of 259 aquaculture ponds (each approximately 1 hectare in size and 1.5 m in depth) which will be organised into three independent farms within the overall farm development. Each farm will have independent water supply, drainage, exchange water treatment and reuse facilities.
- From an environmental and biosecurity standpoint, this arrangement will provide each farm manager with full control over water quality management of their farm area and reduce the risk of disease spreading through water transfer.
- Grow-out and discharge treatment ponds designed to allow for integration of new technologies as they are developed and become economically feasible.
- Intake and discharge water pipelines connected to the ocean (Abbott Bay) which will be located away from seagrass beds to minimise environmental impact.
- Integration of sand filtration technology for discharge water treatment.
- A discharge remediation area of approximately 47 ha consisting of sedimentation and settlement ponds. The discharge treatment system will be designed to incorporate two-stage remediation ponds, which allows for enhanced biological treatment processes and more effective settling of solids.
- The sedimentation areas and settlement ponds will be designed with the capacity to increase their operating depth from 2m to 3m when required to accommodate short-term increases in hydraulic or nutrient loads.
- Other key features of the development include:

- An 11.3 ha seawater storage pond with a storage capacity of 370 megalitres.
- A freshwater storage pond and water reticulation system.
- A seafood processing facility.
- Farm support infrastructure including feed storage, workshops, general storage and accommodation.

Assessment process

The Guthalungra proposal underwent a whole of government EIS process coordinated by the C-G. This development assessment involved local government, as well as Queensland and Commonwealth government agencies. The table below outlines the assessment timeline and processes involved for the development approval.

Table 17 Assessment timeline and processes for the Guthalungra proposal

Date	*Jurisdiction*	*Assessment Process*
Jan 2001	Commonwealth	**Referral to the Commonwealth** PRF referred the project to the Commonwealth Minister for the Environment as required under the EPBC Act. The Minister determined that the proposed development constitutes a 'controlled action' as defined under the EPBC Act.
Jun 2001	State	**Declaration of a 'significant project'** The C-G declared this proposed development a 'significant project', for which an EIS is required under the SDPWO Act.
Jul 2001	Commonwealth	**Accreditation of Queensland's EIS process** The C-G wrote to the Commonwealth Minister for the Environment seeking approval for the assessment of the project to be under an accredited process. The Commonwealth Minister accredited the EIS process under the SDPWO Act and SDPWO Regulation in accordance with the EPBC Act on 9 July 2001.
Apr 2002	State	**Initial Advice Statement** PRF lodge an initial advice statement with the C-G.
Apr 2002	State	**Consultation on terms of reference for the EIS** The draft terms of reference (TOR) for the EIS were released for public consultation by the C-G.
Jun 2002	State	**Release of final terms of reference for the EIS** Following the evaluation of comments received from the public and advisory agencies, the C-G finalised the TOR and issued them to PRF.
Sept 2003	State	**Release of the EIS to advisory agencies** The C-G approved the EIS submitted by PRF for release to advisory agencies and key stakeholders for comments after determining that it fulfilled the EIS's TOR.
Oct 2003	State	**Public release of the EIS** The C-G published the EIS and invited written feedback from the general public. The consultation period lasted for six weeks. Consultation closed on 4 December 2003.
Mar 2004	State	**Request for a supplementary EIS** The C-G provided the 21 submissions on the EIS from the public and advisory agencies to PRF and requested a supplementary EIS to respond to the issues raised in the submissions.

Date	*Jurisdiction*	*Assessment Process*
Mar 2004-Jul 2005	State	**PRF considered submissions on EIS and progressing project** PRF considered the submissions received on the EIS and whether to proceed with the project.
Aug 2006	State	**Submission of draft supplementary EIS** PRF submitted a draft supplementary EIS. The C-G sought advice from advisory agencies on whether the supplementary EIS addressed their concerns raised in the EIS submissions.
Aug 2006-Aug 2007	State	**Discussion between PRF and with advisory agencies** PRF discussed with advisory agencies about the issues raised in their submissions. It also commenced discussions with the state EPA on nutrient discharges, offsets and conditions to be applied to the development.
Jan 2007	State	**Final supplementary EIS** PRF submitted its final supplementary EIS to the C-G. The C-G distributed the report to agencies seeking input on proposed conditions.
Jan 2007-Aug 2007	State	**Negotiation on offsets proposal** PRF discussed with the state EPA approval conditions and offset requirements.
Jan 2008	State	**Release of C-G's report on the EIS** The C-G released its report on the EIS and recommended the approval of the proposed development subject to 199 conditions.
Jan 2008	Commonwealth	**Submission of the C-G's report on the EIS to the Commonwealth Minister** The C-G provided its report on the EIS to the Commonwealth Minister for the Environment and advised that the C-G is satisfied that if project is allowed to proceed subject to the conditions imposed it will not cause environmental harm to matters of national environmental significance.
Feb 2008	Commonwealth	**Advice on Offsets** The Commonwealth Department of the Environment (DOE) advised PRF that additional discharge offsets are required.
Feb 2008	Commonwealth	**Offsets discussion between PRF, state and Commonwealth** PRF and the Queensland Department of Employment, Economic Development and Innovation discussed offset requirements with the DOE. They also provided the DOE with further information on the state approved offset.
Mar 2008	Commonwealth	**Independent review of the EIS** The Commonwealth environment department engaged the CSIRO and AIMS to undertake a review of the C-G's report on the EIS.
May 2008	Commonwealth	**Completion of independent review of the EIS** Completion of an independent review of the EIS by AIMS and CSIRO for consideration by the Commonwealth Minister for Environment. The Queensland Farmers Federation (2013) noted in its report that the review found that the C-G had imposed appropriate conditions to address the environmental risk of the proposal. Furthermore, DSDIP noted that the risk of the proposal in the GBR is minimal.
Jun 2008	Commonwealth	**Further discussion with the Commonwealth** PRF had further discussions with the DOE on additional wastewater discharge offsets strategies. PRF proposed to fund fertiliser management plans on 4000 hectares of cane farms.
Nov 2009	Commonwealth	**Release of draft conditions of approval** The Commonwealth environment department released its draft conditions of approval for the proposal. The key conditions include a requirement for the project

Date	*Jurisdiction*	*Assessment Process*
		to implement an offset facility to achieve no net increase in the load of nutrients and suspended solids associated with the discharge of aquaculture waste from this facility to Abbot Bay.
Dec 2009	Commonwealth	**Response to draft conditions of approval** PRF provided a detailed response to the draft conditions which require changes to the proposal in order for the project to proceed. With its response, PRF provided a support letter from the CSIRO Food Futures Flagship with the advice that the proposal poses low risk to the GBR in an attempt to persuade the Commonwealth Minister for Environment**.**
Mar 2010	Commonwealth	**Release of Final Conditions of Approval** The Commonwealth provided its approval for the proposal subject to 19 conditions, including a condition requiring no net increase in the load of nutrients and suspended solids associated with the discharge of aquaculture waste from this facility to Abbot Bay.
Mar 2010-Nov 2011	Commonwealth	**Further Discussion with the Commonwealth** PRF conducted further discussion with the DOE on offsets and wastewater discharge conditions**.**
Nov 2011	Commonwealth	**Variation of Conditions of Approval** The Commonwealth Minister for Environment amended the approval and subjected it to 21 conditions, where five conditions were varied and two additional conditions were imposed. The key condition which required the proposal to implement an offset facility to achieve a no net increase in discharge entering Abbot Bay remains.
Nov 2011-Present	Commonwealth	**Further Discussion with the Commonwealth** PRF is in the process of obtaining permission from GBRMPA in accordance with the conditions of the EPBC Act approval.

Source: DAFF, DSDIP, GBRMPA, PRF, PRF (2003) and PRF (2006)

Key matters considered during the assessment

Referral to the Commonwealth

PRF referred the project to the Commonwealth Minister for the Environment (the Minister) as required under the EPBC Act.

The Minister determined that the proposed development constitutes a 'controlled action' as defined under the EPBC Act, as it could potentially have a significant impact on the following matters of national environmental significance:

- World heritage properties
- Commonwealth marine environments
- Threatened species and ecological communities
- Migratory species.

As a result, the proposed development requires Commonwealth approval to proceed.

Declaration of a 'significant project'

The C-G declared this proposed development a 'significant project' (currently known as 'coordinated project'), for which an EIS is required under the SDPWO Act.

The declaration of a 'significant project' implied that the C-G was of the view that the proposed development requires a rigorous and comprehensive environmental impact assessment, involving a whole-of-government coordination. It is important to note that the declaration does not exempt the project proponent from the need to:

- obtain the necessary development approvals and
- comply with the relevant planning and environmental regulations.

The advisory agencies involved in advising the C-G in its assessment of the proposal included (Queensland government agencies unless otherwise stated):

- Department of Primary Industries
- Department of Natural Resources and Water
- Department of Local Government, Planning, Sport and Recreation
- Queensland Health
- Department of Housing
- Environmental Protection Agency
- Department of Main Roads
- Department of Employment and Training
- Department of Aboriginal and Torres Strait Islander Policy
- Department of Tourism, Fair Trading and Wine Industry Development
- (Commonwealth) Great Barrier Reef Marine Park Authority (GBRMPA).

Accreditation of Queensland's EIS process

The Commonwealth Minister for the Environment accredited the EIS process under the SDPWO Act and SDPWO Regulation on 9 July 2001 in accordance with the EPBC Act.

As stipulated under s.87 of the EPBC Act, this accreditation signifies that the Minister is satisfied that the EIS process:

- Ensures that the relevant impacts of the action are adequately assessed.
- Meets the standards (if any) prescribed by Commonwealth regulations.
- Ensures that the Minister will receive a report of the outcome of the process which will provide enough information on the relevant impacts of the action to allow the Minister to make an informed decision as to whether to approve the taking of the action.

Subsequent to this accreditation, the Queensland and Commonwealth governments enacted a bilateral agreement on environmental assessment where the C-G's report on this proposed development constitutes the assessment report required under the EPBC Act.

GBRMPA stated that this bilateral agreement enables the Commonwealth government to rely primarily on the Queensland assessment processes set out in assessing actions under the EPBC Act.

Therefore, the C-G's report will be used by the Minister in deciding whether to approve the proposal or whether any conditions should be attached to the Commonwealth's approval. Under this arrangement, the proposed Guthalungra development will be subjected to a single EIS process to assess issues under the jurisdiction of both the Queensland and Commonwealth governments.

Request for a supplementary EIS

The C-G provided the 21 submissions on the EIS from the public and advisory agencies to PRF and requested a Supplementary EIS to respond to the issues raised in the submissions (Coordinator-General 2008).

The substantive issues raised in submissions on the EIS were as follows:

- the management of discharge and impact on water quality in Abbott Bay
- impacts on marine plants
- construction impacts of the intake and discharge pipelines and pumping stations
- construction of grow-out ponds
- acid sulphate soils
- cultural heritage and
- social-economic impacts, specifically housing impacts.

Release of C-G's report on the EIS

The C-G released its report on the EIS and recommended the approval of the proposed development subject to 199 conditions. In its report the C-G undertook a comprehensive evaluation of the following:

- water quality management and its associating mitigation and offset strategies to minimise the impacts of the discharge of suspended solids and nutrients
- construction and operational impacts on marine plants
- the impacts of the construction of the pipeline and offshore pump station on native vegetation, coastal wetland and dune system
- the impacts of the pipeline on sensitive habitats within the Great Barrier Reef Coast Marine Park (State)
- the impacts of the construction of pipeline and grow-out ponds on acid sulphate soils
- the impacts of the construction of aquaculture ponds
- the impacts of the proposed facility on cultural heritage issues
- the socio-economic impacts of the proposed facility
- the impacts of the proposed facility on matters of national environmental significance.

It is important to note that C-G's report on the EIS is not an approval in itself. The conditions of approval in the report will only gain legal effect when they are attached to a development approval given under other specific legislation. In other words, proponents of significant projects (currently known as 'coordinated projects') are still required to obtain all other development approvals and licences from:

- local authorities
- state government departments
- Commonwealth authorities (if applicable).

In the case of the proposed Guthalungra project, the following approvals and permits are required for the project to proceed:

Table 18 Approvals and permits required for Guthalungra proposal

Legislation	*Subject*	*Concurrence or Approval Agency*[8]
1. Local authorities		
Integrated Planning Act 1997	• Development approval for a material change of use	Bowen Shire Council
2. State government departments		
Fisheries Act 1994	• Material change of use for aquaculture • Removal, destruction or damage of marine plants	Department of Primary Industries and Fisheries
Environmental Protection Act 1994	• Environmentally relevant activities, which include aquaculture, seafood processing, sewage treatment, crude oil or petroleum product storing and dredging material	Environmental Protection Agency
Vegetation Management Act 1999	• Clearing of native vegetation	Department of Natural Resources and Water
Coastal Protection and Management Act 1995	• Tidal work • Operational work in a coastal management district	Environmental Protection Agency
Coastal Protection and Management Act 1995	• A quarry material allocation required for dredging of material from within coastal waters	Environmental Protection Agency
Aboriginal Cultural Heritage Act 2003	• Cultural Heritage Management Plan	Department of Natural Resources and Water
Marine Parks Regulation 2006	• Permit to enter and use a marine park	Environmental Protection Agency
Land Act 1994	• Proposed pipeline route requires access to leasehold land on an adjacent allotment and an existing road reserve	Department of Natural Resources and Water
Land Act 1994	• Permit to occupy to allow construction of the pipeline over state land	Department of Natural Resources and Water
3. Commonwealth authorities		
Environment Protection and Biodiversity Conservation Act 1999	• Approval for an action affecting a matter of national environmental significance	Commonwealth Minister for the Environment
Great Barrier Reef Marine Park Act 1975	• Permission for the placement, operation and maintenance of structure, intake of seawater and discharge of aquaculture waste in the GBRMP	Great Barrier Reef Marine Park Authority

[8] The agency names used in this table are those used at the relevant time. Most of them have since been re-names and reorganised.

Completion of independent review of the EIS

The Queensland Farmers Federation (2013) reported that the review by CSIRO and AIMS on the EIS found that:

- The C-G had imposed appropriate conditions to address the environmental risks of the proposal and ensure that any residual environmental impact would be minimised and appropriately monitored.
- There is unlikely to be significant impact from the proposed facility and risks to the world heritage value of the GBR and threatened species and communities are low.

Furthermore, DSDIP noted that the risk of the proposal in the GBR is minimal and the proposed water quality outcomes could be achieved by PRF with normal farm management.

Release of final conditions of approval

The Commonwealth Minister for the Environment provided its approval for the proposal to proceed subject to 19 conditions (SEWPAC 2010). The key contentious condition imposed was the requirement for the project to implement an offset facility to achieve a zero net discharge of nutrients and suspended solids entering Abbott Bay.

Variation of conditions of approval

Following an appeal by PRF and discussions about offsets and waste discharge conditions, the Commonwealth Minister for the Environment amended his approval and made it subject to 21 conditions (SEWPAC 2011). Five conditions were varied and two additional conditions associated with an annual Environmental Performance Report as well as a permit required under GBRMP Act were imposed.

The key conditions include:

- A set of daily maximum load limits for discharge of nutrients and sediments into Abbott Bay.
- A requirement for the project to implement an offset facility to achieve a no net-increase in nutrients and suspended solids entering Abbot Bay.
- A requirement for the development to be implemented in stages, with approval for each subject to the demonstration that the previous stage was able to meet the development conditions imposed.

Figure 11 Satellite image of Guthalungra

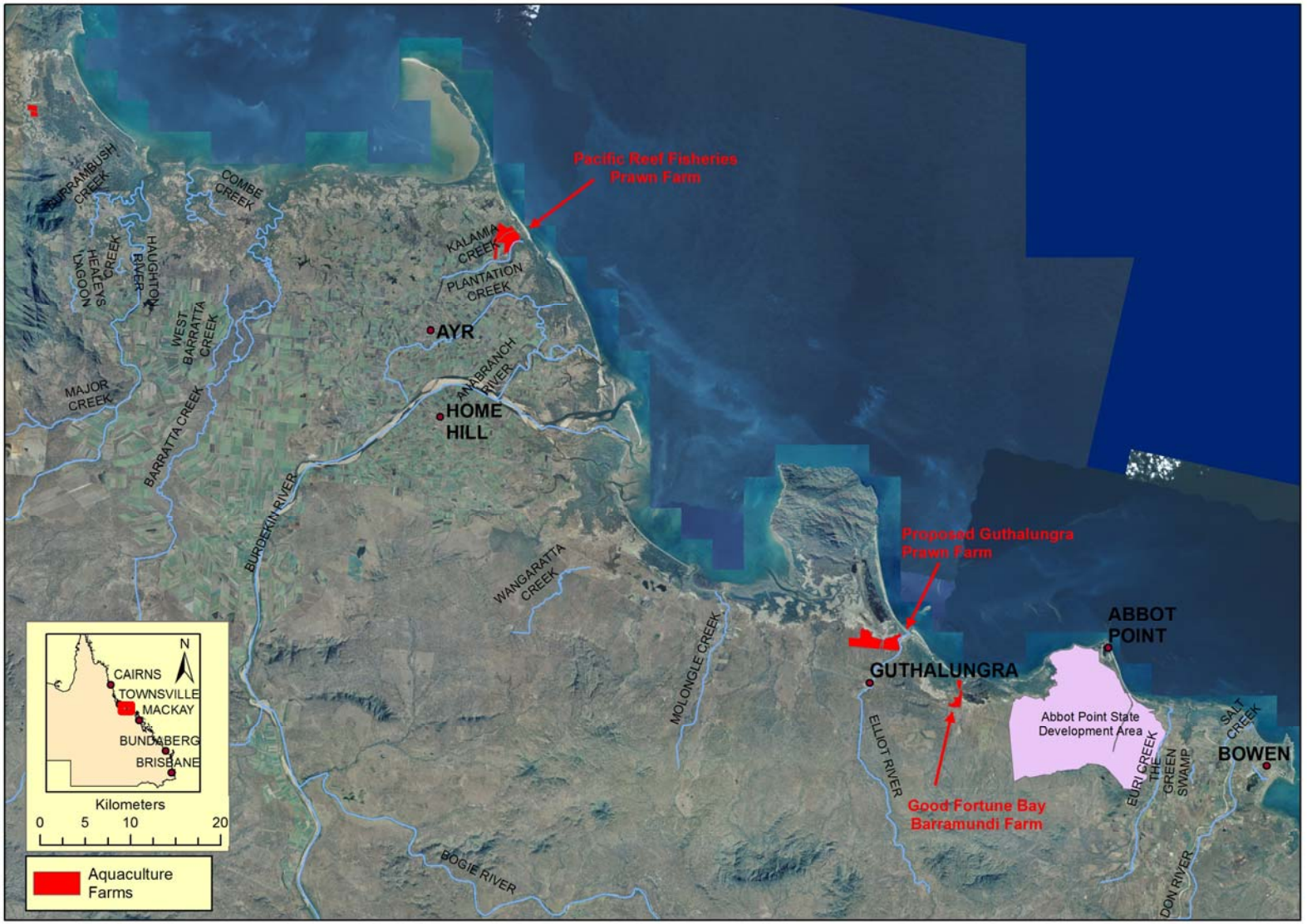
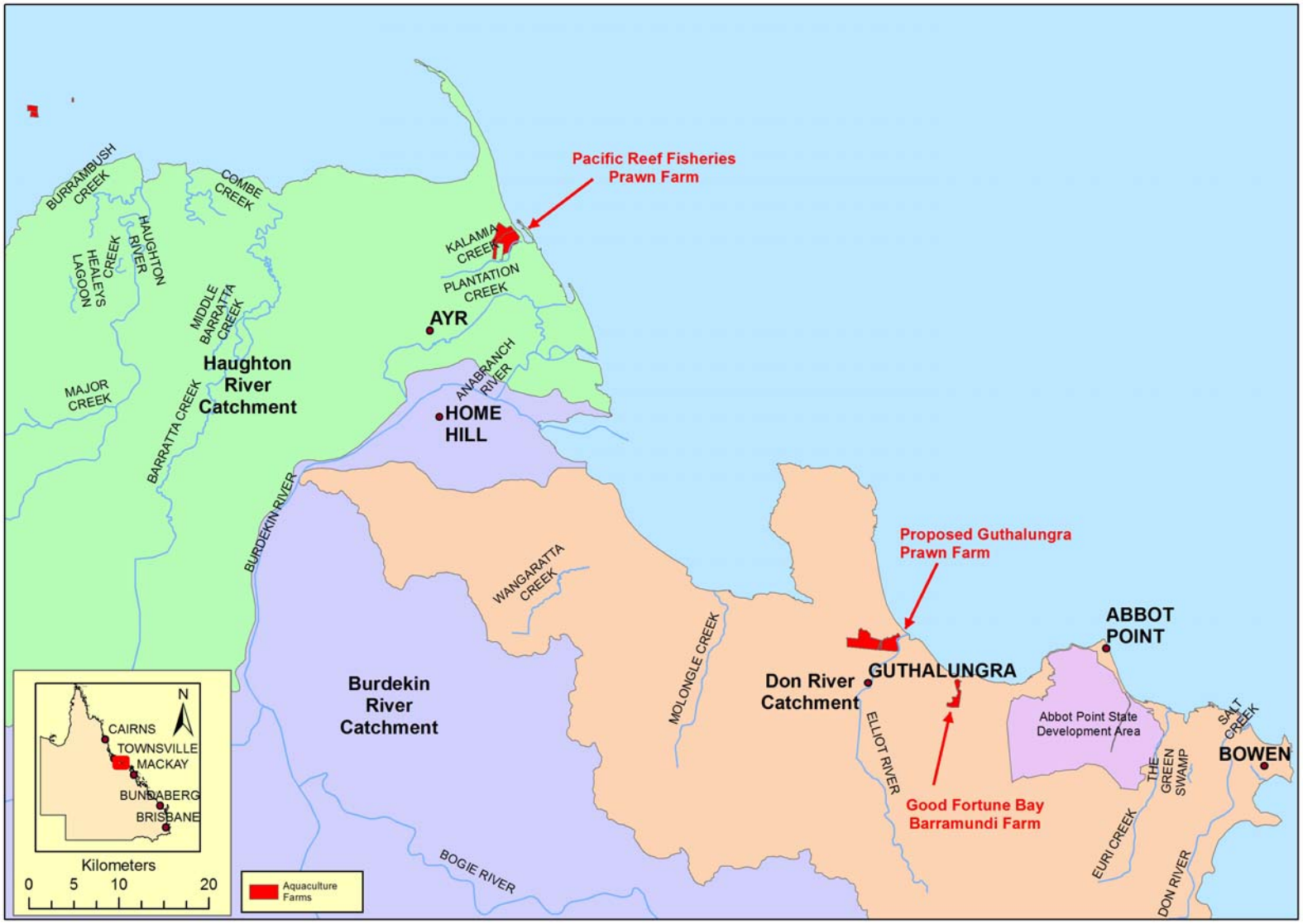


Figure 12 Map of Guthalungra with catchment boundaries



APPENDIX F: SUN AQUA CASE STUDY

Background

The Sun Aqua (SAqua) sea cage aquaculture development in Moreton Bay was first proposed in July 2001 (Coordinator-General 2004a). The Queensland Coordinator General (C-G) refused the project in 2004 on the grounds that the environmental impacts of nutrient discharge could not be adequately addressed (Coordinator-General 2004b). The then Queensland government reportedly paid SAqua significant compensation following the outcome of the assessment process (Moreton Island Protection Committee Inc 2005, Crikey 2005).

Key features of the project

SAqua proposed to construct a sea cage aquaculture facility on the eastern side of Moreton Bay to produce snapper and yellowtail kingfish (See Figure 13, Figure 14 and Figure 15). The proposed location was within the Moreton Bay State Marine Park, in a General Use Zone. The General Use Zone represents the least stringent of the zoning categories of the Moreton Bay Zoning Plan (1997), and allows some aquaculture activities.

Key features of the proposal included:

- A farm area of 100 ha with four operational sites, with a maximum of eight cages per site. The maximum cage surface area across the whole site was estimated to be 2 ha.
- A staged increase in production from 160 tonnes per annum in year one to 2,400 tonnes per annum at full production in year five.
- Stage 1 of the fish farm would discharge up to 24 tonnes of nitrogen and 5.4 tonnes of phosphorus per year.
- Shore-based facilities including an office, a small laboratory, a general amenities area, feed storage, diving facilities, net storage and ice making facilities.
- An automatic sensor-controlled feeding system. The use of automated feeders would significantly reduce feed wastage and minimise environmental impacts.
- Sewerage and wastewater would be maintained in holding tanks and transferred back on-shore for appropriate disposal.
- Broodstock would be gathered from the wild for fingerling production.
- Antifoulants and antibiotics would not be used. Other chemicals would be used in isolated instances with prescription and under supervision.

Assessment process

The SAqua proposal underwent a whole of government EIS process coordinated by the C-G. Because the proposal affected matters under Commonwealth jurisdiction, approvals from Commonwealth authorities were required for the project to proceed. The table below outlines the assessment timeline and processes involved.

Table 19 Assessment timeline and processes for the Sun Aqua proposal

Date	*Jurisdiction*	*Assessment Process*
Jun 2001	State	**Declaration of a 'significant project'** The C-G declared this proposed development a 'significant project', for which an EIS is required under the SDPWO Act.
Jul 2001	State	**Initial advice to the C-G** SAqua lodged an Initial Advice Statement for the proposed Moreton Bay project with the C-G.
	Commonwealth	**Referral to the Commonwealth** SAqua referred the project to the Commonwealth Minister for the Environment as required under the EPBC Act. The Minister determined that the proposed development constituted a 'controlled action' as defined under the EPBC Act.
Nov 2001	Commonwealth	**Accreditation of Queensland's EIS Process** The Commonwealth Minister for the Environment accredited the EIS process under the SDPWO Act and SDPWO Regulation in accordance with the EPBC Act.
Feb 2002	State	**Finalisation of the terms of reference for the EIS** The C-G finalised the TOR for the EIS and issued them to SAqua following the evaluation of comments received from the public and advisory agencies.
Jul 2003-Aug 2003	State	**Public release of the EIS** SAqua submitted the EIS to the C-G. It was publicly released by the C-G, seeking written feedback from the public within six weeks.
Sep 2003	State	**Request for advice on regulatory approvals** The C-G sought additional advice from Scientific Services (located within the state EPA) on impacts to water quality and protected species in Moreton Bay.
Jun 2004	State	**Request for a supplementary EIS** The C-G released an interim report which requested that a Supplementary EIS be prepared to address the issues raised in the submissions.
Aug 2004	State	**Denial of a development approval by the C-G** While SAqua was preparing the supplementary EIS, the C-G denied SAqua a development approval on the grounds that the environmental impacts of the nutrient discharge could not be adequately addressed**.**
April 2005	Commonwealth	**Proposal Withdrawn** SAqua withdrew its application for the Moreton Bay Project with the DOE.

Key matters considered during the assessment

Public release of the EIS

The C-G received over 1,000 submissions on the EIS by the due date of 21 August 2003. The Commonwealth Minister for the Environment received a further 4,000 submissions and provided these to the C-G (Coordinator-General 2004a). The submissions were primarily concerned with the following issues:

- The proposal conflicted with the intent to protect the area in its natural state (which was the reason the area was declared as a Marine Park).
- Discharge of nutrients and waste from the proposed development.

- Bio-sedimentation at the farm site and surrounding sensitive sites at Moreton Bay.
- Impacts on water clarity and subsequent impacts on marine flora such as seagrass.
- Impacts on threatened species including migratory whales and birds.
- Negative impacts on wild fish stocks including the potential spread of disease.
- Impacts of disease controls measures and the use of chemo-therapeutants.
- Visual impacts of the proposed development.
- Site use conflicts.
- Likelihood of the proposal attracting sharks to the area.
- Negative impacts of the proposal on tourism.
- Environmental monitoring and its implementation.
- Consultation with traditional owners and indigenous groups.
- Dependence of the industry in sourcing protein for feed production from wild fisheries.

Request for a supplementary EIS

The C-G published an interim report on the EIS which requested that a supplementary EIS be prepared to address the issues raised in the submissions (Coordinator-General 2004b). The report was prepared with the information available to date and was intended to provide further guidance to SAqua on the completion of the EIS.

Denial of a development approval by the C-G

While SAqua was preparing the supplementary EIS, the C-G denied SAqua a development approval on the grounds that the environmental impacts nutrient discharge could not be adequately addressed. The key points raised by the C-G in its final report include (Coordinator-General 2004b):

- The C-G was not satisfied that the environmental impacts of the proposal, especially the discharge of nutrients, could be adequately addressed to the strict standards required and applied to other facilities discharging into eastern Moreton Bay
- The C-G was of the view that only zero discharge would be consistent with the strategy to remove nutrients and improve the water quality of Moreton Bay. To comply with the strategy of improving the water quality, SAqua would have to demonstrate that the proposal will result in no additional nutrient outflows to Moreton Bay.

The then Queensland government reportedly paid significant compensation to the proponent 18 months after the proposal was refused (Moreton Island Protection Committee Inc 2005, Crikey 2005)

Figure 13 Satellite image of Sun Aqua

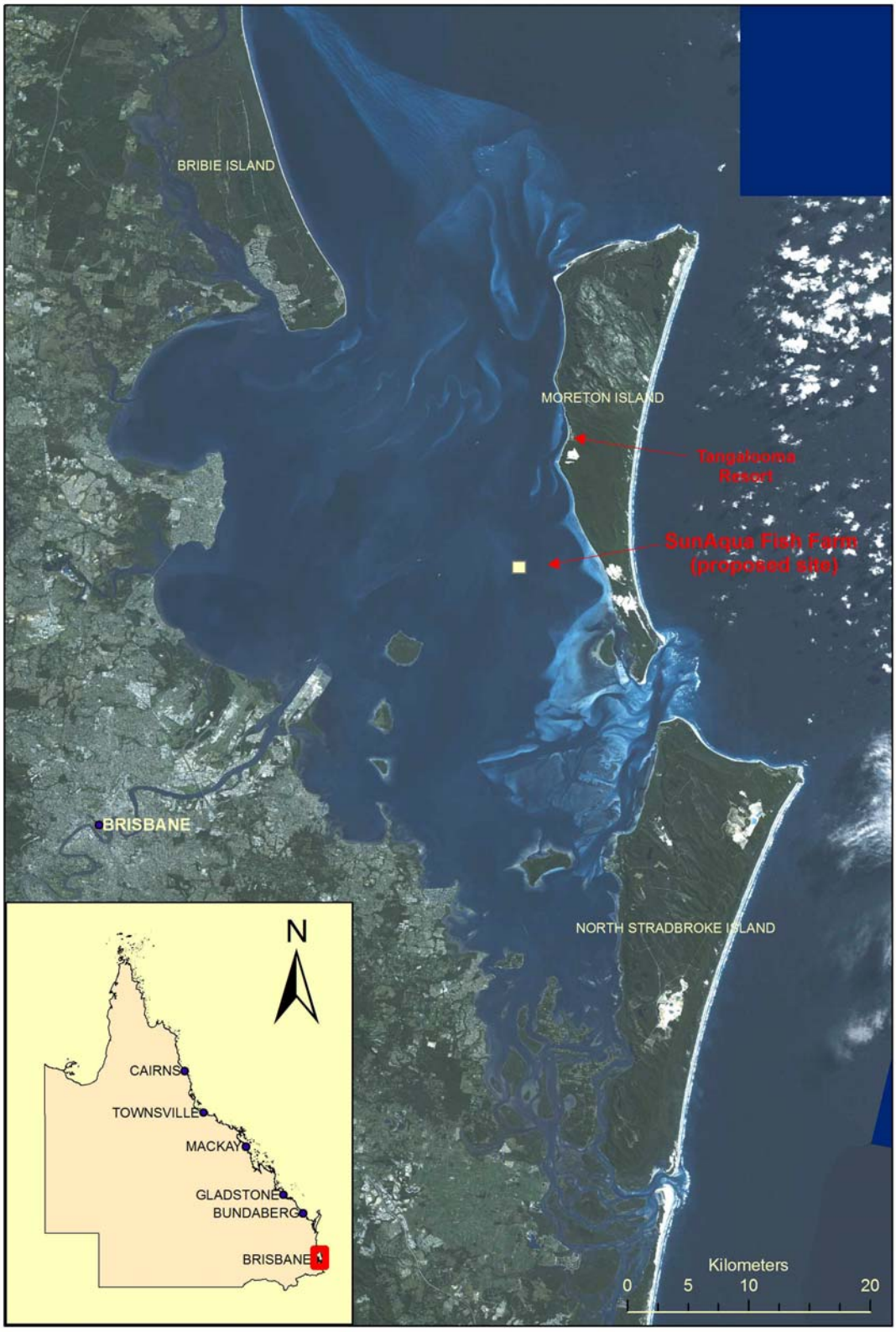


Figure 14 Map of Sun Aqua with existing operations

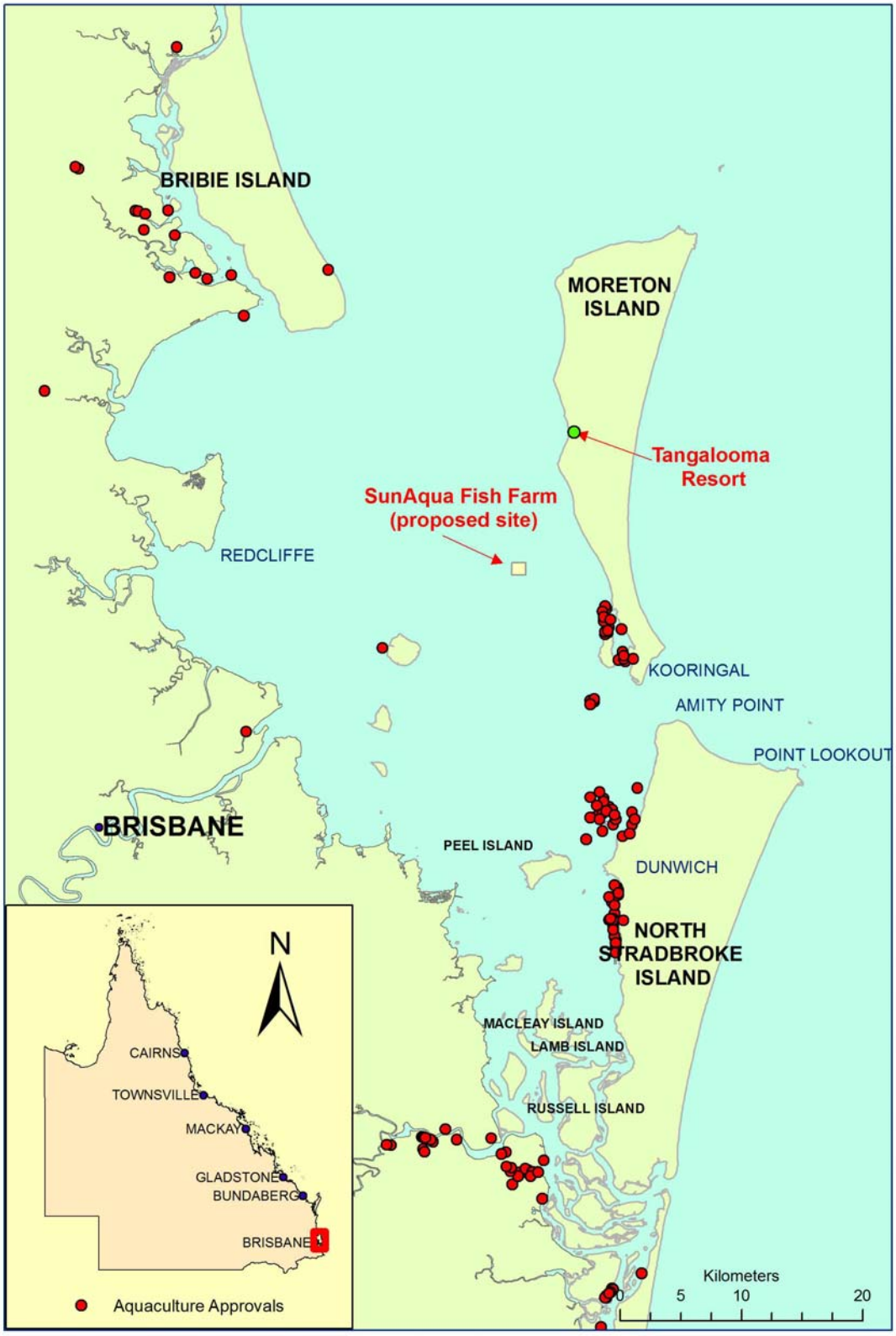
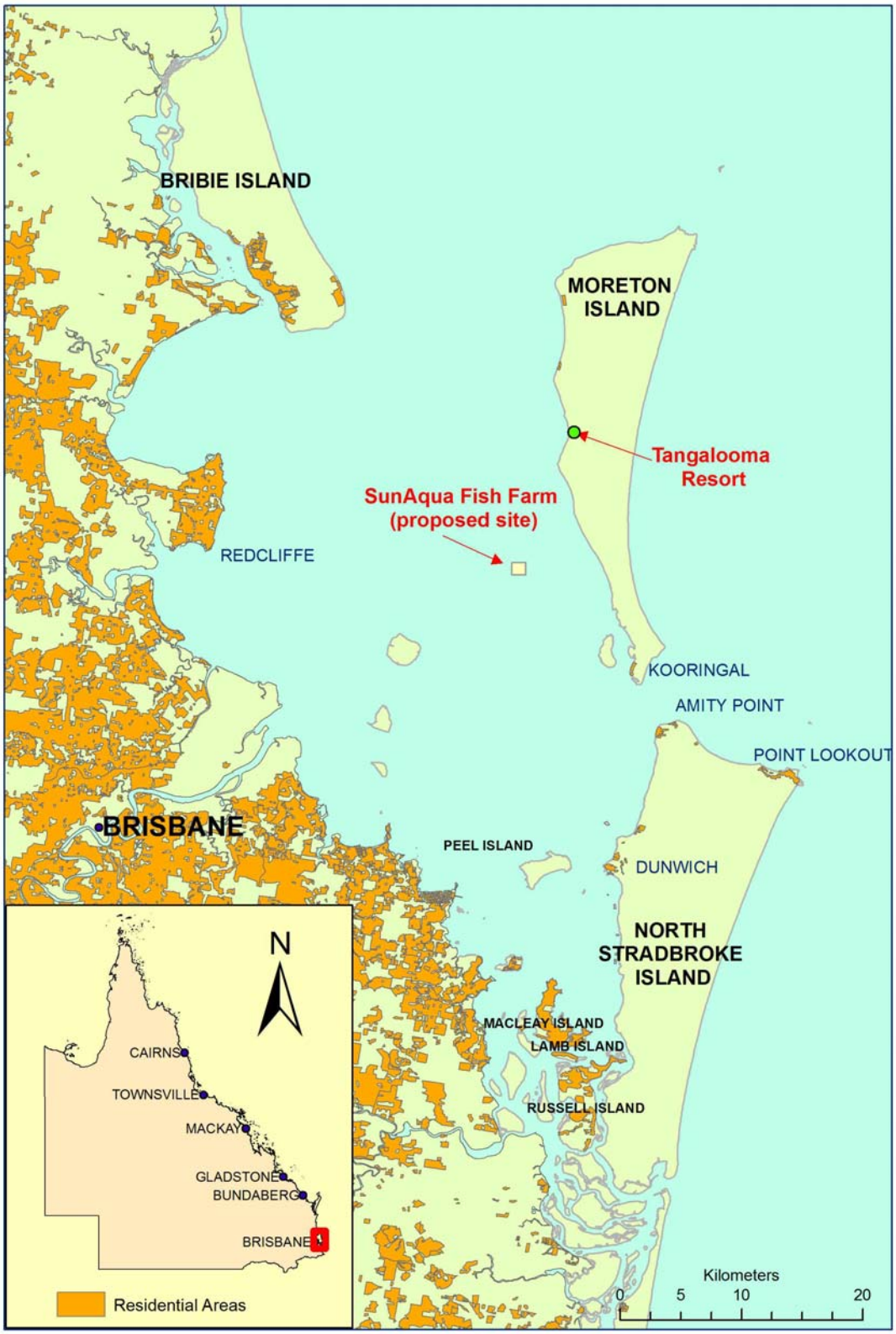


Figure 15 Map of Sun Aqua with residential areas



APPENDIX G: GIS MODELLING EXERCISE — AYR REGION

Figure 16 Satellite image of the Ayr region

Figure 17 Initial aquaculture area of interest

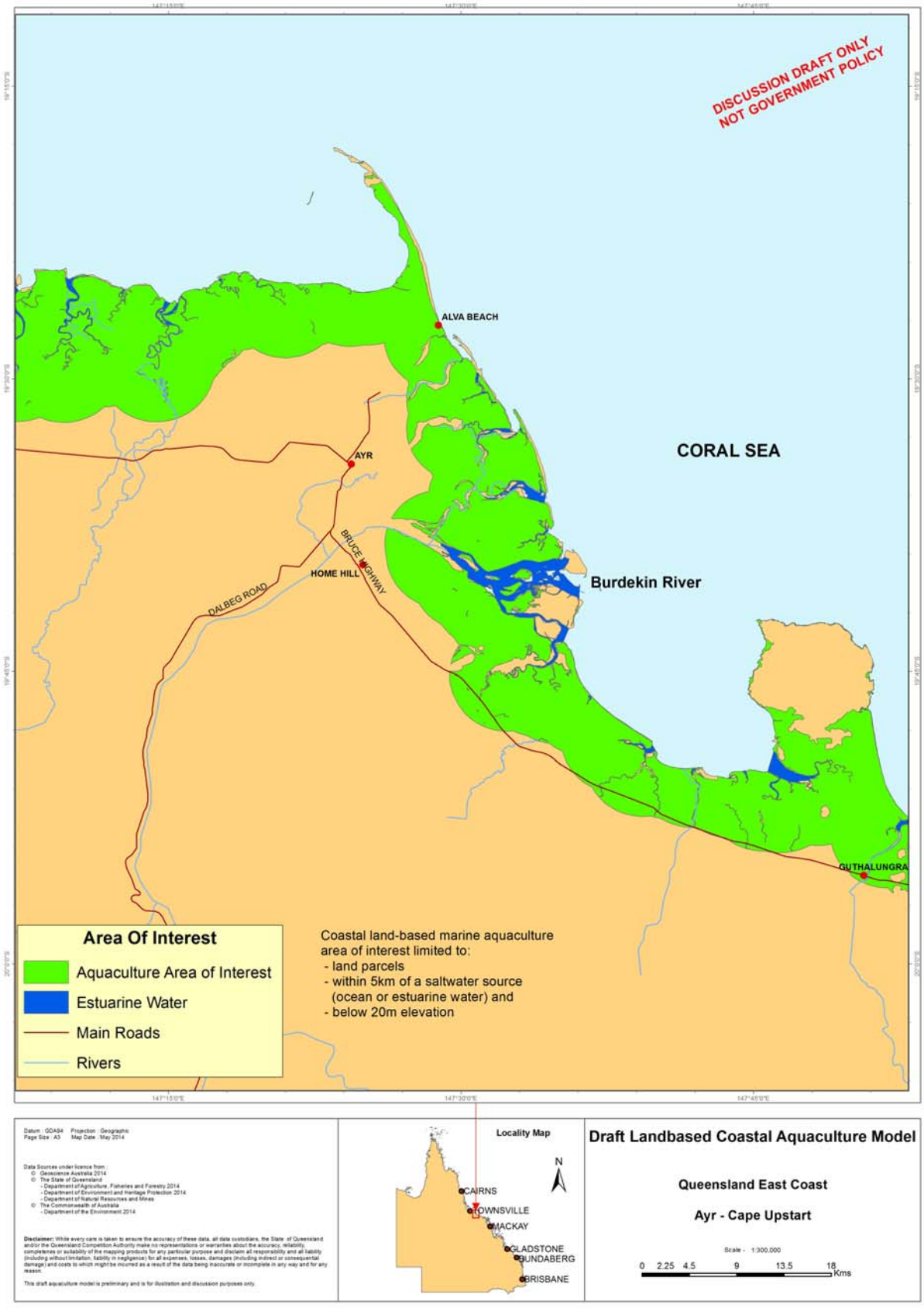


Figure 18 Commonwealth constraints

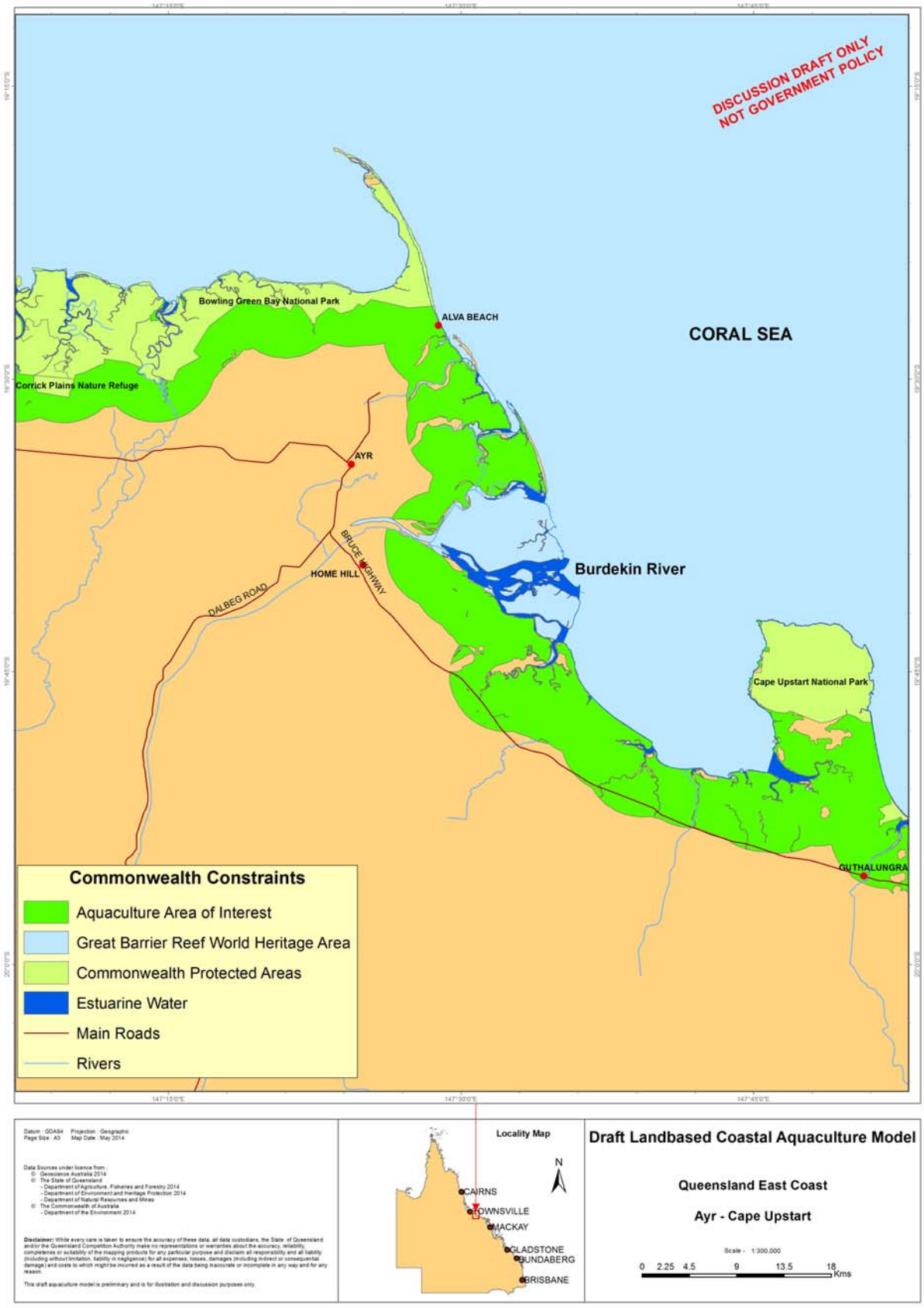


Figure 19 Queensland government constraints

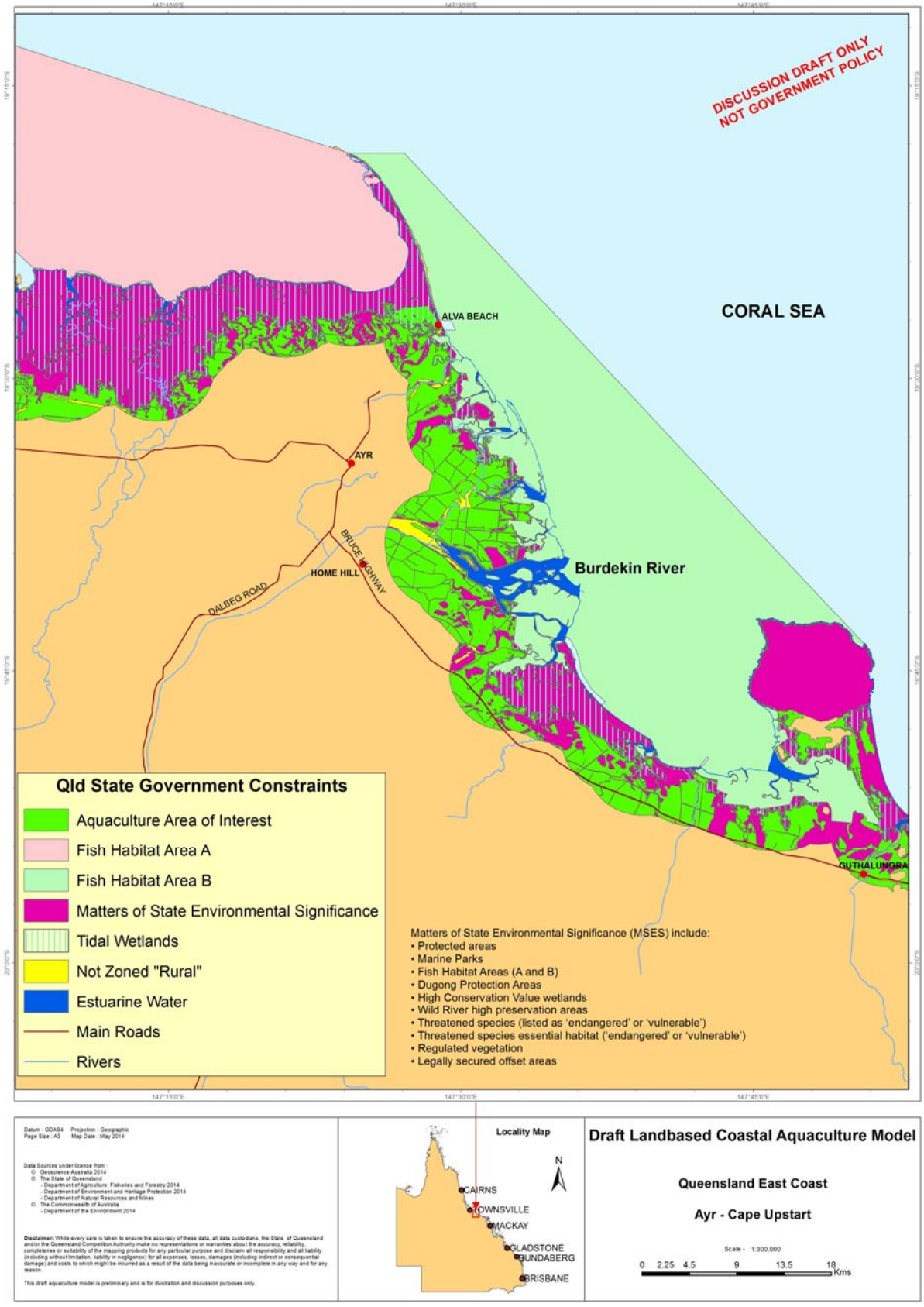


Figure 20 General planning constraints

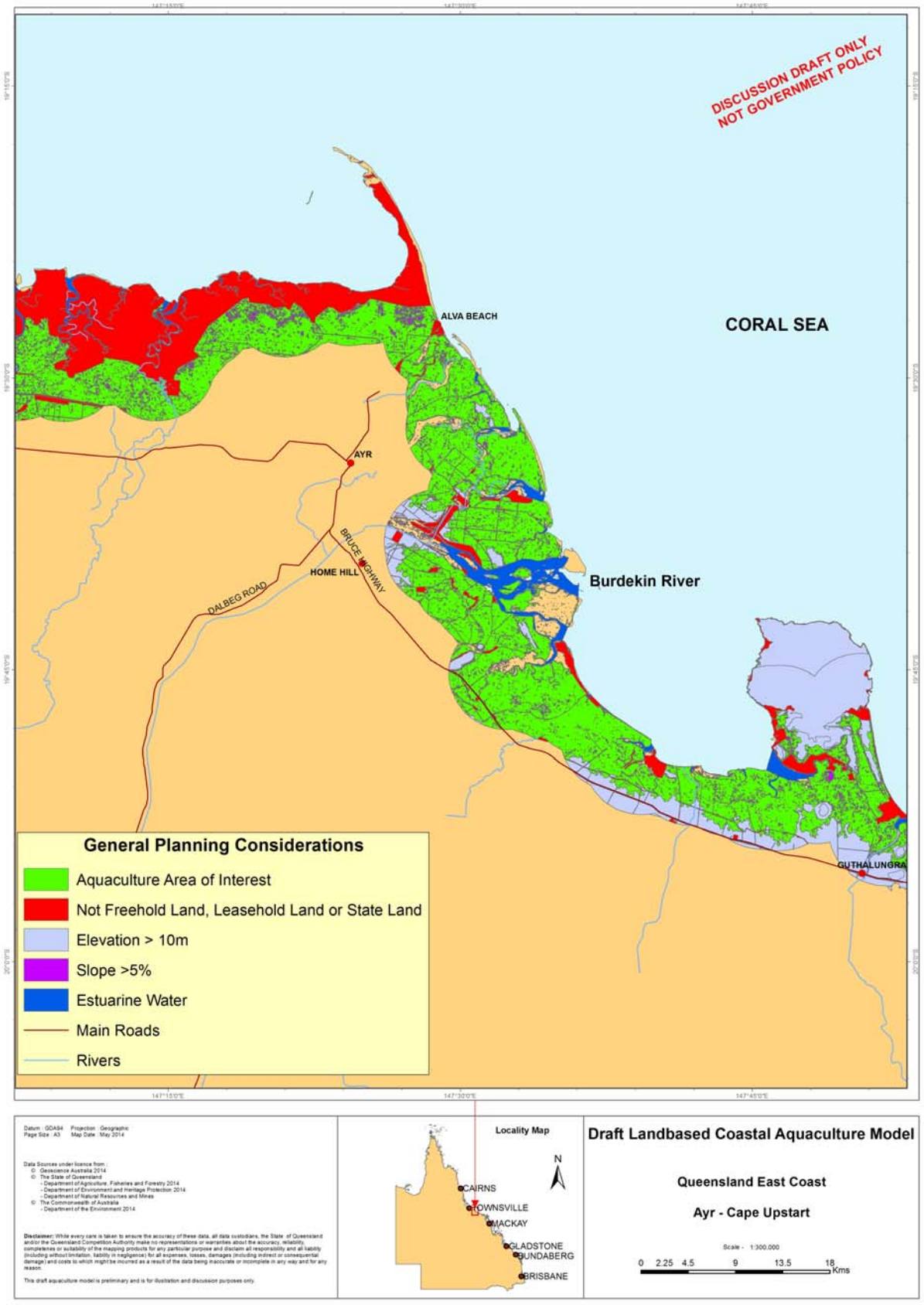
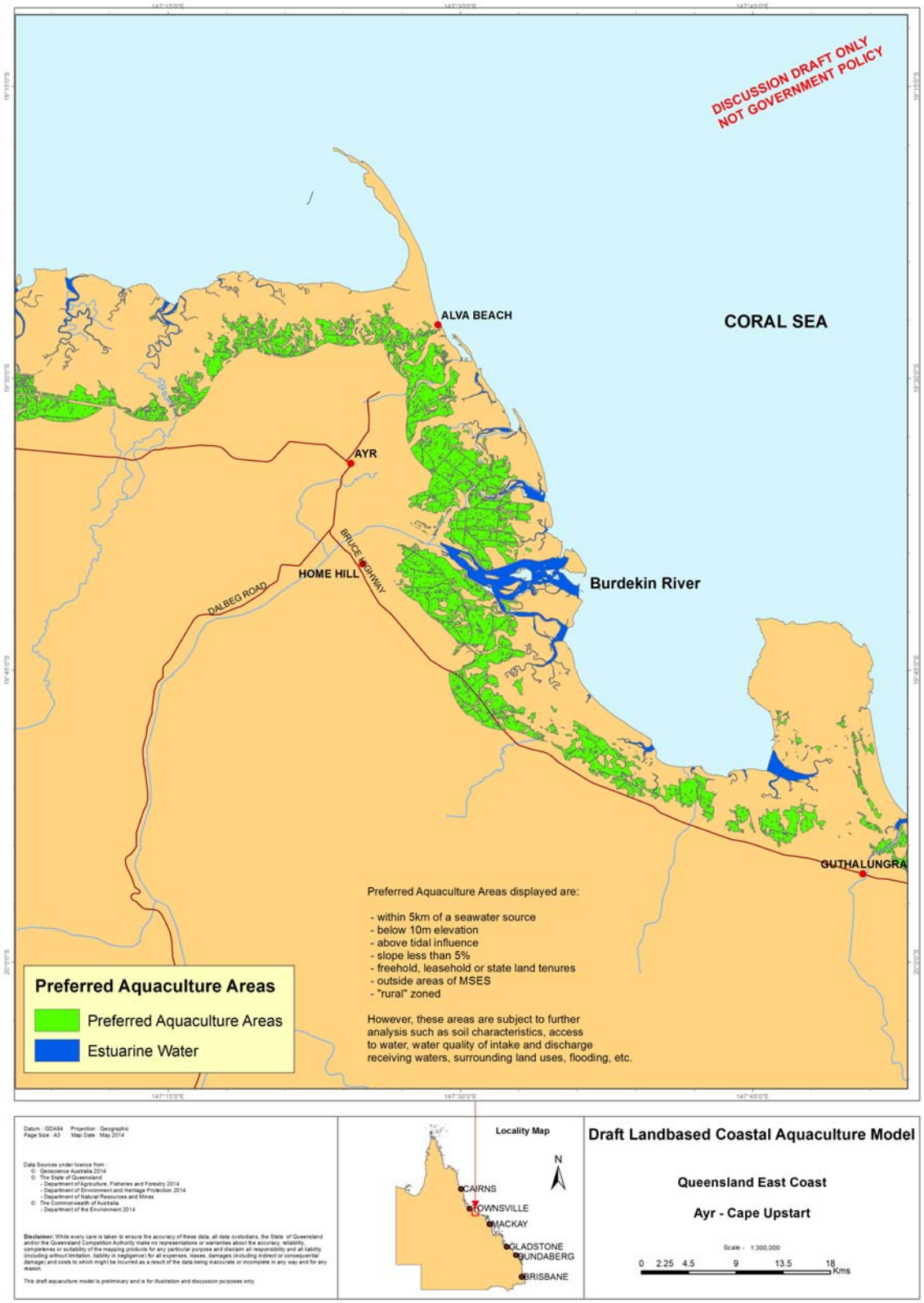


Figure 21 Preferred aquaculture areas[9]



[9] Figure 21 presents the area available for potential aquaculture developments using the map in Figure 17 and excluding all areas required for alternative uses, as defined by Figure 18 to Figure 20.

APPENDIX H: PERFORMANCE BOND CONDITION

(1) Prior to commencing any activities under this authority, the applicant must submit to the Department a performance bond in the form of an unconditional bank guarantee to the value of $[enter amount] from an institution authorised under the *Banking Act 1959* to carry on banking business in Australia.

(2) The applicant must replace the performance bond with a new performance bond in the form of an unconditional bank guarantee from an institution authorised under the *Banking Act 1959* to carry on banking business in Australia, to allow for any increase in salvage costs over time:

  (a) every 7 years; and

  (b) within three months of the applicant expanding its aquaculture operation to involve additional infrastructure.

(3) The value of the new performance bond shall be the average of two salvage quotes, obtained from private contractors experienced in the industry, for the costs associated with the clean up of the approved aquaculture area and the removal and appropriate disposal of any aquaculture furniture, infrastructure or other material, including waste material and debris from that area.

(4) The applicant must provide the two salvage quotes to the Department at the same time the applicant gives the Department the new performance bond.

(5) The Department will return the earlier performance bond to the applicant once the Department has received a performance bond which complies with the requirements of conditions 7(c) and 7(d) of this authority.

(6) The Department may use all or part of the performance bond at any time during the currency of this authority to reimburse the Department for any costs incurred by the chief executive in taking action under section 124(1) or section 125(4) of the Fisheries Act 1994.

(7) If the Department uses all or part of the performance bond to reimburse the Department for any costs incurred by the chief executive in taking action under section 124(1) or section 125(4) of the *Fisheries Act 1994* under condition 7(f), the applicant must reinstate the performance bond to its original amount by giving the Department:

  (a) an additional performance bond in the form of an unconditional bank guarantee from an institution authorised under the Banking Act 1959 to carry on banking business in Australia for the amount of the bond used by the Department under condition 7(f); or

  (b) a replacement performance bond in the form of an unconditional bank guarantee from an institution authorised under the Banking Act 1959 for the total amount of the bond amount (that is, the amount of the bond used by the Department and the un-used amount of the bond). The Department will return the earlier performance bond to the applicant within seven days of receipt of the replacement bond under this clause.

(8) The Department may use all or part of the performance bond to reimburse the Department for any costs incurred by the chief executive in taking action because of the applicant's failure to comply with condition [insert condition number] of this authority.

(9) The performance bond (or performance bonds if there are more than one) will be released by the Department and returned to the applicant:

(a) if the aquaculture operations authorised by this authority are ceased or this authority is cancelled or surrendered, when the Department is satisfied that the applicant has fully complied with its obligations under condition [insert condition number] of this authority; or

(b) if this authority is transferred, once the transferee has submitted to the Department a replacement performance bond in the form of an unconditional bank guarantee from an institution authorised under the Banking Act 1959 to carry on banking business in Australia to the same value as the performance bond/s it is replacing.

Source: DAFF 2013b

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