



**FINAL REPORT**

# Comparative review of aquaculture regulation

*Prepared for  
Queensland Competition Authority Office of Best Practice Regulation  
January 2014*

---

The Centre for International Economics is a private economic research agency that provides professional, independent and timely analysis of international and domestic events and policies.

The CIE's professional staff arrange, undertake and publish commissioned economic research and analysis for industry, corporations, governments, international agencies and individuals.

© Centre for International Economics 2014

This work is copyright. Individuals, agencies and corporations wishing to reproduce this material should contact the Centre for International Economics at one of the following addresses.

#### **CANBERRA**

Centre for International Economics  
Ground Floor, 11 Lancaster Place  
Majura Park  
Canberra ACT 2609

GPO Box 2203  
Canberra ACT Australia 2601

Telephone +61 2 6245 7800  
Facsimile +61 2 6245 7888  
Email [cie@TheCIE.com.au](mailto:cie@TheCIE.com.au)  
Website [www.TheCIE.com.au](http://www.TheCIE.com.au)

#### **SYDNEY**

Centre for International Economics  
Suite 1, Level 16, 1 York Street  
Sydney NSW 2000

GPO Box 397  
Sydney NSW Australia 2001

Telephone +61 2 9250 0800  
Facsimile +61 2 9250 0888  
Email [ciesyd@TheCIE.com.au](mailto:ciesyd@TheCIE.com.au)  
Website [www.TheCIE.com.au](http://www.TheCIE.com.au)

#### **DISCLAIMER**

While the CIE endeavours to provide reliable analysis and believes the material it presents is accurate, it will not be liable for any party acting on such information.

## Contents

<b>1 Introduction and overview</b>	<b>1</b>
Regulation of aquaculture	1
Comparative review of regulation	2
Overview of the aquaculture industry in the selected jurisdictions	3
Report structure	7
<b>2 Establishing an aquaculture facility</b>	<b>8</b>
Legislative framework for regulating aquaculture	8
Aquaculture approvals	10
Aquaculture planning	16
<b>3 Regulation affecting aquaculture operations</b>	<b>20</b>
Environmental issues	20
Other regulatory requirements	26
<b>4 Industry arrangements</b>	<b>28</b>
Arrangements for funding research and development and marketing	28
Place of origin branding	30
<b>5 Preliminary observations</b>	<b>31</b>
There are many similarities in the regulatory framework across jurisdictions	31
The marine farm planning framework is a key area of difference	31
Wastewater discharge standards	32
<b>A Application processes in each jurisdiction</b>	<b>34</b>
 <b>BOXES, CHARTS AND TABLES</b>	
1.1 Terms of reference	3
1.2 Gross value of aquaculture production — 2011-12	4
1.3 Category of aquaculture species by key jurisdiction	4
1.4 Key aquaculture species by gross value in Queensland	5
1.5 Key aquaculture species by gross value in Tasmania	5
1.6 Key aquaculture species by gross value in South Australia	6
1.7 Key aquaculture species by gross value in Western Australia	7
2.1 Overview of legislative framework for aquaculture	8
2.2 Approvals required for aquaculture activities	11
2.3 Other issues relating to approvals	14
2.4 Aquaculture zones	17

2.5	Nature of leases for offshore aquaculture	19
3.1	Legislative mechanisms for dealing with environmental issues	20
3.2	Other regulatory requirements relating to aquaculture	26
4.1	Rural Research and Development Corporations	29
4.2	Arrangements for funding aquaculture research and development	29
4.3	Place of origin branding arrangements	30
A.1	Process for an amendment to a Marine Farm Development Plan — Tasmania	34
A.2	Application process for development approval as specified under the <i>Sustainable Planning Act 2009</i> — Queensland	35
A.3	Approval process for a marine aquaculture licence and lease — South Australia	36
A.4	Assessment process of aquaculture proposals for coastal waters — Western Australia	37

## 1 Introduction and overview

The Queensland Government has requested the Queensland Competition Authority to investigate Queensland's regulation of the aquaculture industry. The objective is to recommend approaches to regulation that could facilitate expansion of the aquaculture industry in Queensland while balancing environmental protection.

### *Regulation of aquaculture*

Aquaculture broadly encompasses the keeping, breeding, hatching, culturing or harvesting of both marine and freshwater aquatic organisms including fish, shellfish and aquatic plants for the purposes of sale.

Aquaculture typically starts with the hatchery production of fingerlings/juveniles from broodstock. These seed stocks are subsequently 'grown out' in an aquaculture production system. Various production systems are used including racks, ponds, farm dams, and offshore cages. The production system can be defined as marine or land based, freshwater, brackish or marine water, and as an open, semi-closed or closed system.

An open production system operates within a natural water body and relies on water movement to provide inputs, such as dissolved oxygen and nutrients and to flush out waste products. In a semi-closed system (for example a prawn farm), water is exchanged through top-up of water and release of pond water during the production cycle. A closed production system recirculates water within a closed system (for example, ponds and tanks) to control the supply and condition of water both entering and being discharged from the production system.

There are several legitimate justifications for regulation of the aquaculture industry.

- Use of publicly-owned natural resources — some aquaculture activities require the use of publicly-owned natural resources.
  - Some form of regulation is needed to grant permission to use these publicly-owned resources for the purpose of aquaculture.
  - The resource allocation system must also consider potential conflicts with alternative uses of these publicly owned resources, such as fishing (commercial, recreational and traditional), tourism, recreation, marine transport and nature conservation.
- Environmental externalities — as with other productive activities, the aquaculture industry inevitably results in some environmental and social externalities. Such impacts vary according to the species farmed, type of production system (including water treatment processes), management practices used, location of farms, environmental carrying capacity, and condition and sensitivity of the environment.

Impacts can also vary in scale and intensity. These environmental impacts potentially include the following.

- Water quality — emissions from aquaculture activities can impact on water quality.
- Biosecurity risks — there are also potentially biosecurity risks associated with aquaculture. These include:
  - ... The risk of exotic species escaping from aquaculture facilities and becoming established in the wild.
  - ... The risk of selectively bred aquaculture to interbreed with wild populations.
  - ... The risk for diseases to spread to wild populations.
- Interaction with other species.

### *Comparative review of regulation*

As background to this review, the Queensland Office of Best Practice Regulation is interested in how aquaculture regulation in Queensland compares to other jurisdictions. To provide some insights on this question, QOBPR engaged the Centre for International Economics (CIE) to compare specific features of aquaculture regulation in Queensland with three other jurisdictions:

- South Australia
- Tasmania
- Western Australia.

The aquaculture industry intersects with a range of regulatory frameworks, including planning, environmental, biosecurity and food safety regulations. This study focuses on the specific features of aquaculture regulation outlined in the terms of reference (box 1.1.1).

### 1.1 Terms of reference

Key questions in the terms of reference include the following.

- 1 Is there a single, dedicated piece of legislation?
- 2 What are the mechanisms and restrictions associated with trading of permits and leases?
- 3 Is it possible to register a third party interest (such as a mortgage) on a permit or lease?
- 4 Does the jurisdiction have overlays or other mechanisms to facilitate aquaculture in specified zones?
- 5 What are the mechanisms and restrictions associated with changing species in a permit or lease area? How quickly can this be accomplished?
- 6 What are the legislative mechanisms and technical specifications for emissions from aquaculture production?
- 7 How many permits are required for an aquaculture operation? Which agencies issue them?
- 8 Is there a specified time limit for processing aquaculture applications? If so, provide details.
- 9 What are the legislative mechanisms and technical specifications surrounding cage aquaculture?
- 10 What mechanisms, such as levies, exist to fund marketing of aquaculture production?
- 11 What mechanisms, such as levies, exist to fund technical research into aquaculture?

What branding and place of origin restrictions exist, relevant to aquaculture?

The focus of this study is on comparing features of the regulatory framework for aquaculture across the selected jurisdictions. It is outside the scope of this study to identify best or leading practice among the selected jurisdictions or to propose reform options for Queensland. Those issues will be addressed in subsequent work.

### *Overview of the aquaculture industry in the selected jurisdictions*

Of the selected jurisdictions, the aquaculture industry is most important to Tasmania. The Tasmanian aquaculture industry has expanded by around 320 per cent in gross value terms over the past decade (compound annual growth rate of 15.4 per cent). In 2011-12 the industry was worth more than \$530 million, or 2.2 per cent of gross state product (GSP) (table 1.1.2).

Aquaculture is a relatively minor industry in the other jurisdictions, with the gross value of aquaculture production making up less than half a per cent of GSP. Nevertheless, the gross value of aquaculture production has increased by around 17 per cent in Queensland

over the past decade. By contrast there have been substantial declines in the value of aquaculture production in South Australia and Western Australia over the same period.

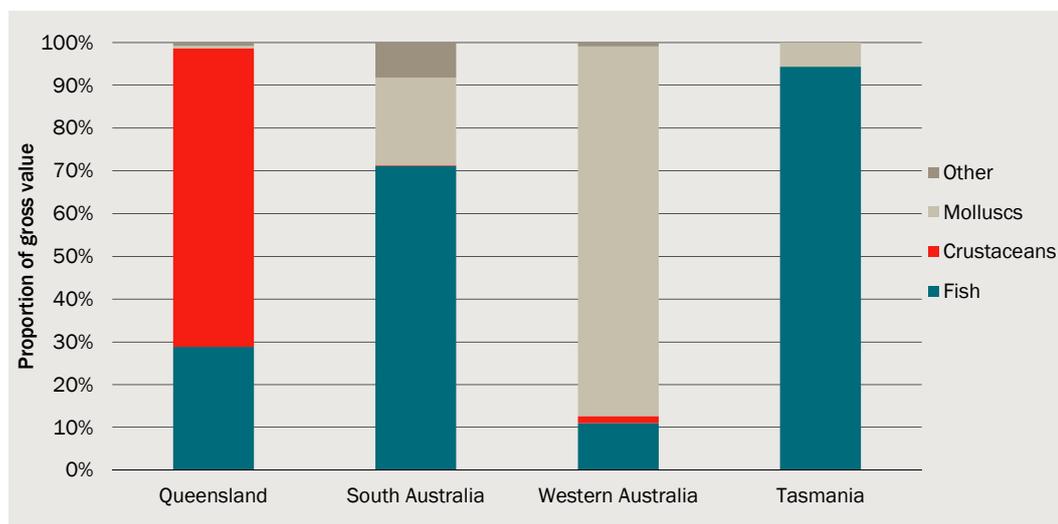
## 1.2 Gross value of aquaculture production – 2011-12

Australian jurisdiction	Gross value of aquaculture production (2011-12)	Proportion of gross state product	Growth rate between 2001-02 and 2011-12 (compound annual growth rate)
	\$ million	Per cent	Per cent
Queensland	82.5	0.03	17 (1.55)
Tasmania	536.7	2.20	320 (15.43)
South Australia	237.3 <sup>a</sup>	0.26	-16 (-1.73)
Western Australia	109.2	0.05	-40 (-4.92)

<sup>a</sup> South Australian economic impact data suggests that the gross value of aquaculture production is slightly higher at \$242 million  
 Note: Gross value of aquaculture production is not directly comparable to gross state product, as the latter is a measure of value added.  
 Source: ABARES, 2013, *Australian Fisheries Statistics 2012*. Published 6 November 2013. and ABS, Australian National Accounts: State Accounts. Table 1 Gross State Product, Chain volume measures and current prices. Catalogue number 5220.0.

The composition of the aquaculture industry varies significantly across states (chart 1.1.3). Aquaculture production in South Australia and Tasmania is mainly finfish species (tuna and salmon respectively). Queensland predominantly produces crustaceans (prawns), while Western Australia produces mainly molluscs (pearl oysters). The production systems differ across the categories of aquaculture species (i.e. finfish, crustaceans and molluscs).

## 1.3 Category of aquaculture species by key jurisdiction



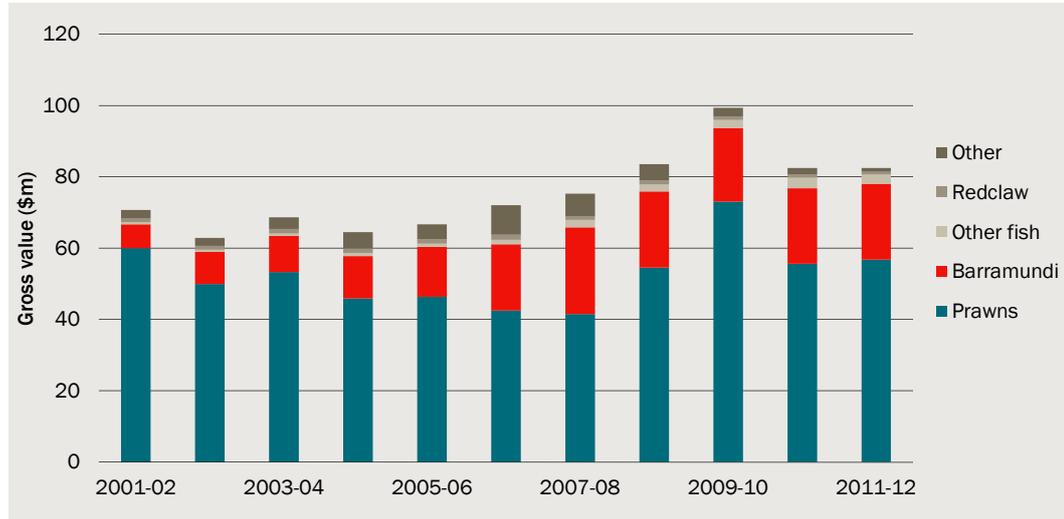
Data source: ABARES, 2013, *Australian Fisheries Statistics 2012*. Published 6 November 2013.

### Queensland

The predominant species farmed in Queensland are prawns and barramundi, contributing approximately 69 per cent and 26 per cent, respectively, in gross value terms in 2011-12 (chart 1.1.4). In 2011-12, the gross value of prawns and barramundi

aquaculture production was \$78 million. Onshore pond-based production is the predominant production system used in Queensland to farm both prawns and barramundi.

#### 1.4 Key aquaculture species by gross value in Queensland

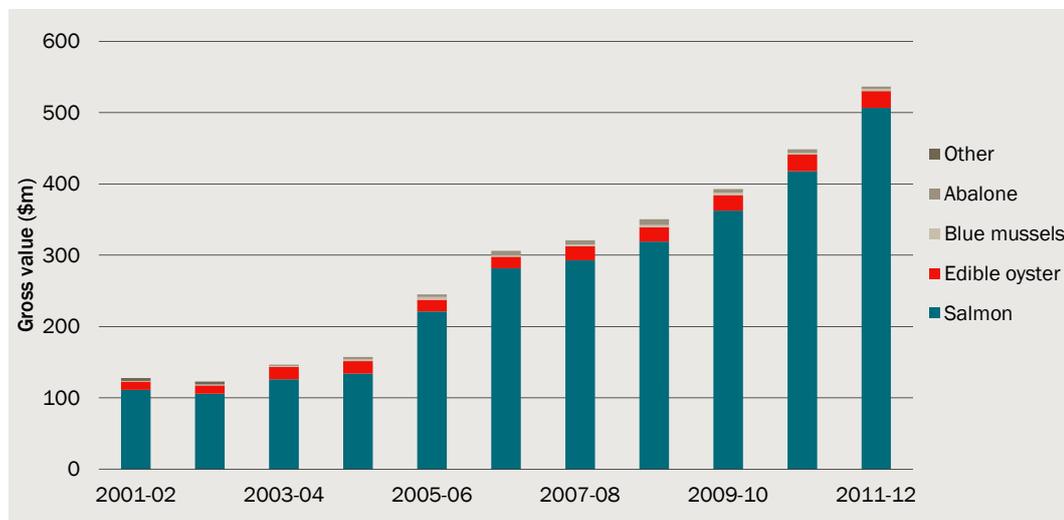


Data source: ABARES, 2013, *Australian Fisheries Statistics 2012*. Published 6 November 2013.

#### Tasmania

The production of salmon makes up over 90 per cent of the gross value of aquaculture production in Tasmania (chart 1.1.5). The gross value of Tasmanian salmon aquaculture — which is farmed in offshore sea cages — increased by over 350 per cent (compound annual growth rate of 16.3 per cent) between 2001-02 and 2011-12). Over the past 10-15 years 14 separate Marine Farming Development Plans have been developed, covering more than 10 000 leasable hectares.

#### 1.5 Key aquaculture species by gross value in Tasmania



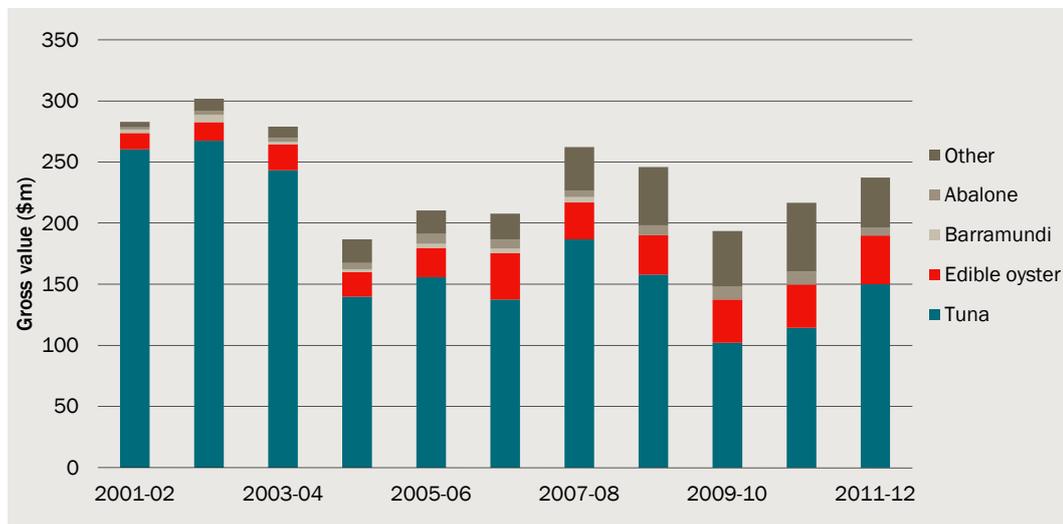
Data source: ABARES, 2013, *Australian Fisheries Statistics 2012*. Published 6 November 2013.

### *South Australia*

The gross value of production in South Australia declined by 16 per cent between 2001-02 and 2011-12 (chart 1.1.6). The gross value of tuna aquaculture production declined by 42 per cent over the same period, primarily due to a significant quota reduction occurring in 2010. Conversely, the gross value of production of edible oyster and other species (primarily algal production) grew substantially over the ten year period.

The primary production system used in South Australia to farm tuna is offshore sea cages. Pacific oysters are grown in intertidal zones using rack and rail, longline and hybrid production systems.<sup>1</sup>

#### **1.6 Key aquaculture species by gross value in South Australia**



Data source: ABARES, 2013, *Australian Fisheries Statistics 2012*. Published 6 November 2013.

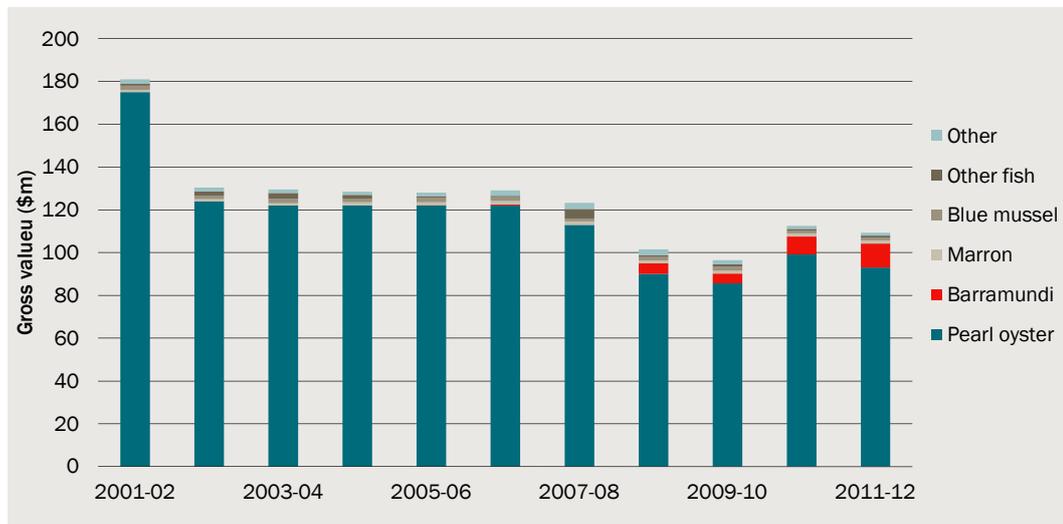
### *Western Australia*

In terms of gross value, the production of pearl oyster dominates the aquaculture industry in Western Australia (chart 1.1.7). However the gross value of production of pearl oyster declined by 47 per cent between 2001-02 and 2011-12. In contrast, since 2008-09 there has been growth in the non-pearly oyster sector, particularly in the production of barramundi.

Pearl farming in Western Australia uses long line systems on sea based grow-out farms. Barramundi can be grown in either land-based ponds or offshore sea cages. The dominant production system for farming barramundi in Western Australia is offshore sea cages.

<sup>1</sup> PIRSA Aquaculture, *Pacific Oysters*, [http://www.pir.sa.gov.au/aquaculture/aquaculture\\_industry/marine\\_aquaculture/pacific\\_oysters](http://www.pir.sa.gov.au/aquaculture/aquaculture_industry/marine_aquaculture/pacific_oysters). Last modified May 17, 2013.

### 1.7 Key aquaculture species by gross value in Western Australia



Data source: ABARES, 2013, *Australian Fisheries Statistics 2012*. Published 6 November 2013.

### *Report structure*

The remainder of this report is structured as follows:

- Chapter 2 compares regulations relating to the establishment of aquaculture facilities across jurisdictions
- Chapter 3 compares regulations relating to the ongoing operation of aquaculture facilities across jurisdictions
- Chapter 4 compares industry arrangements, relating to research and development, marketing and place of origin branding, across jurisdictions
- Chapter 5 provides some preliminary observations.

## 2 *Establishing an aquaculture facility*

There is a range of regulations with which a proponent must comply in order to establish an aquaculture facility. This includes obtaining various approvals, such as permits, licences, leases and other similar permissions. Unnecessarily onerous restrictions on establishing an aquaculture facility can increase compliance costs and create uncertainty for proponents. This can discourage industry investment and expansion.

### *Legislative framework for regulating aquaculture*

There is a wide range of issues relating to aquaculture that potentially require regulation. These include environmental and social externalities, access to public resources, and food safety issues. Consequently, there is the potential for a number of different regulatory frameworks to intersect, increasing complexity.

Furthermore, the aquaculture industry is diverse, covering a wide range of species and production systems. The environmental and social impacts of each different type of aquaculture vary considerably. Consequently, there is also significant variation in the regulatory frameworks for different types of aquaculture within jurisdictions, as well as variation across jurisdictions.

Table 2.2.1 provides an overview of the legislative framework in each of the jurisdictions.

#### 2.1 Overview of legislative framework for aquaculture

Jurisdiction	Key features of legislative framework relating to aquaculture
Commonwealth legislation	<p>Commonwealth legislation that potentially applies to aquaculture in all states includes:</p> <p>Environment Protection and Biodiversity Conservation Act (EPBC Act) 1999 – this applies to matters of National Environmental Significance, including:</p> <ul style="list-style-type: none"> <li>– World Heritage properties</li> <li>– Great Barrier Reef Marine Park (GBRMP)</li> <li>– Wetlands of international importance (Ramsar wetlands)</li> <li>– Threatened species and ecological communities</li> <li>– Migratory species</li> <li>– Commonwealth Marine areas.</li> </ul> <p><i>Quarantine Act 1908</i> – this applies to imported broodstock.</p>
Queensland	<p>Queensland does not have dedicated aquaculture legislation.</p> <p>Development approval is mainly done under generic planning laws (<i>Sustainable Planning Act 2009</i>). However, this incorporates:</p> <ul style="list-style-type: none"> <li>– local area planning (Local Government);</li> <li>– regional planning (State Government);</li> </ul>

Jurisdiction	Key features of legislative framework relating to aquaculture
	<ul style="list-style-type: none"> <li>– marine planning (<i>Marine Parks Act 2004</i>);</li> <li>– biosecurity, aquatic animal health, fish habitats (<i>Fisheries Act 1994</i>); and</li> <li>– general environmental protection, effluent discharge (<i>Environment Protection Act 1994</i>).</li> </ul> <p>Some aquaculture projects may be declared a co-ordinated project under the <i>State Development and Public Works Organisation Act 1971</i>.</p> <p>Access to public marine resources, as well as biosecurity and fish health issues are addressed through fisheries legislation (the <i>Fisheries Act 1994</i>).</p> <p>The Commonwealth Government's <i>Great Barrier Reef Marine Park Act 1975</i> and related instruments apply to aquaculture operations in the GBRMP or where structures are placed in, or the discharge of aquaculture waste from land based facilities to the GBRMP occurs.</p>
South Australia	<p>South Australia has dedicated aquaculture legislation, the <i>Aquaculture Act 2001</i> and the <i>Aquaculture Regulations 2005</i>. The Act:</p> <ul style="list-style-type: none"> <li>– provides a framework for establishment of aquaculture zones</li> <li>– provides a framework for regulation of aquaculture development and activities.</li> </ul> <p>Planning approval under the <i>Development Act 1993</i> required for land-based aquaculture.</p>
Tasmania	<p>The <i>Marine Farming Planning Act 1995</i> is aimed at promoting aquaculture through the establishment of aquaculture zones.</p> <p>Planning requirements also apply to land-based aquaculture (including hatcheries) under the <i>Land Use Planning and Approvals Act 1993</i>.</p> <p>Marine and inland aquaculture are licensed under different legislation:</p> <ul style="list-style-type: none"> <li>– Marine aquaculture is licensed under the <i>Living Marine Resources Management Act 1995</i> (which also covers wild catch fisheries)</li> <li>– Inland aquaculture is licensed under the <i>Inland Fisheries Act 1995</i>.</li> </ul>
Western Australia	<p>Western Australia has two key pieces of primary legislation:</p> <ul style="list-style-type: none"> <li>– <i>Pearling Act 1990</i> for the regulation of pearl farming</li> <li>– <i>Fish Resources Management Act 1994</i> (with subordinate legislation, the <i>Fish Resources Management Regulation 1995</i>) for all other aquaculture excluding pearling.</li> </ul> <p>The Western Australian government is currently conducting a reform process to replace these existing Acts with a consolidated Act for the regulation of all aquatic resources (i.e. including aquaculture, wild catch fisheries and recreational fishing).</p>

Source: Relevant jurisdiction's State legislation, policies and from discussions with staff in regulating departments.

Of the selected jurisdictions, South Australia is the only one with dedicated aquaculture legislation. In South Australia, aquaculture licences are issued under the *Aquaculture Act 2001*. Aquaculture zone policies are also developed under this Act. While this seems to simplify the regulatory arrangements, there are nevertheless still some other regulatory frameworks that apply to aquaculture producers. These include regulatory frameworks for planning (for land-based aquaculture), biosecurity and food safety.

Tasmania also has legislation specifically relating to aquaculture, the *Marine Farming Planning Act 1995*. However, this Act covers only the planning aspects of marine farming, such as the processes for establishing zones and allocating leases. Licensing of aquaculture activities is done under relevant fisheries legislation for either marine or inland aquaculture.

In Western Australia, aquaculture is regulated through two pieces of legislation; *Pearling Act 1990* and *Fish Resources Management Act 1994*. However, the Western Australian

government is currently developing a single consolidated Act for the regulation of all aquatic resources which will replace the existing two pieces of legislation.

Aquaculture in Queensland is regulated through a combination of planning, fisheries, environmental and food safety legislation.

It is interesting to note, that even where a dedicated Aquaculture Act is in place, ongoing review and revision is still required. For example, South Australia recently completed a review of its tuna industry regulation, *Streamlining Tuna Industry Regulation 90*, to investigate the current assessment process for tuna licences, including identifying potential duplication of effort between the Department of Primary Industries and Regions South Australia (PIRSA) and the Environment Protection Authority (EPA) to increase efficiency and reduce red tape.<sup>2</sup>

### *Aquaculture approvals*

There is typically a range of approvals<sup>3</sup> required for aquaculture activities. In this section, we focus on the approvals required to establish an aquaculture facility, including any approvals required to obtain access to public resources. In some jurisdictions, there are also approvals required to undertake specific activities. These are discussed in chapter 2.

#### *Approvals required*

The approvals required to establish an aquaculture facility will depend on the type of aquaculture, the production system and the location. Table 2.2.2 summarises the main approvals required to establish either an onshore or offshore aquaculture facility in each of the selected jurisdictions.

Flow charts showing a typical application process for each jurisdiction are provided in Appendix A. These charts show state government processes only; they do not include any relevant Commonwealth Government processes. The processes for each jurisdiction are not directly comparable as they relate to different production systems, in some cases onshore aquaculture and in others offshore aquaculture. The charts are indicative of the main state government process faced by proponents in each jurisdiction:

- Tasmania — illustrates the process associated with an amendment to a Marine Farm Development Plan (chart A.A.1)
- Queensland — illustrates the application process for development approval as specified under the *Sustainable Planning Act 2009* for onshore aquaculture (chart A.A.2)
- South Australia — illustrates the approval process for a marine aquaculture licence and lease (chart A.A.3)
- Western Australia — illustrates the process for the assessment of pearling and aquaculture proposals for coastal waters (chart A.A.4).

<sup>2</sup> South Australian Government, *Streamlining Tuna Industry Regulation: 90 day change project*. Final Report.

<sup>3</sup> Here we use the term ‘approvals’ to mean any permission required by the Government, including permits, licences, authorisations etc.

## 2.2 Approvals required for aquaculture activities

Jurisdiction	Onshore aquaculture	Offshore aquaculture
Commonwealth regulation that potentially applies to all states	<p>Where an aquaculture facility is likely to have a significant impact on a matter of national environmental significance, an approval from the Australian Government Environment Minister (Department of the Environment) may be required under the <i>Environment Protection and Biodiversity Conservation Act 1999</i>. Matters of National Environmental Significance, include:</p> <ul style="list-style-type: none"> <li>– World Heritage properties</li> <li>– Great Barrier Reef Marine Park</li> <li>– Wetlands of international importance (Ramsar wetlands)</li> <li>– Threatened species and ecological communities</li> <li>– Migratory species</li> <li>– Commonwealth Marine areas.</li> </ul>	<p>Where an aquaculture facility is likely to have a significant impact on a matter of national environmental significance, an approval from the Australian Government Environment Minister (Department of the Environment) may be required under the <i>Environment Protection and Biodiversity Conservation Act 1999</i>. Matters of National Environmental Significance, include:</p> <ul style="list-style-type: none"> <li>– World Heritage properties</li> <li>– Great Barrier Reef Marine Park</li> <li>– Wetlands of international importance (Ramsar wetlands)</li> <li>– Threatened species and ecological communities</li> <li>– Migratory species</li> <li>– Commonwealth Marine areas.</li> </ul>
Queensland	<p>Development approval under the <i>Sustainable Planning Act 2009</i> required for onshore aquaculture.</p> <p>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.</p> <ul style="list-style-type: none"> <li>– The Department of State Development, Infrastructure and Planning (DSDIP), is the State Government concurrence agency.</li> </ul> <p>If the proposed development is not assessable under the local council's planning scheme, the proponent applies to DSDIP, which is the Assessment Manager. DSDIP would seek technical advice from relevant agencies. However, the decision is made by DSDIP. Technical agencies would include:</p> <ul style="list-style-type: none"> <li>– Fisheries Queensland (part of the Department of Agriculture, Fisheries and Forestry)</li> <li>– The Department of Environment and Heritage Protection (DEHP).</li> </ul> <p>In certain circumstances, an aquaculture project may be declared a co-ordinated project under the <i>State Development and Public Works Organisation Act 1971</i>.</p> <ul style="list-style-type: none"> <li>– For a declared co-ordinated project a Terms of Reference is issued for the proponent to prepare an Environmental Impact Statement.</li> <li>– Two aquaculture projects have been assessed through the SDPWO Act.</li> </ul> <p>A permit to occupy is required from the Department of Natural Resources and Mines</p>	<p>Resource Allocation Authority is required for aquaculture activities in State waters (other than inlet/outlet structures) (<i>Fisheries Act 1994</i>).</p> <p>The Fisheries Regulation (2008) places restrictions on the issue of Resource Allocation Authorities within declared Fish Habitat Areas. In particular, Fisheries Queensland must have regard to the effect of the development 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 areas); and the current fish habitat values and functions of the area (management B areas).</p> <p>A development approval under the <i>Sustainable Planning Act 2009</i> would also be required for offshore aquaculture.</p> <ul style="list-style-type: none"> <li>– For offshore aquaculture, DSDIP would be the Assessment Manager.</li> <li>– Local councils would not be involved.</li> <li>– Technical agencies would include the Department of Environment and Heritage Protection and Fisheries Queensland (part of the Department of Agriculture, Fisheries and Forestry).</li> </ul> <p>Marine park permit required for areas within State marine parks.</p> <p>An ERA required from DEHP if there is feeding involved.</p> <p>For aquaculture in the GBRMP, approval would be required from GBRMPA.</p> <ul style="list-style-type: none"> <li>– GBRMPA advised that due to the high environmental risk posed to the Outstanding Universal Value of the GBR</li> </ul>

Jurisdiction	Onshore aquaculture	Offshore aquaculture
	<p>for inlet and outlet structures on tidal land.</p> <p>An environmental authority is required from DEHP to discharge wastewater under the <i>Environmental Protection Act 1994</i>.</p> <p>Where discharge occurs (or structures are placed) in the GBRMP, an approval from the Great Barrier Reef Marine Park Authority (GBRMPA) is required. The Australian Government has implemented a single assessment and approval process for all Australian Government approvals in the GBRMP. This includes approvals under the GBRMP Act and the EPBC Act.</p> <ul style="list-style-type: none"> <li>– Where discharge occurs into waterways leading to the GBRMP, the Australian Government has accredited Queensland laws, allowing a single assessment process administered by the Queensland Government.</li> <li>– Where discharge is directly into the GBRMP, an additional approval from the GBRMPA is required.</li> </ul>	<p>World Heritage Area, it is unlikely that intensive aquaculture would be approved.</p> <ul style="list-style-type: none"> <li>– The Australian Government has implemented a single assessment and approval process for all Australian Government approvals in the GBRMP (GBRMPA and Department of the Environment).</li> </ul>
South Australia	<p>Planning approval from the local council is required for land-based aquaculture.</p> <p>Under the Aquaculture Regulation 2005, there are three types of licences for onshore aquaculture:</p> <ul style="list-style-type: none"> <li>– low risk (category A)</li> <li>– medium risk (category B)</li> <li>– high risk (category C).</li> </ul> <p>A licence classification is determined having regard to factors affecting an aquaculture application's ecological sustainability aquaculture relating to:</p> <ul style="list-style-type: none"> <li>– wastewater discharge and its treatment prior to discharge</li> <li>– whether or not the species to be farmed are native to the locality of the licence area</li> <li>– susceptibility of the species to be farmed to notifiable disease.</li> </ul>	<p>For marine sites, the approvals required are:</p> <ul style="list-style-type: none"> <li>– an aquaculture lease</li> <li>– an aquaculture licence.</li> </ul>
Tasmania	<p>Onshore aquaculture (including hatcheries) require planning approval under the (<i>Land Use Planning and Approvals Act 1993</i>) from the relevant local council.</p> <p>The proponent would also require a licence to farm the relevant species under either:</p> <ul style="list-style-type: none"> <li>– The <i>Living Marine Resources Management Act 1995</i> (for marine species)</li> <li>– The <i>Inland Fisheries Act 1995</i> (for freshwater species)</li> </ul>	<p>Offshore aquaculture must occur in a specified aquaculture zone. The approvals required are:</p> <ul style="list-style-type: none"> <li>– a marine farming licence (under the <i>Living Marine Resources Management Act 1995</i>)</li> <li>– a marine farming lease for an area designated in a marine farming development plan (under the <i>Marine Farming Planning Act 1995</i>).</li> </ul> <p>An individual may apply to the Minister for approval to prepare a draft Marine Farming</p>

Jurisdiction	Onshore aquaculture	Offshore aquaculture
	May also require approval from the Environment Protection Authority, if a Level 2 activity or referred to the EPA by the Director.	Development Plan for a particular area.
Western Australia	<p>All commercial aquaculture activities require an aquaculture licence under the <i>Fisheries Resources Management Act 1994</i></p> <p>Onshore aquaculture on Crown Land requires planning approval under the <i>Land Administration Act 1997</i></p> <p>In some instances approval from other State agencies for proposals on private (freehold) land may also be required from:</p> <ul style="list-style-type: none"> <li>– Department of Water</li> <li>– Department of Parks and Wildlife</li> <li>– Environment Protection Authority</li> <li>– Local Government Authority</li> </ul> <p>A Management and Environmental Monitoring Plan (MEMP) is required to be submitted to the Department of Fisheries as part of an aquaculture licence application.</p> <p>Translocation approval is required if importing live, non-native fish species.</p>	<p>Offshore aquaculture requires two authorities:</p> <ul style="list-style-type: none"> <li>– an aquaculture lease, or other form of tenure over the area to be authorised under a licence (although aquaculture leases will be required specifically under the new legislation)</li> <li>– an aquaculture licence.</li> </ul> <p>Pearl oyster farm lease and licence is required for offshore pearl farming under the <i>Pearling Act 1990</i>.</p> <p>Leases and licences for all other aquaculture (excluding pearl farming) are required under the <i>Fisheries Resources Management Act 1994</i>.</p> <p>A Management and Environmental Monitoring Plan (MEMP) is required to be submitted as part of an aquaculture licence application.</p> <p>Translocation approval is required if importing live, non-native fish species.</p>

<sup>a</sup> Except in the case of 'low impact' aquaculture.

Source: Relevant jurisdiction's State legislation, policies and from discussions with staff in regulating departments.

### *Approvals for land-based aquaculture*

For land-based aquaculture, common approvals across all jurisdictions assessed include:

- planning approval under relevant planning laws is required
- some form of environmental approval relating to wastewater discharge.

Of the jurisdictions reviewed, Queensland is the only one that does not require some form of specific aquaculture licence. In Tasmania and Western Australia, the licence is issued under fisheries legislation, while in South Australia it is issued under specific aquaculture legislation.

### *Approvals for offshore aquaculture*

All jurisdictions require some form of approval to access publicly owned water. In Queensland, this would be in the form of a Resource Allocation Authority issued under fisheries legislation (the *Fisheries Act 1994*). In the other jurisdictions, aquaculture space is leased to proponents under legislation covering planning issues relating to marine farms (these are discussed further below).

Of the selected jurisdictions, only Queensland assesses proposals for offshore aquaculture under planning legislation (i.e. the *Sustainable Planning Act 2009*). In the other Australian jurisdictions, the land-use planning system does not apply to offshore aquaculture.

As above, there is no specific aquaculture licence in Queensland. All of the other jurisdictions have some form of aquaculture licence.

### Other issues relating to approvals

The terms of reference refers to the following issues relating to approvals:

- transferability — when authorities are transferable, it increases the likelihood that limited aquaculture space will be allocated to the most efficient producers
- flexibility — a key element of flexibility is whether a proponent is able to change the species farmed relatively easily
- time taken to assess permits — delays in assessing applications increases the cost to proponents and could potentially discourage new investment.

Table 2.2.3 summarises each of these elements across jurisdictions.

### 2.3 Other issues relating to approvals

Jurisdiction	Transferability of approvals	Process for changing the species farmed	Time restrictions
Queensland	<p>Development approvals relate to the land and transfer with the land ownership.</p> <p>The environmental authority is issued to the entity (either a company or an individual). The environmental authority can be transferred.</p> <p>A Resource Allocation Authority can be transferred.</p> <p>Marine Park permits may be transferred with approval.</p>	<p>Where the changes needed are permissible under the Sustainable Planning Act, a development approval may be amended.</p> <p>Alternatively, if the changes required are a material change of use, a new development approval may be required.</p> <p>The environmental authority may be amended or a new environmental authority may be required depending on whether the change is a material change in use and is a change to an ERA with a higher aggregate environmental score.</p>	<p>The <i>Sustainable Planning Act 2009</i> specifies the maximum time periods under the Integrated Development Assessment System (IDAS) for each stage of the assessment process (see Appendix A.A.2).</p> <p>The Act allows for extensions at each assessment process stage under certain provisions.</p> <p>The environmental authority would normally be decided no later than the development approval.</p> <p>There are no specified time restrictions relating to the issue of a Resource Allocation Authority or other elements of the regulatory framework.</p>
South Australia	<p>A production lease can be transferred with the approval of the Minister.</p> <p>Research, emergency and pilot leases are not transferable.</p> <p>An aquaculture licence may be transferred by the licensee with the consent of the Minister.</p>	<p>There are several types of licence for marine sites in State waters:</p> <ul style="list-style-type: none"> <li>Intertidal Mollusc Licence</li> <li>Subtidal Mollusc Licence</li> <li>Abalone Licence</li> <li>Finfish Licence</li> <li>Tuna Licence</li> <li>Miscellaneous Licence.</li> </ul> <p>The licence specifies what activities can be</p>	<p>The <i>Aquaculture Act 2001</i> requires matters to be referred to the EPA.</p> <p>The EPA must make its response to the Minister within the prescribed period, which is specified as 6 weeks in the Regulation.</p> <p>The period may be extended by any period that the Minister takes to provide information requested by the EPA or any period that the Minister thinks fit to allow.</p> <p>According to the Act, if the EPA fails to make its response to the Minister within 6 weeks, it will be</p>

Jurisdiction	Transferability of approvals	Process for changing the species farmed	Time restrictions
		<p>undertaken at the lease site (for example, species, allowable biomass and farming structures).</p> <p>A change of species is likely to require a new licence.</p>	<p>presumed that the EPA approves the application.</p>
Tasmania	<p>Both aquaculture licences and leases can be transferred with the approval of the Minister.</p>	<p>Aquaculture plans distinguish between:</p> <ul style="list-style-type: none"> <li>Shellfish</li> <li>Finfish</li> <li>Seaweed</li> </ul> <p>Some flexibility is allowed within these broad categories. However, new species could potentially have biosecurity and other environmental risks. Hence there are regulatory mechanisms to deal with these issues.</p>	<p>The <i>Marine Farming Planning Act 1995</i> specifies a number of time limits relating to the preparation and approval of a draft plan (although the Minister may extend this period).</p> <p>The planning authority must submit a copy of the draft plan to the established Marine Farming Planning Review Panel within 12 months after the Minister approves the preparation of a draft plan.</p> <p>The Panel must decide whether the draft plan is suitable for public exhibition (or not) or other options within 9 weeks of receiving it.</p> <p>If the Minister gives approval for public exhibition, the planning authority must within 6 weeks exhibit a copy of the plan for 2 months.</p> <p>The planning authority must report to the Panel within 3 months after the period representations close.</p>
Western Australia	<p>Marine aquaculture leases may not be transferred, nor subdivided. A lease may be sublet with the consent of the Minister for Fisheries.</p> <p>Pearl farm leases may be transferred, subdivided or sublet with approval.</p>	<p>A licence specifies the aquaculture species to be farmed. To change the species, the applicant must complete a licence variation for a change of species specified by the licence.</p>	<p>Ministerial Policy Guideline No. 8 sets out the process and time restrictions for the assessment of pearling and aquaculture proposals for coastal waters of Western Australia. The maximum time limit to process an application that does not require revision is:</p> <ul style="list-style-type: none"> <li>approximately 165 days for an aquaculture authorisation</li> <li>approximately 158 days for a pearling authorisation.</li> </ul>

<sup>a</sup> PIRSA website, [http://www.pir.sa.gov.au/aquaculture/leasing\\_and\\_licensing/marine](http://www.pir.sa.gov.au/aquaculture/leasing_and_licensing/marine), accessed 14 October 2013.

Source: Relevant jurisdiction's State legislation, policies and from discussions with staff in regulating departments.

In most cases, permits and leases are transferable, although approval from the Minister or a government agency is often required. In Western Australia, marine aquaculture leases are not transferable whilst pearl farm leases are transferrable with approval.

In general, there is some flexibility in the various regulatory systems to change species, where the farming system and impacts are similar. However, since different species often require different production systems and have different environmental impacts, new permits or variation to existing permits may be required.

Time limits for aquaculture-related approvals are often specified in legislation. However, in many cases there are mechanisms to extend the approval time. Time limits can also be dependent on whether revisions to an application are required. Furthermore, in Queensland, not all elements of the regulatory framework have time limits including approval processes for an environmental authority and a resource allocation authority.

### *Aquaculture planning*

Many types of aquaculture require the use of public marine and coastal waters. Obtaining access to these waters is a key issue when establishing an aquaculture facility. An efficient regulatory framework therefore requires an efficient system for granting access to marine and coastal waters for aquaculture use. While most developed economies have well established systems for allocating property rights over land, systems for allocating usage rights over marine and coastal waters are not always as well developed. In developing such systems, regulators need to consider competing uses of these waters. These competing uses could include recreational boating, recreational and commercial fishing, tourism, traditional use, marine conservation, marine transport and energy and mining developments.<sup>4</sup>

Land use planning systems often make use of zoning restrictions where there are externalities associated with particular types of land use. For example, noisy factories could potentially impose a cost on surrounding residents. Zoning can be an efficient solution to such problems, by physically separating land for industrial and residential use. In the absence of zoning, councils may refuse to grant development approval for the factory, depriving the community of the economic benefits, or the community bears the cost of the noise. Either way, this is not an efficient outcome. Separate zones for industrial and residential use can deliver a more efficient outcome; the community can have the economic benefits of the factories, while limiting the external costs on residents.

As discussed above, the land-use planning system applies to land-based aquaculture in all of the selected jurisdictions. However, planning arrangements — including the use of zoning — for marine-based aquaculture varies significantly across jurisdictions. Zoning arrangements within aquaculture plans can vary from *broad* level zoning which defines a region within which aquaculture can be located to *detailed* level zoning identifying the specific sites for aquaculture farms. Whether broad zoning or detailed site identification is used can influence the length and complexity of the approvals process. It was noted that the key factor for ease of gaining approvals is up-front identification of sites, which zoning plans may or may not provide.<sup>5</sup>

Table 2.2.4 summarises each jurisdiction's approach to aquaculture zoning and the allocation of leases within zones.

---

<sup>4</sup> Productivity Commission, 2004, *Assessing Environmental Regulatory Requirements for Aquaculture*, Canberra, p. 47.

<sup>5</sup> From discussion with Fisheries Queensland, Department of Agriculture, Fisheries and Forestry.

## 2.4 Aquaculture zones

Jurisdiction	Use of aquaculture zones	Allocation of leases within zones
Queensland	<p>Aquaculture planning has been limited to the Great Sandy Marine Park under the Great Sandy Regional Marine Aquaculture Plan (GSRMAP).</p> <ul style="list-style-type: none"> <li>– The Plan identifies 24 potential aquaculture sites, in addition to 13 sites previously approved.</li> <li>– Under the Plan only extensive aquaculture is permitted (i.e. rack, line and ranching aquaculture). Sea cage aquaculture is not permitted under the Plan.<sup>6</sup></li> <li>– The GSRMAP is non-statutory and is implemented via a combination of approvals under several Acts.</li> </ul> <p>The Great Barrier Reef Marine Park Zoning Plan 2003 provides a planning framework for a range of activities within the GBRMP, including aquaculture.</p> <ul style="list-style-type: none"> <li>– Each zone has different rules for the activities that are allowed, the activities that are prohibited, and the activities that require a permit. Zones may also place restrictions on how some activities are conducted.</li> <li>– The Zoning Plan provides clear guidance on what type of marine aquaculture can occur within the Great Barrier Reef Marine Park.</li> <li>– The Zoning Plan does not however, define specific individual locations where marine aquaculture can be conducted.</li> </ul>	<p>Fisheries Queensland has in place a <i>Policy for the Allocation of Marine Aquaculture Authorities</i> for the allocation of Resource Allocation Authorities (RAA) prior to assessment of the RAA application.<sup>7</sup></p> <ul style="list-style-type: none"> <li>– A competitive allocation process is used where RAAs are to be allocated in new aquaculture areas identified under an aquaculture plan or for existing aquaculture areas which have been abandoned, surrendered or cancelled.</li> <li>– Expressions of interest are assessed against allocation criteria by an allocation panel.</li> </ul>
South Australia	<p>Zoning is used extensively in South Australia. There have been 11 aquaculture zone policies developed under the <i>Aquaculture Act 2001</i>.</p> <p>Aquaculture zone policies identify specific sites for aquaculture and also the type and amount of aquaculture that can occur within these sites.</p> <p>The development of a new zone can be either industry driven or government driven.</p> <p>It is possible to establish a marine farm outside of a designated aquaculture zone through either:</p> <ul style="list-style-type: none"> <li>– A pilot lease</li> <li>– An application process.</li> </ul>	<p>The Minister can make a public call for applications. The Minister can also establish criteria and determine whether the call will be in the form of a competitive tender with monetary bids.</p> <p>Applications are assessed by an independent Aquaculture Tenure Allocation Board (ATAB), established under the <i>Aquaculture Act 2001</i>. ATAB then makes recommendations to the Minister.</p>
Tasmania	Zoning has been used extensively in	Where the DPIPW is the planning

<sup>6</sup> Queensland Department of Agriculture, Fisheries and Forestry website, <http://www.daff.qld.gov.au/fisheries/aquaculture/investment/marine-aquaculture/great-sandy-regional-marine-aquaculture-plan>, accessed 8 October 2013.

<sup>7</sup> Fisheries Queensland, 2010, *Policy for the Allocation of Marine Aquaculture Authorities*. [www.daff.qld.gov.au/\\_\\_data/assets/pdf\\_file/0018/63234/final-marine-allocation-policy.pdf](http://www.daff.qld.gov.au/__data/assets/pdf_file/0018/63234/final-marine-allocation-policy.pdf)

Jurisdiction	Use of aquaculture zones	Allocation of leases within zones
	<p>Tasmania. There have been 14 Marine Farm Development Plans developed under the <i>Marine Farming Planning Act 1995</i>.</p> <p>Statutory Marine Farm Development Plans identify specific sites for aquaculture.</p> <p>Initially these Development Plans were prepared by DPIPWE, and then the area was leased to proponents. More recently, industry has been preparing amendments to Plans, including preparing Environmental Impact Statements.</p>	<p>authority, the process for allocating leases within an aquaculture zone is set out in the <i>Marine Farming Planning Act 1995</i>.</p> <ul style="list-style-type: none"> <li>– The applications are assessed by a Panel established under the Act, which then makes recommendations to the Minister.</li> <li>– The process is not strictly a tender. The Panel/Minister may establish and take into account a range of criteria, as well as the 'application price'.</li> </ul> <p>Under the Act, where a marine farming zone is designated under a privately prepared draft plan, or as a result of a privately requested amendment to a marine farming development plan, the Minister may grant them first call to apply for a lease in respect of the marine farming zone.</p>
Western Australia	<p>There are currently no aquaculture specific zones in place, however two aquaculture development zones (ADZ) are being established:</p> <p>Kimberley Aquaculture Zone – an area of 2 000 hectares designated for aquaculture of marine finfish, native to the area, cultured in sea cages (expected to be completed in March-April 2014).</p> <p>Mid-West Aquaculture Zone – designated for marine finfish aquaculture within a total area of 3 000 hectares.</p>	<p>The allocation of leases within the two new ADZ is yet to be decided by the Department of Fisheries. The Department stated that allocation is likely to occur through a public and competitive tender.</p>

Source: Relevant jurisdiction's State legislation, policies and from discussions with staff in regulating departments.

### *Use of aquaculture zoning*

The use of aquaculture zoning in Queensland has been limited. The only aquaculture plan in Queensland relates to the Great Sandy Marine Park under the *Great Sandy Regional Marine Aquaculture Plan* (the Plan). The Plan identifies 24 potential aquaculture sites, in addition to 13 sites previously approved. The total area available to aquaculture under the Plan is around 15 800 hectares.<sup>8</sup> However, the Plan is non-statutory and is implemented via a combination of approvals under several Acts. Furthermore, only extensive aquaculture is permitted (i.e. rack, line and ranching aquaculture). Sea cage aquaculture is not permitted under the Plan.<sup>9</sup> This effectively limits production to bivalves; however, demand for bivalve aquaculture in Queensland is limited.

In contrast to Queensland, zoning has been used extensively in South Australia and Tasmania. Two aquaculture development zones are also currently in development in Western Australia. Unlike in Queensland, aquaculture plans in Tasmania and South Australia have a statutory basis and provide exclusive access to the site.

<sup>8</sup> Queensland Government, 2011, Great Sandy Regional Marine Aquaculture Plan, p. 4.

<sup>9</sup> Queensland Department of Agriculture, Fisheries and Forestry website, <http://www.daff.qld.gov.au/fisheries/aquaculture/investment/marine-aquaculture/great-sandy-regional-marine-aquaculture-plan>, accessed 8 October 2013.

Table 2.2.5 summarises key aspects of aquaculture leasing arrangements across the selected jurisdictions.

## 2.5 Nature of leases for offshore aquaculture

Jurisdiction	Type of lease	Lease term	Detailed site identification under aquaculture plan?	Exclusive access to site?
Queensland	Resource Allocation Authority	Up to 30 years.	Detailed site identification.	Non-exclusive access
Tasmania	Marine farming lease	Not exceeding 30 years	Detailed site identification.	Exclusive access
South Australia	Production lease	20 years or less	Detailed site identification.	Exclusive access
Western Australia	Marine aquaculture lease	Not exceeding 21 years	Zone plans under development.	Non-exclusive access to site
	Pearl lease	Not exceeding 21 years	No allocated zones for pearling.	Non-exclusive access to site

Source: Relevant jurisdiction's State legislation and policies.

### *Allocation of leases within zones*

In jurisdictions where zoning has been used extensively (South Australia and Tasmania), the process for allocating leases is set out in the relevant legislation. In both jurisdictions, there is significant flexibility for the Minister to determine the process and criteria used to allocate leases. In practice, leases have generally been allocated using some form of public application process. These processes have not always been a strict competitive tender, taking into account a range of other considerations. Applications are assessed by a Board/Panel established under the relevant legislation, which then makes recommendations to the Minister.

The Tasmanian legislation (*the Marine Farming Planning Act 1995*) also effectively allows for leases to be allocated directly to a private proponent in circumstances where the marine farming zone is designated under a privately prepared draft plan or as a result of a privately requested amendment to a marine farming development plan.

The arrangements for allocating aquaculture sites in the Great Sandy Marine Park under the Great Sandy Marine Park Plan are broadly similar to Tasmania and South Australia. Specifically, it is a competitive tender process, where Expressions of Interest are assessed against allocation criteria by an allocation panel.

### 3 Regulation affecting aquaculture operations

In addition to the various authorities required to establish an aquaculture facility in each jurisdiction, there is a range of regulations relating to the operation of an aquaculture facility. This includes regulations to manage environmental and social costs associated with aquaculture. This chapter compares the legislative mechanisms and, where relevant, the technical specifications across the selected jurisdictions.

#### *Environmental issues*

There is a range of legislative mechanisms for addressing environmental issues associated with aquaculture. The legislative mechanisms for land-based and offshore aquaculture in the selected jurisdictions are summarised in table 3.3.1.

#### 3.1 Legislative mechanisms for dealing with environmental issues

Jurisdiction	Land-based aquaculture	Offshore aquaculture
Commonwealth regulation that potentially applies to all states	<p>Where an aquaculture facility is likely to have a significant impact on a matter of national environmental significance, an approval from the Australian Government Environment Minister (Department of the Environment) may be required under the Environment Protection and Biodiversity Conservation Act 1999. Matters of National Environmental Significance, include:</p> <ul style="list-style-type: none"> <li>– World Heritage properties</li> <li>– Great Barrier Reef Marine Park</li> <li>– Wetlands of international importance (Ramsar wetlands)</li> <li>– Threatened species and ecological communities</li> <li>– Migratory species</li> <li>– Commonwealth Marine areas.</li> </ul> <p>All states and territories have bilateral agreements in place that accredit state environmental assessment processes.</p> <p>In addition, all jurisdictions under review have signed a Memorandum of Understanding to work towards developing draft bilateral agreements that will effectively remove the need for Australian Government approval for some actions under the EPBC Act.</p>	<p>Where an aquaculture facility is likely to have a significant impact on a matter of national environmental significance, an approval from the Australian Government Environment Minister (Department of the Environment) may be required under the <i>Environment Protection and Biodiversity Conservation Act 1999</i>. Matters of National Environmental Significance, include:</p> <ul style="list-style-type: none"> <li>– World Heritage properties</li> <li>– Great Barrier Reef Marine Park</li> <li>– Wetlands of international importance (Ramsar wetlands)</li> <li>– Threatened species and ecological communities</li> <li>– Migratory species</li> <li>– Commonwealth Marine areas.</li> </ul> <p>All states and territories have bilateral agreements in place that accredit state environmental assessment processes.</p> <p>In addition, all jurisdictions under review have signed a Memorandum of Understanding to work towards developing draft bilateral agreements that will effectively remove the need for Australian Government approval for some actions under the EPBC Act.</p>
Queensland	An environmental authority to discharge	In the case of a significant project (e.g.

Jurisdiction	Land-based aquaculture	Offshore aquaculture
	<p>wastewater is required from the Department of Environment and Heritage Protection.</p> <p>For declared Co-ordinated Projects, applicants must prepare an Environmental Impact Statement as part of their development application.</p> <p>The <i>Great Barrier Reef Marine Park Act 1975</i> (and the EPBC Act) applies to aquaculture activities in or adjacent to the Great Barrier Reef Marine Park.</p> <ul style="list-style-type: none"> <li>– The Australian Government has implemented a single assessment and approval process for all Australian Government approvals in the GBRMP (GBRMP Act and EPBC Act).</li> <li>– Where wastewater is discharged into waterways leading to the GBRMP, Queensland law has been accredited by the Australian Government. There is a single assessment managed by the Queensland Government.</li> <li>– Where wastewater is discharged directly into the GBRMP, an additional approval from GBRMPA is required.</li> </ul> <p>A notice of Intention to develop a draft bilateral agreement between the Australian and Queensland Governments relating to environmental approvals under the EPBC Act has been published.</p> <p>Marine Park permit required for activities within State marine parks.</p> <p>Wastewater discharge limits are set with reference to water quality guidelines and policies, including the following.</p> <ul style="list-style-type: none"> <li>– The Environmental Protection (Water) Policy 2009</li> <li>– Queensland Water Quality Guidelines – these guidelines apply throughout Queensland.</li> <li>– Healthy Waterways Management Plans – describe the community endorsed Environmental Values (EVs) of each waterway and the Water Quality Objectives (WQOs) that must be met to maintain or enhance these environmental values.</li> <li>– Technical Guideline Licensing – Wastewater releases to Queensland Waters</li> <li>– Water Quality Guidelines for the Great Barrier Reef Marine Park – these apply to Great Barrier Reef waters and focus on sediments, nutrients and pesticides.</li> <li>– Operational Policy – Marine Prawn Aquaculture – Licensing wastewater</li> </ul>	<p>major sea cage farm), an Environmental Impact Statement (EIS) is to be completed by the proponent prior to assessment by Fisheries Queensland. Relevant water quality policies/guidelines include the following.</p> <ul style="list-style-type: none"> <li>– National Water Quality Management Strategy including the ANZECC Marine and Freshwater Water Quality Guidelines 2000</li> <li>– <i>Environment Protection (Water) Policy 2009</i></li> <li>– Queensland Water Quality Guidelines 2009</li> <li>– Queensland Healthy Waterways Management Plans under the <i>Environment Protection (Water) Policy 2009</i></li> </ul> <p>For aquaculture within the Great Barrier Reef Marine Park, approval would be required from the GBRMPA</p> <ul style="list-style-type: none"> <li>– Based on the high environmental risk posed to the Outstanding Universal Value of the Great Barrier Reef World Heritage area, GBRMPA has advised that it is unlikely that intensive aquaculture would be approved.</li> <li>– Water Quality Guidelines for the Great Barrier Reef Marine Park 2010 are included in Queensland Healthy Waterways Management Plans.</li> </ul> <p>A notice of Intention to develop a draft bilateral agreement between the Australian and Queensland Governments relating to environmental approvals under the EPBC Act has been published.</p>

Jurisdiction	Land-based aquaculture	Offshore aquaculture
	releases from existing prawn farms in Queensland.	
South Australia	<p>The Department of Primary Industries and Regions South Australia (PIRSA) assess aquaculture applications. PIRSA's assessment must be formerly endorsed by the Environment Protection Authority before a licence can be granted by PIRSA.</p> <p>Most land based aquaculture is conducted on private property.</p> <p>EPA guidelines for land-based aquaculture specify requirements for wastewater discharge:</p> <ul style="list-style-type: none"> <li>– applicants must demonstrate a capacity to manage their wastewater both through containment, treatment and lawful disposal.</li> <li>– where wastewater needs to be discharged to the marine environment or other natural water bodies, applications must include a waste management strategy or some form of treatment system into their farm design that identifies how they intend to remove nutrients and suspended solids from the wastewater prior to discharge.<sup>10</sup></li> </ul> <p>Any discharged water must not compromise the water quality criteria for the receiving waters as specified in the Environment Protection (Water Quality) Policy 2003.</p> <p>The <i>Aquaculture Regulations 2005</i> specify the environmental monitoring and reporting requirements for different categories of aquaculture to ensure environmental requirements are being met.</p>	<p>The Department of Primary Industries and Regions South Australia (PIRSA) assess aquaculture applications. PIRSA's assessment must be formerly endorsed by the Environment Protection Authority before a licence can be granted by PIRSA.</p> <p>Offshore aquaculture takes place in zones.</p> <ul style="list-style-type: none"> <li>– Environmental Impact Assessments are prepared at the zone level and at individual site level (licence assessment).</li> <li>– Biomass limits are based on an assessment of what the environment can support.</li> <li>– Various environmental monitoring and reporting requirements are also imposed on proponents.</li> <li>– Aquaculture policies can identify environmentally sensitive areas as aquaculture exclusion zones, in which no aquaculture is permitted.</li> </ul>
Tasmania	<p>Local government undertakes environmental assessment and regulation of Level 1 activities. A Level 1 activity requires a land use permit and may cause environmental harm, but does not require assessment by the EPA under the <i>Environmental Management and Pollution Control Act 1994</i>.</p> <p>Application for a Level 2 activity requires preparation of an environmental impact assessment (EIA) and the application is referred to the EPA. However there are no provisions in the <i>Environmental Management and Pollution Control Act 1994</i> for Level 2 provisions for marine farming or land-based fish farming.</p>	<p>Environmental Impact Statements are prepared at the zone level. All marine farms must be located in an aquaculture zone.</p> <p>Environmental issues are managed through:</p> <ul style="list-style-type: none"> <li>– <i>The Marine Farming Planning Act 1995</i></li> <li>– Marine Farm Development Plans</li> <li>– Lease conditions</li> <li>– Licence conditions</li> </ul> <p>Marine Farm Development Plans specify various Management Controls. These can vary across Plans, but typically include:</p> <ul style="list-style-type: none"> <li>– General Management Controls</li> </ul>

<sup>10</sup> South Australia EPA, 2007, *Environmental guidelines for completion of PIRSA aquaculture licence applications (land-based)*. Issued May 2007.

Jurisdiction	Land-based aquaculture	Offshore aquaculture
	Water discharge standards are based on the State Policy on Water Quality Management 1997 and are specified in licence conditions.	<ul style="list-style-type: none"> <li>– Nitrogen outputs</li> <li>– Carrying capacity</li> <li>– Monitoring requirements</li> <li>– Controls on waste</li> <li>– Disease controls</li> <li>– Visual controls</li> <li>– Odour controls</li> </ul> <p>Proponents must adhere to marine farming licence conditions and undertake environmental monitoring and report to the Department of Parks, Primary Industries, Water and Environment.</p>
Western Australia	<p>Under the <i>Fish Resources Management Act 1994</i>, a Management and Environmental Monitoring Plan (MEMP) is required to accompany all aquaculture licence applications. Unless exempt, all current licence holders were required to submit a MEMP by 30 November 2013.</p> <p>An aquaculture licence is subject, under the Act, to the provisions of the MEMP for that licence. Exemptions may apply if the application relates to aquaculture of prescribed fish on private land.</p> <p>Environmental specifications included in the MEMP include:</p> <ul style="list-style-type: none"> <li>– the type and quantity of species to be farmed</li> <li>– the type and area of waters on or in which farming is to take place, and the carrying capacity of the area to be used</li> <li>– the farming method to be used and proposed stocking densities</li> <li>– water and sediment quality, environmental monitoring, and environmental impacts on nearby species and communities.</li> </ul> <p>Aquaculture applications that may have a significant environmental impact are referred to, and assessed by, the Environmental Protection Authority (EPA).</p>	<p>The same as land-based aquaculture a MEMP is required to accompany all aquaculture licence applications.</p> <p>Aquaculture applications that may have a significant environmental impact are referred to, and assessed by, the Environmental Protection Authority (EPA).</p> <p>Within an Aquaculture Development Zone (ADZ):</p> <p>The Department of Fisheries prepares an Environmental Monitoring and Management Plan (EMMP) for a proposed zone, which is subject to EPA approval.</p> <p>An ADZ's Management Policy specifies the production limit for the zone, for example, in the proposed Kimberley ADZ, the production limit is 20 000 tonnes per annum of marine finfish.</p> <p>An applicant's proposal must demonstrate that the activities will be compatible with the respective Aquaculture Development Zone Policy.</p> <p>Applicants for an aquaculture licence within the Zone must refer their own proposal to the Environmental Protection Authority (EPA) as a derived proposal for assessment under the Environmental Protection Act 1986.<sup>11</sup></p> <p>Marine-based aquaculture outside an ADZ:</p> <p>Applications for a lease for a site outside an ADZ and to grow non-marine finfish species inside an ADZ will be dealt with on a case-by-case basis and the full environmental assessment process applies.</p>

Source: Relevant jurisdiction's State legislation, policies and from discussions with staff in regulating departments.

<sup>11</sup> Western Australia Department of Fisheries, 2013, Draft *Kimberley Aquaculture Development Zone Management Policy*, July 2013, page 4.

### *Environment Protection and Biodiversity Conservation Act*

For both land-based and offshore aquaculture, Commonwealth approval is required for an action which has, will have, or is likely to have a significant impact on a matter of national environmental significance or on Commonwealth waters or land under the Commonwealth Government's *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). Matters of national environmental significance include:

- World Heritage properties
- Great Barrier Reef Marine Park
- National Heritage Places
- wetlands of international importance (Ramsar wetlands)
- nationally listed threatened species and communities
- nationally listed migratory species
- Commonwealth marine areas.

Significance guidelines have been developed for marine aquaculture ventures to provide guidance to potential developers of these facilities (EPBC Act Policy Statement 2.2 – Industry).<sup>12</sup>

In discussions with jurisdictions using aquaculture zoning, it was noted that development of aquaculture zones was generally strategic, where possible, to avoid interaction with matters of national environmental significance that would trigger assessment under the EPBC Act.

All jurisdictions under review have in place a bilateral agreement with the Commonwealth government that enable the jurisdiction to apply specified environmental impact assessment processes to assess actions under Australian Government legislation.<sup>13</sup>

In addition, all jurisdictions under review have signed a Memorandum of Understanding to work towards developing draft bilateral agreements that will effectively remove the need for Australian Government approval for some actions under the EPBC Act.<sup>14</sup> To date, Queensland is the only one of these jurisdictions where a notice of intention has been published.<sup>15</sup>

---

<sup>12</sup> See Department of Environment website, <http://www.environment.gov.au/resource/epbc-act-policy-statement-22-industry-offshore-aquaculture>, accessed 9 December 2013.

<sup>13</sup> Australian Department of the Environment, *Bilateral agreements*.  
<http://www.environment.gov.au/topics/environment-protection/environment-assessments/bilateral-agreements>

<sup>14</sup> Department of the Environment website, <http://www.environment.gov.au/topics/about-us/legislation/environment-protection-and-biodiversity-conservation-act-1999/one-stop>, accessed 18 December 2013.

<sup>15</sup> Department of the Environment website, <http://www.environment.gov.au/topics/about-us/legislation/environment-protection-and-biodiversity-conservation-act-1999/one-stop>, 18 December 2013.

### ***Land-based aquaculture***

The key environmental issue with land-based aquaculture relates to whether the receiving environment has the assimilative capacity to accept the additional loads of sediment and nutrients contained in their wastewater discharges without affecting the environmental values of each waterway. In setting discharge limits, all states are guided by various state-based water quality policies.

Water quality policies vary across states (and in some cases regions), but are based on the Australian Government's National Water Quality Management Strategy (NWQMS) which include the *Australia and New Zealand Guidelines for Fresh and Marine Water Quality 2000* (ANZECC Guidelines). Under the various water quality policies, receiving waters can have different environmental values, different water quality objectives and different existing concentrations of pollutants. This means that discharge limits will vary depending on factors such as the environmental values ascribed to the receiving waters, the assimilative capacity of the waters and the discharge quantity.

In Queensland, wastewater discharge is regulated through environmental authorities obtained from the Department of Environment and Heritage Protection under the *Environment Protection Act 1994*. Discharge limits are guided by state-wide water policy (*Environmental Protection (Water) Policy 2009*) and regionally based healthy waterways management plans.

A key difference between Queensland and other jurisdictions relates to the presence of the Great Barrier Reef Marine Park. There are separate water quality guidelines for the Great Barrier Reef Marine Park, which are included in the Queensland Government's Healthy Waterways Management Plans.

Land-based aquaculture in the GBR region also triggers Australian Government legislation (the GBRMP Act and the EPBC Act). The Australian Government has implemented a single assessment and approval process for all Australian Government approvals in the GBR Region. These processes are also partially integrated with state-based assessments.

- For a proposed aquaculture facility that discharges aquaculture waste to a waterway that leads to the Marine Park, the Australian Government has accredited Queensland law under the *Great Barrier Reef Marine Park (Aquaculture) Regulations 2000*, allowing for a single assessment process administered by the Queensland Government for facilities.
- A proposed aquaculture facility that discharges wastewater directly into the GBRMP would require separate approval under the GBRMP/EPBC Acts.

In the remaining jurisdictions covered by this review, wastewater discharge limits are managed through conditions on the aquaculture licence.

### ***Offshore aquaculture***

In the jurisdictions with systematic planning frameworks for offshore marine farms (all jurisdictions covered by this review except Queensland), environmental regulation can apply at the zone or site level. Initially, Environmental Impact Statements and other

work required to establish aquaculture zones were completed by the government. However, in Tasmania, these activities are increasingly being undertaken by private proponents. Any environmental restrictions are typically specified in either aquaculture plans and/or licence/lease conditions. Most jurisdictions also require aquaculture proponents to monitor and report on water quality around marine farms.

Unlike the other jurisdictions considered, Queensland does not have a systematic legislative approach to planning offshore marine farms. Each proponent is responsible for identifying an appropriate location and preparing the associated Environmental Impact Statement (where necessary).

### *Other regulatory requirements*

In addition to the management of environmental issues relating to aquaculture, there is a range of other regulations affecting the operation of aquaculture facilities. This includes regulation relating to the movement of aquaculture stock and food safety.

The non-environmental regulatory requirements relating to aquaculture in each of the selected jurisdictions are summarised in table 3.3.2.

### **3.2 Other regulatory requirements relating to aquaculture**

Jurisdictions	Other regulatory requirements
Commonwealth (applying to all States)	<ul style="list-style-type: none"> <li>Import permit required for importation of aquatic animals from outside Australia (Quarantine Act 1908)</li> <li>Permit for collection of protected species from the wild (Environment Protection and Biodiversity Conservation Act 1999)</li> </ul>
Queensland	<p>Other permits that may be required for aquaculture-related activities in Queensland include the following.</p> <ul style="list-style-type: none"> <li>Permit required to remove marine plants for farm maintenance (Sustainable Planning Act 2009).</li> <li>General Fisheries Permit required for collection of regulated species from the wild (Fisheries Act 1994)</li> <li>Permit for collection of protected species from the wild within the Great Barrier Reef Marine Park (Great Barrier Reef Marine Park Act 1975)</li> <li>Docket of sale required for purchase of broodstock from licensed commercial fishers (Fisheries Act 1994)</li> <li>Translocation approval required for translocation of aquatic animals into Queensland from other states (Fisheries Act 1994)</li> <li>Compliance with a food safety program under:               <ul style="list-style-type: none"> <li>– the Food Act 2006</li> <li>– Food Production (Safety) Act 2000</li> </ul> </li> </ul>
South Australia	<p>Requirements relating to the movement of aquaculture stock are set out in the Livestock (Restrictions of Entry of Aquaculture Stock) Notice 2008, which is made under the <i>Livestock Act 1997</i>. The Notice imposes various restrictions on the movement of aquaculture stock, including:</p> <ul style="list-style-type: none"> <li>– Aquaculture stock must not enter the State, or a licence area, unless accompanied by documentation issued by the supplier;</li> <li>– Restrictions on the introduction of aquaculture stocked reared or taken in South Australia (including approval from the Minister in certain circumstances)</li> <li>– Introduction of aquaculture stock reared or taken outside of South Australia (including the requirement for various certificates and approvals in certain circumstances).</li> </ul>

Jurisdictions	Other regulatory requirements
	<p>Food safety requirements under:</p> <ul style="list-style-type: none"> <li>– the Primary Produce (Food Safety Schemes) Act 2004 and Primary Produce (Food Safety Scheme) (Seafood) Regulations 2006 for bivalve molluscs.</li> <li>– Food Act 2001 for seafood other than bivalves.</li> </ul>
Tasmania	<p>There are also various food safety requirements, including the Tasmanian Shellfish Quality Assurance Program, which involves monitoring water quality in areas where shellfish are produced under the:</p> <ul style="list-style-type: none"> <li>– the Public Health Act 1997</li> <li>– the Food Act 1998</li> </ul> <p>Marine farm zones can also specify management controls, including:</p> <ul style="list-style-type: none"> <li>– The restrictions on noise, light or presence in a marine farming zone</li> <li>– The size of structures in a marine farming zone</li> <li>– Any other appropriate matters.</li> </ul>
Western Australia	<p>Technical, biosecurity and disease management specifications are also required under Section 92 of the Act to be detailed in an MEMP for a licence application. Specifications include:</p> <p>disease testing and response protocols – disease reporting requirements are stipulated in the <i>Fish Resources Management Regulations 1995</i>.</p> <p>translocation approval is required for non-native species – juvenile seed stocks must be sourced from a facility certified by the Department's Supervising Scientist Biodiversity and Biosecurity (Supervising Scientist), or have a health certificate issued by the Department prior to movement. Non-native species would not normally be allowed in offshore production systems.</p> <ul style="list-style-type: none"> <li>– biosecurity and quarantine included in the Management and Environmental Monitoring Plan (MEMP)</li> </ul>

Source: Relevant jurisdiction's State legislation, policies and from discussions with staff in regulating departments.

## 4 *Industry arrangements*

In some circumstances, certain activities — such as, research and development (R&D), marketing and branding — are most efficiently funded at the industry-wide level, rather than by individual firms. In this chapter, we examine whether industry-wide funding arrangements apply to aquaculture industries in the selected jurisdictions.

### *Arrangements for funding research and development and marketing*

R&D plays an important role in enhancing productivity and competitiveness in Australia's primary industries.<sup>16</sup> R&D requires an upfront investment in the research in return for uncertain future benefits from increased productivity or other benefits. It is often difficult for individual businesses to capture enough of the benefits of R&D to justify funding the cost of the research. Where the benefits of R&D are spread across the whole industry, it is most efficient to fund R&D activities at the industry level.

As with R&D, marketing involves incurring a cost, with the aim of increasing either the volume of sales, or achieving a higher price. In most industries marketing is generally done by individual businesses since individual businesses receive the benefits of their marketing effort.

However, in some circumstances, industry-wide marketing may be efficient. One example is the CRC Seafood marketing campaign 'Love Australian Prawns' supported by growers, commercial fishers, wholesalers and retailers. Another example is tourism, where marketing a specific destination may be under-provided by individual businesses. Since the benefits of marketing a destination are received by all tourism-related businesses in the region, there is no incentive for individual businesses to promote a destination. Similarly, with food products, all producers may benefit from better marketing of a product category, meaning there is no incentive for individual businesses to market the whole product category.

There are a number of ways R&D activities for primary industries are funded in Australia. These include: Australian and State Government departmental programs, Co-operative Research Centres (CRCs), Rural Research and Development Corporations (RDCs), as well as private arrangements. RDCs can also fund marketing activities. The RDC relevant to the aquaculture industry is the Fisheries Research and Development Corporation (FRDC) (see box 4.4.1 for an overview of the RDC system).

---

<sup>16</sup> Productivity Commission, 2011, *Rural Research and Development Corporations*, Report No. 52, Final Inquiry Report, Canberra, p. XV.

#### 4.1 Rural Research and Development Corporations

Rural Research and Development Corporations (RDCs) are one of a number of ways that R&D for primary industries is funded in Australia. The main role of RDCs is to procure research from other institutions on behalf of industry and the Australian Government.<sup>17</sup>

RDCs are funded through a combination of industry levies and matching funding from the Australian Government (up to a limit of 0.5 per cent of industry gross value). Levies can be collected through the Levy Collection system operated by the Australian Government Department of Agriculture, Fisheries and Forestry.

The Australian Government released guidelines for implementing levies in 2009. Key requirements for implementing a levy include: the proposed levy must relate to a function for which there is a market failure; and the levy must be supported by industry bodies and a majority of the industry.<sup>18</sup>

Since the RDC system is operated by the Australian Government, levy arrangements tend to be applied to industries at the national level, rather than on a state by state basis. Nevertheless, the composition of each state's aquaculture industries are distinctly different.

Of the main aquaculture industries in Queensland, the prawn farming industry is part of the FRDC system, while the barramundi industry has recently implemented a voluntary Industry Betterment Contribution (table 4.4.2). In other Australian states, the key aquaculture industries in South Australia (southern Bluefin tuna) and Tasmania (salmon farming) are both under the FRDC system.

#### 4.2 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 the Australian Barramundi Farmers Association (ABFA) to be used for R&D, marketing or administration.	FRDC can fund marketing. The Industry Better Contribution paid to the ABFA can be used to fund marketing activities.
South Australia	The southern Bluefin tuna industry and oyster industry pay a levy to FRDC. The kingfish and tuna industries also contribute to the Seafood CRC.	Previous attempts at collective marketing arrangements have not led anywhere. Each company undertakes its own marketing.

<sup>17</sup> Productivity Commission, 2011, *Rural Research and Development Corporations*, Report No. 52, Final Inquiry Report, Canberra, p. XV.

<sup>18</sup> Department of Agriculture, Fisheries and Forestry, 2009, *Levy Principles and Guidelines: Policy for the management of new and amended levies within Australia*, pp. 2-3.

Jurisdiction	Arrangements for funding R&D	Arrangements for funding 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 FRM Act 1994 details the 'Fisheries Research and Development Account', from which the Minister can apply funds to a range of purposes including purposes specific to aquaculture, such as: scientific, technological and economic research the development of aquaculture conduct programmes and provide extension services relating to fisheries, fish processing or aquaculture. R&D funding has also been provided through FRDC and the Australian Seafood Cooperative Research Centre (CRC).	Section 240 of the FRM Act 1994 details the 'Fishing Industry Promotion Training and Management Levy Account', from which the Minister can apply to programmes relating to: seafood promotion promotion of the fishing or aquaculture industry fishing or aquaculture industry training fishing or aquaculture industry management

Source: Relevant jurisdiction's State legislation, policies and from discussions with staff in regulating departments.

## *Place of origin branding*

In Australia, it is compulsory to label the origin of seafood. The only state that has additional place of origin branding is Tasmania, which has developed a generic master brand.

### 4.3 Place of origin branding arrangements

Jurisdiction	Place of origin branding arrangements
Queensland	There are no specific place of origin branding arrangements relevant to the Queensland aquaculture industry.
South Australia	Place of origin branding restrictions have been discussed, but have not led anywhere.
Tasmania	Tasmania has developed a generic 'Master Brand', which is managed by the Brand Tasmania Council. <sup>19</sup> The Tasmanian Master Brand identity is a registered trademark, comprising a stylised graphic image of the map of Tasmania and the word Tasmania. Private businesses may become Brand Tasmania partners free of charge. Partners are permitted to use the Tasmanian brand-mark to market their products to identify a Tasmanian place of origin link. Several aquaculture businesses are Brand Tasmania partners.
Western Australia	There are no place of origin branding arrangements relevant to the Western Australian aquaculture industry.

Source: Relevant jurisdiction's State legislation, policies and from discussions with staff in regulating departments. Brand Tasmania website, [http://www.brandtasmania.com/show.php?ACT=Public&menu\\_code=200](http://www.brandtasmania.com/show.php?ACT=Public&menu_code=200), accessed 1 October 2013.

<sup>19</sup> Brand Tasmania website, [http://www.brandtasmania.com/show.php?ACT=Public&menu\\_code=200](http://www.brandtasmania.com/show.php?ACT=Public&menu_code=200), accessed 1 October 2013.

## 5 Preliminary observations

Some preliminary observations based on the CIE's comparative review of the regulatory framework for aquaculture across four Australian jurisdictions (Queensland, South Australia, Tasmania and Western Australia) are presented below.

### *There are many similarities in the regulatory framework across jurisdictions*

Although there are significant differences in the way that aquaculture is regulated across the jurisdictions examined, many of these differences are superficial. In practice, there are many similarities. All jurisdictions have some form of approval mechanism for new aquaculture facilities and require either planning approval (in the case of land-based aquaculture) or an authority to access publicly owned water (in the case of offshore aquaculture). The approval process covers a range of regulatory issues such as environmental and biosecurity issues and involves multiple government agencies.

- **A degree of flexibility and scope for review on a case-by-case basis was present within all regulatory frameworks. Hence, the application of regulations is just as important as – if not more important than – the regulations themselves.**
- **Despite many similarities, the regulatory framework for aquaculture appears more complex in Queensland, compared to other jurisdictions.**

### *The marine farm planning framework is a key area of difference*

A key area where the regulatory framework is different in Queensland from other jurisdictions is the planning system for offshore aquaculture. In particular, South Australia and Tasmania have a formal planning framework for marine farming and Western Australia is currently developing such a framework. This provides proponents with certainty and encourages industry investment and expansion in an orderly way. This planning framework has underpinned strong growth in the production of farmed salmon in Tasmania.

While the marine farm planning arrangements in South Australia and Tasmania provide a clear advantage to the regulation of offshore aquaculture in Queensland, such a system would not *necessarily* be as successful in Queensland.

The marine farm planning frameworks in Tasmania and South Australia were developed in response to strong industry demand. Currently, there is no operational cage aquaculture in Queensland. It is possible that this is partly due to the regulatory framework. However, it is also possible that this reflects other factors beyond the Government's control, such as climate and other environmental factors.

Prior to investigating changes to the regulatory framework to support marine farm planning it is important that an underlying demand for offshore aquaculture is established. Changing the regulatory framework will have little effect in the absence of demand. Furthermore, developing marine farm plans is likely to involve significant investment by the Government, in terms of both policy development and preparing Environmental Impact Statements etc. Therefore, government will bear the risk of not being able to recoup the cost of marine farm planning in the event there is insufficient demand.

- **A marine farm planning framework will not necessarily be as successful in Queensland as it has been in other jurisdictions.**
- **Before developing a marine farm planning framework, the Queensland Government should establish whether there is demand for this type of aquaculture in Queensland.**

### *Wastewater discharge standards*

In relation to onshore aquaculture, the key issue is wastewater discharge standards. This appears to be a major issue constraining further development of onshore aquaculture in Queensland and in the Great Barrier Reef catchment in particular.

All states have water quality policies and guidelines that are broadly based on the *Australian and New Zealand Guidelines for Fresh and Marine Water Quality*. This provides some level of consistency in the water quality framework across jurisdictions.

These policies generally outline water quality criteria (or trigger values) based on the identified environmental value of each specific body of water. Environmental values are particular values or uses of the environment that are important for a healthy ecosystem or for public benefit, welfare, safety or health and which require protection from the effects of pollution, waste discharges and deposits. Examples of environmental values included in the Guidelines include:

- aquatic ecosystems
- primary industries (irrigation and general water uses, stock drinking water, aquaculture and human consumption of aquatic foods)
- recreation and aesthetics
- drinking water.

State-based water quality policies tend to focus on the quality of the body of water. In relation to aquaculture, there appears to be some uncertainty how the water quality criteria for the receiving waters translates to discharge limits. Nevertheless, this regulatory framework would imply the following.

- Receiving waters with higher environmental values are likely to have more stringent water quality criteria.
- There are likely to be more stringent discharge requirements placed on aquaculture facilities discharging into waters that are already above, or close to, the water quality criteria for relevant pollutants.

Discharge limits appear to be a much more significant issue for the Queensland aquaculture industry, compared to other jurisdictions, for a number of reasons.

- The main aquaculture activities in Queensland are onshore pond-based facilities. By contrast, other jurisdictions do not have much onshore aquaculture.
- The Great Barrier Reef Marine Park (GBRMP) is a World Heritage Area and therefore has high environmental value. It is also covered by Commonwealth legislation (the *Great Barrier Reef Marine Park Act 1975* and the *Environment Protection and Biodiversity Conservation Act 1999*).
  - The Environment Protection and Biodiversity Conservation Act (the EPBC Act) could potentially also apply to aquaculture activities in other jurisdictions. However, other jurisdictions deliberately avoid locating aquaculture facilities in areas that could trigger that Act.
  - Given the size of the Great Barrier Reef Marine Park, it is more difficult for Queensland aquaculturalists to avoid triggering Commonwealth legislation.
- Declining water quality is already a major issue for the Great Barrier Reef Marine Park.<sup>20</sup>

Based on the existing regulatory framework there may be little scope to add pollutants to existing receiving waters in some parts of the Great Barrier Reef catchment. This is potentially a significant constraint on further expansion of the aquaculture industry in these areas, even though aquaculture is probably not a major contributor to existing pollutant loads.

Nevertheless, in a 2003 Research Report — *Industries, Land Use and Water Quality in the Great Barrier Reef Catchment* — the Productivity Commission noted that prescriptive ‘end of pipe’ controls were not the answer. The Commission also noted that zero discharge is unnecessary and, if possible at all, would be at prohibitive costs.<sup>21</sup>

Water quality in the GBRMP is an extremely complex policy challenge, involving multiple industries and land use management practices. According to the Productivity Commission, no single solution will control diffuse pollution entering the Great Barrier Reef lagoon.

We note that work is under way to establish a Reef Trust, under the Australian Government’s Reef 2050 Program. This approach to environmental offsets could potentially provide greater certainty to proponents and reduce the search and transaction costs associated with finding suitable offsets.

- **A well-designed and efficient offsets framework could provide a way forward for aquaculture in the Great Barrier Reef catchment and provide more certainty for proponents, without compromising water quality objectives.**

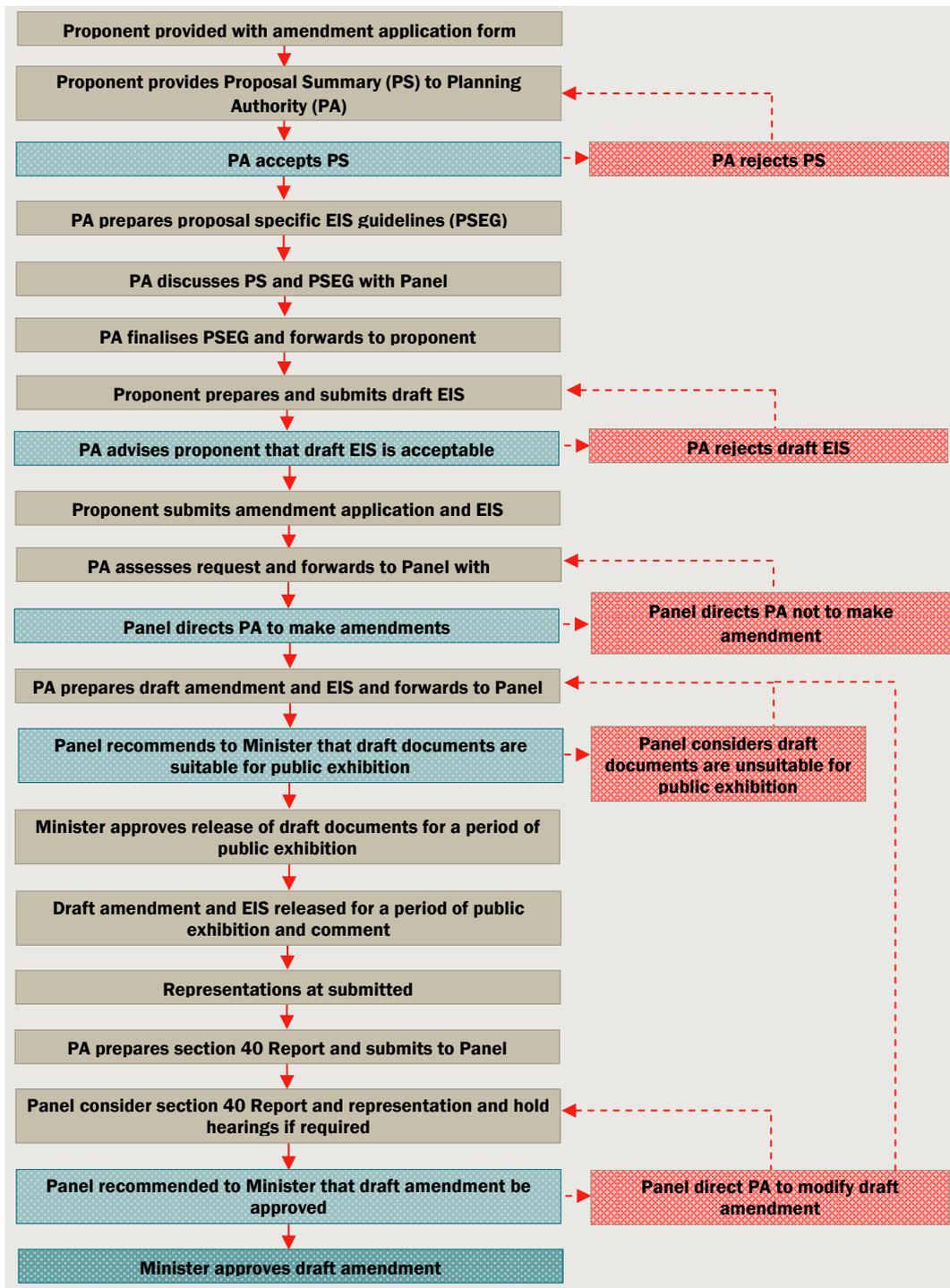
---

<sup>20</sup> Great Barrier Reef Marine Park Authority website, <http://www.gbrmpa.gov.au/outlook-for-the-reef/declining-water-quality>, accessed 4 December 2013.

<sup>21</sup> Productivity Commission, 2003, *Industries, Land Use and Water Quality in the Great Barrier Reef Catchment*, Research Report, Canberra.

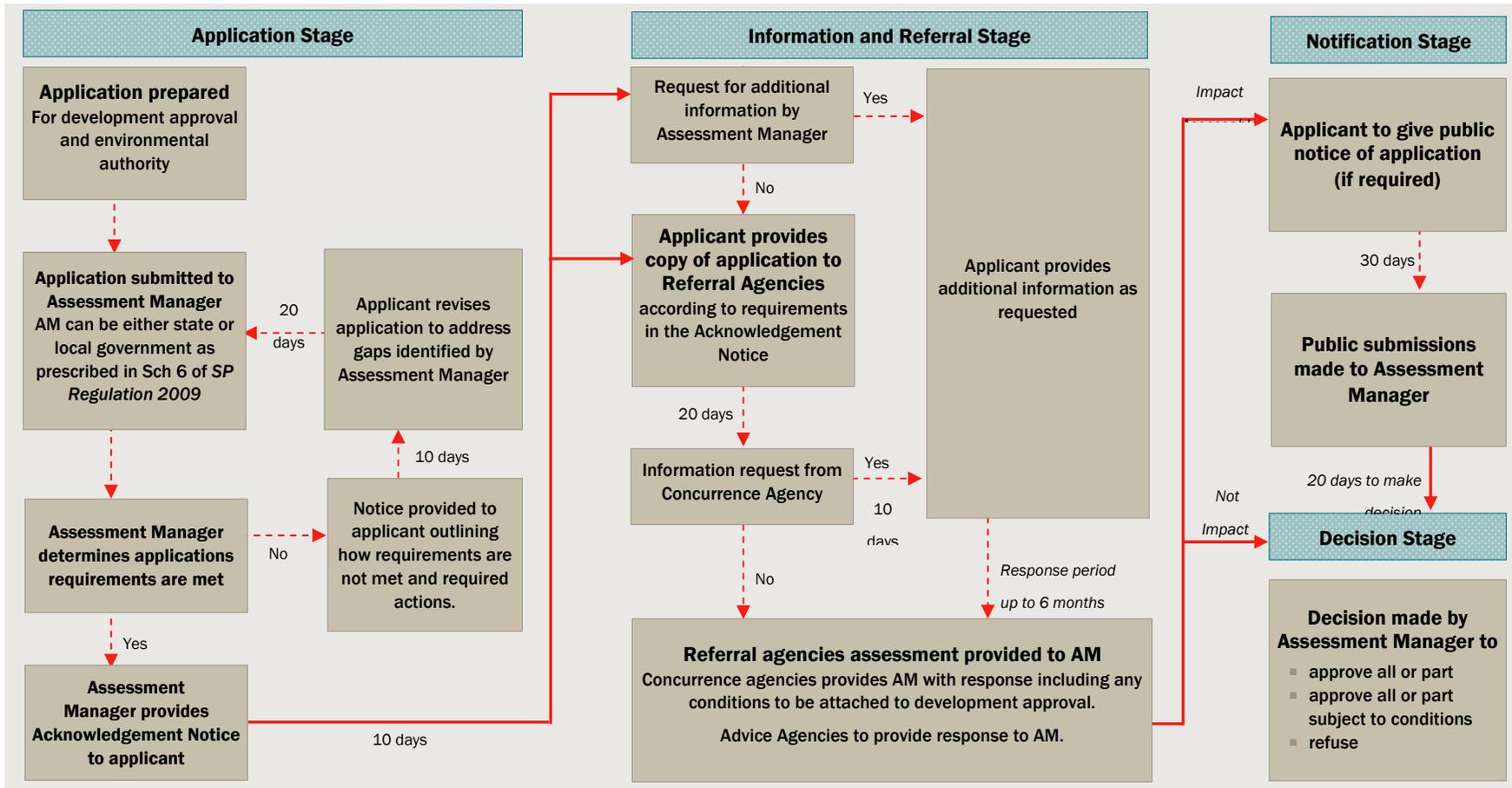
## A Application processes in each jurisdiction

### A.1 Process for an amendment to a Marine Farm Development Plan – Tasmania



Note: "The Panel" is a Marine Farming Planning Review Panel as established under Part 2 of the *Marine Farming Planning Act 1995*  
 Data source: Tasmania Department of Primary Industries, Parks, Water and Environment

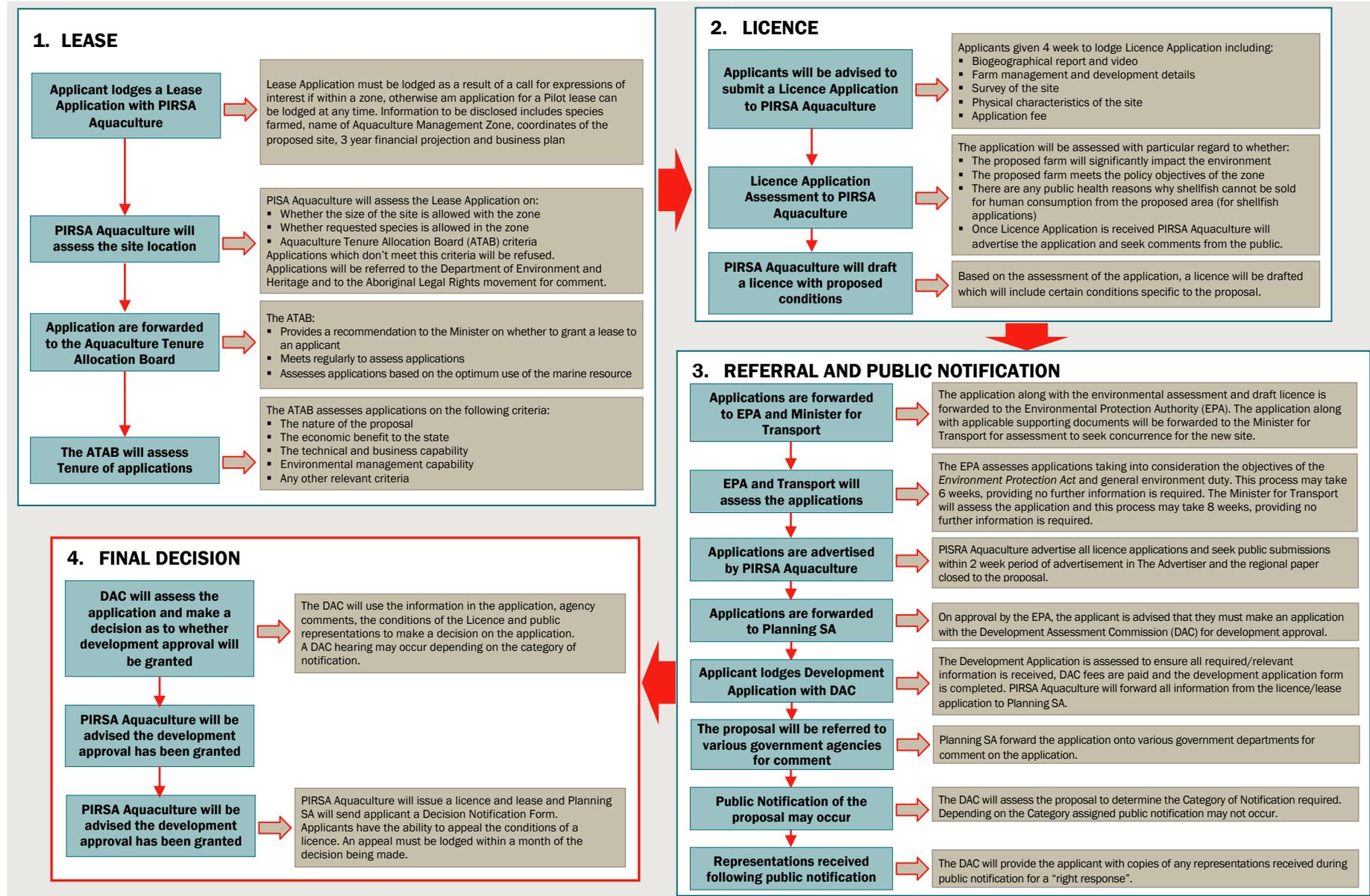
## A.2 Application process for development approval as specified under the Sustainable Planning Act 2009 – Queensland



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

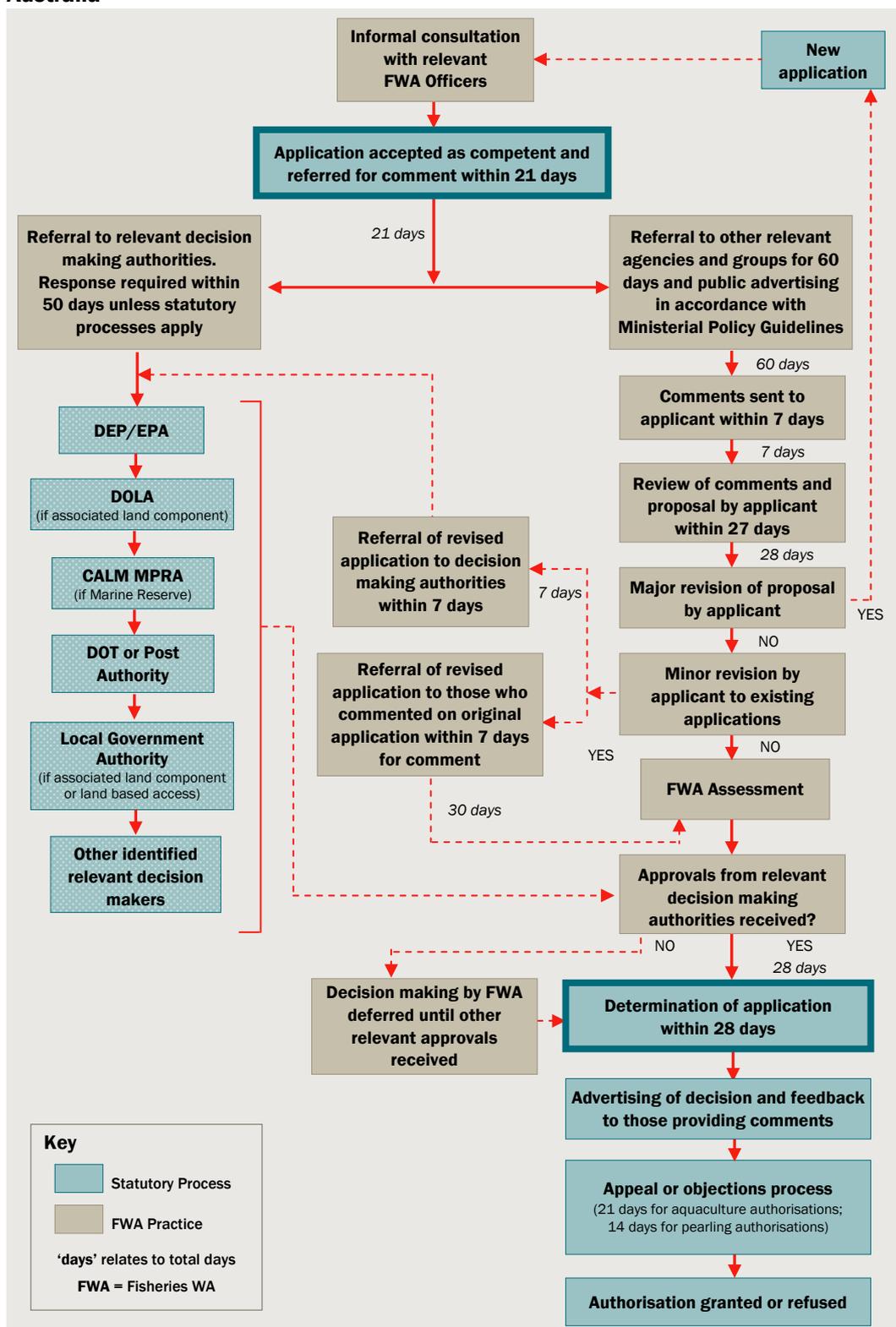
Source: Adapted from Queensland's Sustainable Planning Act 2009.

### A.3 Approval process for a marine aquaculture licence and lease – South Australia



Source: South Australian government, Approval process for a marine aquaculture licence and lease  
[http://www.sa.gov.au/upload/franchise/Business,%20industry%20and%20trade/Licensing%20and%20Regulation/Licensing/Fish%20and%20aqua/Marine\\_application\\_process.pdf](http://www.sa.gov.au/upload/franchise/Business,%20industry%20and%20trade/Licensing%20and%20Regulation/Licensing/Fish%20and%20aqua/Marine_application_process.pdf)

### A.4 Assessment process of aquaculture proposals for coastal waters – Western Australia



Data source: Fisheries Western Australia, 1998, Assessment of applications for authorisations for aquaculture and pearling in coastal waters of Western Australia: Ministerial Policy Guidelines No. 8.



**THE CENTRE FOR INTERNATIONAL ECONOMICS**

*www.TheCIE.com.au*