



**Government of South Australia**  
Primary Industries and Resources SA



Southern bluefin tuna harvest at Port Lincoln

**REPORT**  
**SUPPORTING THE**  
**AQUACULTURE (ZONES—LOWER EYRE PENINSULA NO. 2) POLICY**  
**2007**

Gazetted on 20 December 2007  
Amended on 4 June 2009



<b>Table of Contents</b>	<b>Page</b>
1 INTRODUCTION .....	5
2 AMENDMENTS TO DRAFT POLICY .....	11
2.1 General.....	11
3 AQUACULTURE ZONES AND AQUACULTURE EXCLUSION ZONES	15
3.1 Boston Bay and Lincoln Offshore aquaculture zone.....	15
3.1.1 Lincoln offshore sector .....	17
3.1.2 Bicker Isles sector .....	17
3.1.3 Boston Island east sector .....	17
3.1.4 Boston Bay sector .....	17
3.2 Louth Bay (outer) aquaculture zone .....	18
3.3 Lincoln aquaculture exclusion zone.....	19
3.4 Murray Point aquaculture zone.....	20
3.5 Proper Bay (outer) aquaculture zone.....	20
3.6 Tod River aquaculture zone.....	20
4 OBJECTIVES .....	21
5 SUBSEQUENT DEVELOPMENT PLAN AMENDMENTS .....	23
6 CONSTRAINTS .....	27
6.1 Physical Characteristics.....	28
6.2 Indigenous Heritage.....	31
6.3 Reserves and Conservation areas .....	31
6.4 Sensitive Habitats .....	32
6.5 Protected Species .....	32
6.6 Fisheries Nursery and Juvenile Habitats .....	34
6.7 Carrying Capacity and Assimilative Capacity .....	34
7 REFERENCES .....	37
8 APPENDIX A – GLOSSARY OF TERMS .....	39
9 APPENDIX B – LIST OF ACRONYMS .....	41
10 APPENDIX C – MAPS AND CO-ORDINATES.....	43
11 APPENDIX D – RELEVANT LEGISLATION.....	49

<b>Table of Figures</b>	<b>Page</b>
Figure 1 Overview of aquaculture zones and aquaculture exclusion zone in the Port Lincoln Region.....	43
Figure 2 Map of Boston Bay and Lincoln Offshore aquaculture zone. ....	44
Figure 3 Map of Louth Bay (outer) aquaculture zone and Tod River aquaculture zone. ....	45
Figure 4 Map of Lincoln aquaculture exclusion zone. ....	46
Figure 5 Map of Proper Bay (outer) aquaculture zone and Murray Point aquaculture zone. ....	47
Figure 6 Map of the Boston Bay and Lincoln Offshore aquaculture zone showing the Lincoln offshore sector, the Bicker Isles sector, the Boston Island east Sector and the Boston Bay Sector.....	48

## 1 INTRODUCTION

The Aquaculture (Zones – Lower Eyre Peninsula No. 2) Policy 2007 (“the Policy”) has been prepared as Stage 2 of the review of aquaculture zones in the Lower Eyre Peninsula region. The initial review (Stage 1), conducted in 2006 and gazetted on 18 January 2007, concentrated on the Lincoln Offshore subtidal aquaculture zone and is documented in the Aquaculture (Zones – Lower Eyre Peninsula) Policy 2007 and the Report which supported the Policy. Stage 2 presents a thorough review of the inner bay zones (previously the Louth Bay and Boston Bay intertidal and subtidal aquaculture zones and the Lincoln aquaculture exclusion zone).

The Policy Report (“the Report”) supports the Aquaculture (Zones – Lower Eyre Peninsula No. 2) Policy 2007. Table 1 summarises the zoning framework to be established under the Policy, including the classes of aquaculture, the leased area and biomass permitted within a modified configuration of zones and sectors comprising five aquaculture zones and one aquaculture exclusion zone.

The Policy establishes the following zones—

- Boston Bay and Lincoln Offshore aquaculture zone;
- Louth Bay (outer) aquaculture zone;
- Lincoln aquaculture exclusion zone;
- Murray Point aquaculture zone;
- Proper Bay (outer) aquaculture zone; and
- Tod River aquaculture zone.

The Boston Bay and Lincoln Offshore aquaculture zone is divided into the following sectors—

- Lincoln offshore sector;
- Bicker Isles sector;
- Boston Island east sector; and
- Boston Bay sector.

In accordance with the *Aquaculture Act 2001*, the Minister for Agriculture, Food and Fisheries (“the Minister”) must prepare a report in relation to a draft policy containing—

- (a) an explanation of the purpose and effect of the draft policy;
- (b) a summary of any background and issues relevant to the draft policy and of the analysis and reasoning applied in formulating the policy; and
- (c) an assessment of the consistency of the draft policy with the Planning Strategy and any relevant Development Plan under the *Development Act 1993*; and any relevant environment protection

policy under the *Environment Protection Act 1993*; and any other relevant plans or policies.

Aquaculture in the Lower Eyre region was previously managed under the Eyre Region – Lincoln Sub Region Zone Policy 2003 and subsequently by the policy document that replaced it, the Aquaculture (Zones – Lower Eyre Peninsula) Policy 2007, gazetted on 18 January 2007. Given the complexity of aquaculture development in the region, it was proposed from the outset that the review would be undertaken in two stages. This approach ensures that the policy adequately addresses the issues raised for such a diverse area.

The Report has been prepared to complement the Policy. Its intention is to inform and involve all stakeholders in the decision making process for the allocation of marine resources to aquaculture. The proposed zones will promote the orderly and efficient development of the aquaculture industry. The Policy recognises the industry as a legitimate user of the State's marine resources, providing guidance and clarity regarding the aquaculture industry's access to these resources.

**Stage 1:** The first part of the review focused on the Lincoln offshore subtidal aquaculture zone and framed the policy in a format similar to the *Aquaculture Regulations 2005*. The policy was gazetted on 18 January 2007.

**Stage 2:** Completion of Stage 1 allowed for the review of the boundaries, the prescribed classes of aquaculture and the prescribed criteria of the remaining zones. Stage 2 includes the revocation of the Aquaculture (Zones – Lower Eyre Peninsula) Policy 2007 gazetted on 18 January 2007, while simultaneously replacing that policy with the Aquaculture (Zones – Lower Eyre Peninsula No. 2) Policy 2007.

**Table 1 Summary of zoning framework established under the Aquaculture (Zones – Lower Eyre Peninsula No. 2) Policy 2007**

ZONE/Sector	LEASED AREA		CLASS	BIOMASS			
	Maximum total lease area allowed in the Policy	Lease area already allocated  (as at 04 June 2009)		Supplementally fed		Non-supplementally fed	
				(a) Farming of prescribed wild-caught tuna	(b) Farming of aquatic animals in a manner that involves regular feeding	(c) Farming of bivalve molluscs	(d) Farming of algae
<b>Louth Bay (Outer) aquaculture zone</b>	270 ha	180 ha	b & c & d	Nil	1,020 tonnes	3,100 tonnes & 155 ha area for bivalve molluscs	Determined by licence condition
<b>Tod River aquaculture zone</b>	38 ha	38 ha	c no mussels	Nil	Nil	Oysters Limited by licence condition	Nil
<b>Proper Bay (Outer) aquaculture zone</b>	60 ha	60 ha	c & d	Nil	Nil	1,200 tonnes & 60 ha area for bivalve molluscs	Determined by licence condition
<b>Murray Point aquaculture zone</b>	12 ha	2 ha	c no mussels	Nil	Nil	Oysters Limited by licence condition	Nil
<b>Boston Bay and Lincoln Offshore Aquaculture Zone</b>							
Lincoln Offshore sector	1,825 ha	1,725 ha	a	10, 500 tonnes	Nil	Nil	Nil

Bicker Isles sector	60 ha	60 ha	b & c & d	Nil	1,750 tonnes	400 tonnes & 20 ha area for bivalve molluscs	Determined by licence condition
Boston Island east Sector	308 ha ↓	288 ha ↓	a, b, c & d	360 tonnes (Note: applies to 2 current tuna sites that will move to the Lincoln Offshore sector)	↓	400 tonnes & 20 ha area for bivalve molluscs	Determined by licence condition
Boston Bay Sector			a, b, c & d	38 tonnes for research/educational/tourist		2,980 tonnes & 149 ha area for bivalve molluscs	Determined by licence condition
<b>All aquaculture zones</b>	13 ha for research/educational purposes						
<b>Lincoln aquaculture exclusion zone</b>	Nil	Nil	Nil	Nil	Nil	Nil	Nil

The Policy and Report was developed to support the ecologically sustainable development of aquaculture in the Lower Eyre Peninsula region. The Policy and Report was developed with input from other government agencies, regional stakeholders, local governments and industry. The Report and the Policy were referred to prescribed bodies and relevant public authorities as well as regional stakeholders, local and indigenous communities, native title claimant groups, local government and industry for comment once approval was given for release by the Aquaculture Advisory Committee (AAC) and the Minister. The Policy and Report were made available for a two-month public consultation period. The Minister subsequently considered the advice of the AAC on all matters raised as a result of the two-month public consultation.

As prescribed by the *Aquaculture Act 2001*, following approval of the Policy by the Minister, the Policy will be referred to the Environment, Resources and Development Committee (ERDC) of Parliament. The ERDC may approve the Policy, seek amendments to the Policy or object to the Policy. In the event the ERDC objects to the Policy, the Policy will be presented to both Houses of Parliament where either House may disallow it.



## 2 AMENDMENTS TO DRAFT POLICY

The draft Aquaculture (Zones – Lower Eyre Peninsula No. 2) Policy 2007 and Report were released for public consultation, in accordance with the *Aquaculture Act 2001*, from 19<sup>th</sup> April 2007 to 19<sup>th</sup> June 2007. A public briefing was held on 30<sup>th</sup> May 2007 in Port Lincoln.

Furthermore, PIRSA Aquaculture staff met with industry representatives, the Chief Executive and Mayor of the City of Port Lincoln, Fishwatch officers, Flinders Ports representatives, Department for Environment and Heritage regional staff and native title claimants, as well as representatives from the Aboriginal Legal Rights Movement Inc.

PIRSA Aquaculture received fifteen written submissions, providing comment on the draft Policy and draft Policy Report.

After consideration of stakeholder issues and concerns during the two-month public consultation period, a number of changes to the draft policy that underwent public consultation have been made.

### 2.1 General

The Policy defines the broad framework for aquaculture management within the defined zones, including through the specifying the permitted classes of aquaculture and the prescribed criteria that apply to each zone/sector. More detailed considerations such as the size of each lease; the farming structures permitted on each licence and the stocking densities for different species is managed at the individual licence level. Such management tools do not form part of the zoning policy.

Approval of leases and licences in aquaculture zones will be subject to the provisions of the *Aquaculture Act 2001* and the *Aquaculture Regulations 2005*, and relevant lease and licence conditions. An assessment of individual site suitability (including an Environmental Sustainability Development Assessment) and criteria outlined in the Aquaculture Tenure Allocation Policy are considered during the assessment. Ongoing environmental monitoring provides information that is an important input to the adaptive management of aquaculture. Further information about licensing is provided on a stakeholder information paper available on the PIRSA Aquaculture web site<sup>1</sup> or by accessing the PIRSA Aquaculture Public Register<sup>2</sup>.

#### Class of aquaculture

Classes of aquaculture under previous zone policies referred to groups of species e.g. bivalve molluscs; finfish; tuna etc. Under a modified format, classes of aquaculture now relate to the feeding requirements of aquatic organisms, i.e. whether the organisms are supplementary fed or not supplementary fed. Grouping the classes of aquaculture around the feed inputs better focuses the policy on the key determinant of environmental

---

<sup>1</sup> PIRSA Aquaculture web site: <http://www.pir.sa.gov.au/sector118.shtml>

<sup>2</sup> PIRSA Aquaculture Public Register web site:  
<http://www.pir.sa.gov.au/dhtml/ss/section.php?sectID=2126&tempID=1>

impact, namely, the amount of nutrient that is released into the environment (see section 6.7). The modified format also provides greater flexibility to adaptively manage aquaculture activity through the conditions placed on individual licences.

The classes of aquaculture that may be permitted under the Aquaculture (Zones-Lower Eyre Peninsula No.2) Policy 2007, are—

- (a) the farming of prescribed wild-caught tuna;
- (b) the farming of aquatic animals in a manner that involves regular feeding (eg finfish and abalone);
- (c) the farming of bivalve molluscs (eg oysters, scallops, mussels, razorfish); and
- (d) the farming of algae.

The first two of these (a and b) involve the supplemental feeding of the farmed animals, whereas no supplemental feeding is associated with the latter two classes (c and d) – supplementally feeding is the giving of feed to aquatic organisms to supplement any naturally available food.

### **Biomass limits**

Control of the amount of nutrients released into the environment is achieved at the zone policy level by setting upper biomass limits for each zone or sector, i.e. the maximum biomass of organisms farmed under a particular class of aquaculture at any one time. Environmental impacts are also managed by monitoring impacts on an on-going basis, through the environmental monitoring and reporting requirements stipulated in the *Aquaculture Regulations 2005*. Adaptive management enables the modification of upper biomass limits for zones and changing aquaculture licence conditions.

The Policy sets biomass limits for the farming of aquatic animals in a manner that involves regularly feeding (supplementally fed animals) in terms of a tonnage of finfish biomass equivalents. The net amount of nutrient release by various types of supplementary fed organisms differs. For example, on a per unit biomass basis, the amount of nutrient released is greater for finfish than abalone; however, the details of this are yet to be determined. To accommodate appropriate use of this information in the future, the concept of finfish biomass equivalents has been adopted, where upper biomass limits are expressed and benchmarked in terms of an amount of biomass that would have an environmental impact equivalent to a stated biomass of finfish.

The impacts of overstocking systems with aquatic organisms that does not involve supplemental feeding are likely to be felt by industry (through decreased production) well before any potential environmental harm. For example, in the case of filter feeders like oysters, production is self-limiting since industry performance overall will be determined by the amount of suitable food available in the water. As a result, the focus of PIRSA Aquaculture's regulatory activity for aquatic organisms that does not involve supplemental feeding is to meet the Government's responsibility "to maximise benefits to the community from the State's aquaculture resources", i.e. to

ensure that a zone is not overstocked to the general detriment of the aquaculturalists operating in the area.

The Policy allows for the Minister to alter the maximum biomass limits of all classes of aquaculture through notice in the Gazette. This provides a mechanism to enable flexibility in setting biomass limits for zones/sectors and enables future research and environmental monitoring results to be taken into consideration as they become available over time.

In the case of bivalve molluscs, the Minister cannot increase the maximum biomass limit unless satisfied, after consultation with relevant aquaculture industry groups, that such an increase would not compromise the overall productivity of bivalve mollusc farming operations in the area.

The Policy sets aside 13 hectares of area for the purposes of research and education, an increase of 8 hectares from the previous Policy. These 13 hectares may be divided across all the zones, but cannot be used in the Lincoln aquaculture exclusion zone or for commercial use. Aquaculture research is restricted to the classes of aquaculture allowed in each of the zones.

### **Lease area**

The leased area available for aquaculture in the zone is detailed in the prescribed criteria of the Policy and is summarized in Table 2. This is provided in order to communicate in the Policy, the overall area that would be under aquaculture, and from a public interest point of view, how much of that will be in close to shore (i.e. intertidal). A total of 2,573 hectares (or 7.5% of all aquaculture zones) is established for leasing in the Policy area.

<b>Table 2 Size of zones and sectors in the Policy area</b>				
Zone/Sector	Size of zone/sector		Leased area available for aquaculture	
	Zone (hectares)	Sector (hectares)	Zone (hectares)	Sector (hectares)
Boston Bay and Lincoln offshore aquaculture zone	21,902		2,193	
Lincoln offshore sector		18,102		1,825
Bicker Isles sector		243		60
Boston Island east sector		855		308
Boston Bay sector		2,702		
Lincoln aquaculture exclusion zone	27,262		Nil	
Louth Bay (outer) aquaculture zone	9,443		270	
Murray Point aquaculture zone	72		12	
Proper Bay (outer) aquaculture zone	2,356		60	
Tod River aquaculture zone	747		38	
Total all zones	61,782		2,573	
Total aquaculture zones	34,519		2,573	

The Policy adopts the most up to date mean high water springs (MHWS) coastline spatial layer as reviewed in 2006 (based on aerial photography undertaken in 2005). This has resulted in some amendments to zone boundaries. The spatial data applies for landward boundaries for the entire State and can be used consistently across all zone policies. In most instances in previous aquaculture zone policies, the District Council boundary (generally, but not always, based on low water mark) was used as the landward boundary. The distance discrepancy between high and low water mark has been taken into account in this Policy, for example, the Lincoln aquaculture exclusion zone will generally extends seaward 1.1 km from the MHWS.

The Policy incorporates a written description of the boundary of each zone area. The authoritative sources of maritime boundaries are usually written descriptions (Hirst, 2006) that are unambiguous, geographically correct and legally defensible. Also, as modern navigational aids, such as geographic positioning systems (GPS), allow boundaries to be identified with greater accuracy, it is becoming increasingly important to ensure that boundaries are described with sufficient certainty to facilitate effective management (Hirst, 2006).

### **3 AQUACULTURE ZONES AND AQUACULTURE EXCLUSION ZONES**

The Policy covers an area comprising State waters off the coast of Port Lincoln on the Eyre Peninsula as depicted in Figure 1. The Policy establishes five aquaculture zones and one aquaculture exclusion zone (See Figure 1 and Tables 1 and 2), as follows—

- Boston Bay and Lincoln Offshore aquaculture zone; and
- Louth Bay (outer) aquaculture zone; and
- Lincoln aquaculture exclusion zone; and
- Murray Point aquaculture zone; and
- Proper Bay (outer) aquaculture zone; and
- Tod River aquaculture zone.

#### **3.1 Boston Bay and Lincoln Offshore aquaculture zone**

The Boston Bay subtidal aquaculture zone, the Bicker Isles subtidal aquaculture zone and the Lincoln offshore subtidal zone (as described in the previous draft of this policy) have been amalgamated into a single zone known as the Boston Bay and Lincoln Offshore aquaculture zone.

The Boston Bay and Lincoln Offshore aquaculture zone is 21,902 hectares in size.

The zone is divided into the following sectors—

- (a) Lincoln offshore sector;
- (b) Bicker Isles sector;
- (c) Boston Island east sector; and
- (d) Boston Bay sector.

Some lessees have expressed a wish to move their sites to what were previously separate zones. By creating one large zone with a number of sectors PIRSA Aquaculture is able to facilitate such movement where considered appropriate.

The classes of aquaculture permitted in the Boston Bay and Lincoln Offshore aquaculture zone are—

- (a) the farming of aquatic animals in a manner that involves regular feeding;
- (b) the farming of bivalve molluscs; and
- (c) the farming of algae.

The total number of hectares of leased area allocated for aquaculture is—

- (a) 1,825 hectares for the Lincoln Offshore sector;
- (b) 60 hectares for the Bicker Isles sector; and
- (c) 308 hectares for the remainder of the sectors (the Boston Island east sector and the Boston Bay sector) of which 288 ha is already allocated. The unallocated area would need to be released by the Minister for Agriculture, Food and Fisheries and go through the Aquaculture Tenure Allocation Board (ATAB) process if it were to be made available.

The total area allocated for bivalve molluscs aquaculture is—

- (a) 20 hectares of area in the Bicker Isles sector;
- (b) 20 hectares of area in the Boston Island east sector; and
- (c) 149 hectares of area in the Boston Bay sector.

The biomass of prescribed wild-caught tuna must not exceed—

- (a) 10,500 tonnes in the Lincoln offshore sector. The total biomass for this sector remains the same as the previous policy (as this was extensively reviewed in 2006);
- (b) 360 tonnes in the Boston Island east sector (this biomass total will be removed once the tuna on existing sites have been moved); and
- (c) 38 tonnes for research, educational and tourism purposes in the Boston Bay sector.

The biomass of bivalve molluscs must not exceed—

- (a) 400 tonnes in the Bicker Isles sector;
- (b) 400 tonnes in the Boston Island east sector; and
- (c) 2,980 tonnes in the Boston Bay sector.

The Minister may increase the biomass of bivalve molluscs by notice in the Gazette if satisfied that such an increase would not compromise the overall productivity of bivalve mollusc aquaculture operations in the sector.

The biomass of aquatic animals farmed in a manner that involves regular feeding for the Bicker Isles sector, the Boston Island east sector and the Boston Bay sector combined, must not exceed—

- (a) an amount that would, in the opinion of the Minister, have an environmental impact on the zone equivalent to the environmental impact that 1,750 tonnes of finfish would have on the zone; or
- (b) if some other amount is specified by the Minister by notice in the Gazette, that other amount;

A biomass limit for algae is yet to be determined. No specific limits have been applied to the biomass or area for algae farming, given the industry is still in its infancy. PIRSA Aquaculture will monitor developments and consider the need for future regulation as the industry grows.

### **3.1.1 Lincoln offshore sector**

The Lincoln offshore sector was extensively reviewed as part of the Aquaculture (Zones – Lower Eyre Peninsula) Policy 2007 that was gazetted on 18 January 2007.

Changes from the previous policy include (i) the incorporation of the Port Operating limits into the Lincoln aquaculture exclusion zone, (ii) amendments to the western boundary to accommodate the Boston Island east sector and (iii) minor changes on the eastern boundary to accommodate the national park buffer.

The eastern side of the zone abuts the Sir Joseph Banks Group Conservation Park. The boundary of the park extends two nautical miles from the islands. A one-kilometre buffer seaward from the boundary of the Sir Joseph Banks Group Conservation Park has been introduced, based on discussion with the Department for Environment and Heritage (DEH). This is consistent with buffers established around all national and conservation parks in aquaculture zone policies.

### **3.1.2 Bicker Isles sector**

Bivalve mollusc farmers in the area have expressed concern that excessive biomass of farmed bivalve molluscs in the area might negatively impact overall industry productivity. The Policy includes limits on maximum leased area and biomass as described above have been introduced to address this concern, including specific undertaking to consider industry productivity prior to any Gazettal of a biomass increase by the Minister.

The Bicker Isles are part of the Lincoln National Park; however, a written agreement between DEH and PIRSA permits the zone (when it was part of Boston Bay) to be 250 metres from the national park boundary. This will not be changed.

### **3.1.3 Boston Island east sector**

This sector includes part of the former Louth Bay intertidal and subtidal aquaculture zone (as described in the previous draft of this policy) that lies to the east of Boston Island.

The biomass of prescribed wild-caught tuna allowed in the sector is 360 tonnes; however, this allowed biomass total for prescribed wild-caught tuna will be removed by notice in the Gazette once existing wild-caught tuna farming operations in the sector cease.

### **3.1.4 Boston Bay sector**

A limited amount of prescribed wild-caught tuna are permitted in this zone to facilitate the following activities—

- (a) tourism through cage-viewing activities;
- (b) existing and future tuna research programs; and
- (c) educational activities.

PIRSA Aquaculture still intends to ensure all prescribed wild-caught tuna production is consolidated in the Lincoln offshore sector. The inclusion of prescribed wild-caught tuna in this Boston Bay sector does not detract from this intention.

### **3.2 Louth Bay (outer) aquaculture zone**

Major changes from the previous policy include a reduction in the overall area of the zone, mainly due to Peake and Moonlight Bays being incorporated into the Lincoln aquaculture exclusion zone in acknowledgment of their high recreational and amenity value and the existence of dense seagrass meadows.

The size of the Louth Bay aquaculture zone (as described in the previous draft of this policy) has been decreased through the removal of the part of the zone—

- (a) to the east of Boston Island – this section of water is now part of the Boston Island east sector in the Boston Bay and Lincoln offshore aquaculture zone, and
- (b) adjacent to the Tod River – this section of water is now part of the Tod River aquaculture zone.

The Louth Bay (outer) aquaculture zone is 9,443 hectares in size.

The classes of aquaculture permitted in the Louth Bay (outer) aquaculture zone are—

- (a) the farming of aquatic animals (other than prescribed wild-caught tuna) in a manner that involves regular feeding;
- (b) the farming of bivalve molluscs; and
- (c) the farming of algae.

No specific limits have been applied to the biomass or area for algae farming, given the industry is still in its infancy. PIRSA Aquaculture will monitor developments and consider the need for future regulation as the industry grows.

The amount of leased area available for the aquaculture in the Louth Bay (outer) aquaculture zone is 270 hectares of which 180 hectares is already allocated. Were it to be made available, the unallocated area would need to be released by the Minister and go through the Aquaculture Tenure Allocation Board (ATAB) process.

The total area allocated for bivalve mollusc aquaculture is 155 hectares.

The biomass of the aquatic animals being farmed in a manner that involves regular feeding in the zone must not exceed—

- (a) an amount that would, in the opinion of the Minister, have an environmental impact on the zone equivalent to the environmental impact that 1,020 tonnes of finfish would have on the zone; or
- (b) if some other amount is specified by the Minister by notice in the Gazette, that other amount;

The biomass of bivalve molluscs being farmed in the Louth Bay (outer) aquaculture zone at any one time must not exceed 3,100 tonnes, or, if some other amount is specified by the Minister by notice in the Gazette, that other amount.

### 3.3 Lincoln aquaculture exclusion zone

The Lincoln aquaculture exclusion zone covers an area of 27,262 hectares and defines where aquaculture cannot be established. Major changes to this zone are—

- (a) including all of the area within the Port Operating limits (except for existing lease sites situated in this area) into the aquaculture exclusion zone. This is as a result of the adoption of coordinates of the Port Limits, as prescribed in the *Harbors and Navigation Act 1993* and interpreted by Flinders Ports, consequently making the former Boston Bay subtidal aquaculture zone smaller in size. Existing lease sites in this area will not form part of the exclusion zone; however, PIRSA Aquaculture will negotiate with lessees to move sites from this area. It is worth noting that the Commonwealth Department of Transport and Regional Services (DOTARS) has the right to “lock down” any port areas in the event of a terrorist attack or a threat to national security. In this case, the lessee will not be able to access the part of the lease site which sits within this area of the Port Limit;
- (b) extending the aquaculture exclusion zone to cover Moonlight and Peake bays in the north. Both bays are fairly shallow and include dense areas of seagrass meadows. The bays are popular recreational fishing spots;
- (c) extending the aquaculture exclusion zone around most of Boston Island to ensure a buffer is maintained between the island and future aquaculture development;
- (d) ensuring the aquaculture exclusion zone extends 1,000 metres from all National and Conservation Park boundaries (with the exception of Bicker Isles);
- (e) ensuring the aquaculture exclusion zone extends to the MHWS. The exclusion zone (as described in the previous draft of this policy) has been modified to take into account the most up to date mean high water springs (MHWS) coastline spatial layer as reviewed in 2006. In the case where currently existing aquaculture sites are impacted (from this change), the exclusion zone circumvents the these sites;

- (f) extending the aquaculture exclusion zone 1.1km from MHWS seaward along Tulka for aesthetic purposes; and
- (g) extending the aquaculture exclusion zone 1.1km from MHWS seaward around Murray Point to ensure some distance between aquaculture development and the shipyards as well as to ensure boating access around this area.

### 3.4 Murray Point aquaculture zone

The Murray Point aquaculture zone was previously part of the Proper Bay aquaculture zone (as described in the previous draft of this policy).

The Murray Point aquaculture zone is 72 hectares size.

The class of aquaculture permitted in the zone is the farming of bivalve molluscs other than mussels – the Policy does not allow for the farming of mussels in the zone. No further allocation of lease area for the farming of bivalve molluscs will be permitted in this zone.

### 3.5 Proper Bay (outer) aquaculture zone

The Proper Bay (outer) aquaculture zone accommodates an extension of the aquaculture exclusion zone around Murray Point to ensure aquaculture is not undertaken close to vessel slipyard activities.

The Proper Bay (outer) aquaculture zone is 2,356 hectares in size.

The classes of aquaculture permitted in the Proper Bay (outer) aquaculture zone are—

- (a) the farming of bivalve molluscs; and
- (b) the farming of algae.

The Policy does not allow for the farming of finfish in the zone. The amount of leased area available for aquaculture is 60 hectares, which is already allocated.

The biomass of bivalve molluscs in the zone must not exceed 1,200 tonnes or, if some other amount is specified by the Minister by notice in the Gazette, that other amount. **Tod River aquaculture zone**

A small amount of area has been added to the zone north of the Tod River to facilitate some movement of the existing intertidal oyster sites, which are currently in the area south of the Tod River.

The Tod River aquaculture zone is 747 hectares in size.

The class of aquaculture permitted in the zone is the farming of bivalve molluscs other than mussels.

The amount of leased area allowed in the zone is 38 hectares, all of which is already allocated.

The biomass limit for oysters in this zone is limited by licence condition. PIRSA Aquaculture will monitor developments and assess future need for additional regulation.

## 4 OBJECTIVES

The Minister may make aquaculture policies for any purpose directed towards securing the following objects of *Aquaculture Act 2001*—

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

In reaching these objectives, consistency must be ensured with the provisions of relevant legislation such as: the *Development Act 1993*, the *Environment Protection Act 1993*, the *Native Vegetation Act 1991*, the *Harbors and Navigation Act 1993* and the *Coast Protection Act 1972*. Appendix D highlights some of the objects and policies resulting from these Acts that are relevant to this Policy.

As explained in the Introduction (section 1), the Policy replaces the existing Aquaculture (Zones – Lower Eyre) Policy 2007 that was gazetted on 18 January 2007. The Policy is based on a comprehensive review of the Boston Bay and Louth Bay zones that were not reviewed as part of the initial review of the Lower Eyre Peninsula region and includes further amendments to the Lincoln offshore sector and the Lincoln aquaculture exclusion zone, additional to those introduced in the previous policy.

It is proposed that amendments will be made to the development plan as a result of consultation and gazettal of this policy. The following section details those specific proposed amendments.



## 5 SUBSEQUENT DEVELOPMENT PLAN AMENDMENTS

The Aquaculture (Zones – Lower Eyre Peninsula No.2) Policy 2007 is consistent with the relevant provisions of the Land Not Within A Council Area (Coastal Waters) development plan in that it seeks to ensure the ecologically sustainable development of the aquaculture industry and recognises and respects other users of the marine resource.

The area affected by the Aquaculture (Zones – Lower Eyre Peninsula No.2) Policy 2007 falls within the Land Not Within A Council Area (Coastal Waters) development plan.

This development plan currently contains policies to guide aquaculture development (Objective 35 and Principles of Development Control 13, 17-19, 25, 26, 38 and 41). However, to provide more certainty in regard to appropriate locations for aquaculture development, specific aquaculture zones are proposed to be identified within the Development Plan that give effect to the Aquaculture (Zones – Lower Eyre Peninsula No.2) Policy 2007.

An amendment to the Development Plan may be undertaken, pursuant to Section 29 of the *Development Act 1993*, to give effect to Aquaculture Policies gazetted under the *Aquaculture Act 2001*.

Section 29 of the *Development Act 1993* enables the Minister for Urban Development and Planning to amend a development plan in accordance with an approved aquaculture policy under the *Aquaculture Act 2001*. Accordingly, it is proposed that the Boston Bay and Lincoln Offshore aquaculture zone, the Louth Bay (outer) aquaculture zone, the Murray Point aquaculture zone, the Proper Bay (outer) aquaculture zone and the Tod River aquaculture zone specified in the Policy be incorporated into the Land Not Within A Council Area (Coastal Waters) development plan.

Specific details are as follows—

Amend the Land Not Within A Council Area (Coastal Waters) Development Plan

### **Port Lincoln**

Aquaculture (Tuna/Port Lincoln) Zone

It is proposed to delete the existing map in the Land Not Within A Council Area (Coastal Waters) Development Plan and substitute a new map (the area will duplicate the area shown as the Lincoln Offshore sector as described in the Aquaculture (Zones – Lower Eyre Peninsula No.2) Policy 2007).

### **Louth Bay**

Establish a new “Aquaculture (Louth Bay) Zone” with the following Objective and Principle of Development (PDC) —

#### “OBJECTIVES

- 1 The ecologically sustainable development of (i) the farming of aquatic animals (other than prescribed wild-caught tuna) in a manner that involves regular feeding; and (ii) the farming of bivalve molluscs; and (iii) the farming of algae.

## PRINCIPLES OF DEVELOPMENT CONTROL

- 1 Development should be primarily in the form of—
  - (a) the farming of aquatic animals (other than prescribed wild-caught tuna) in a manner that involves regular feeding; and
  - (b) the farming of bivalve molluscs; and
  - (c) the farming of algae;and associated activities.

## PROCEDURAL MATTERS

### Public Notification

Categories of public notification are prescribed in schedule 9 of the *Development Regulations 1993*.

It is proposed to insert a map of Aquaculture (Louth Bay) Zone in the Land Not Within A Council Area (Coastal Waters) Development Plan (the area will duplicate the area shown as the Louth Bay (outer) aquaculture zone as described in the Aquaculture (Zones – Lower Eyre Peninsula No.2) Policy 2007).

### **Boston Bay**

Establish a new “Aquaculture (Boston Bay) Zone” with the following Objective and Principle of Development (PDC) —

#### “OBJECTIVES

- 1 The ecologically sustainable development of (i) the farming of aquatic animals in a manner that involves regular feeding other than prescribed wild-caught tuna; and (ii) the farming of bivalve molluscs; and (iii) the farming of algae.

## PRINCIPLES OF DEVELOPMENT CONTROL

- 1 Development should be primarily in the form of—
  - (a) the farming of aquatic animals in a manner that involves regular feeding; and
  - (b) the farming of bivalve molluscs; and
  - (c) the farming of algae;and associated activities.

## PROCEDURAL MATTERS

### Public Notification

Categories of public notification are prescribed in schedule 9 of the *Development Regulations 1993*.

It is proposed to insert a map of Aquaculture (Boston Bay) Zone in the Land Not Within A Council Area (Coastal Waters) Development Plan (the area will duplicate the area shown as the Bicker Isles sector; Boston Island east sector; and Boston Bay sector as described in the Aquaculture (Zones – Lower Eyre Peninsula No.2) Policy 2007)

## Proper Bay

Establish a new “Aquaculture (Proper Bay) Zone” with the following Objective and Principle of Development (PDC) —

### “OBJECTIVES

- 1 The ecologically sustainable development of (i) the farming of bivalve molluscs; and (ii) the farming of algae.

### PRINCIPLES OF DEVELOPMENT CONTROL

- 1 Development should be primarily in the form of—
  - (a) the farming of bivalve molluscs; and
  - (b) the farming of algae;and associated activities.

### PROCEDURAL MATTERS

#### Public Notification

Categories of public notification are prescribed in schedule 9 of the *Development Regulations 1993*’.

It is proposed to insert a map of Aquaculture (Proper Bay) Zone in the Land Not Within A Council Area (Coastal Waters) Development Plan (the area will duplicate the area shown as the Proper Bay (outer) aquaculture zone as described in the Aquaculture (Zones – Lower Eyre Peninsula No.2) Policy 2007).

## Murray Point

Establish a new “Aquaculture (Murray Point) Zone” with the following Objective and Principle of Development (PDC) —

### “OBJECTIVES

- 1 The ecologically sustainable development of the farming of bivalve molluscs.

### PRINCIPLES OF DEVELOPMENT CONTROL

- 1 Development should be primarily in the form of the farming of bivalve molluscs and associated activities.

### PROCEDURAL MATTERS

#### Public Notification

Categories of public notification are prescribed in schedule 9 of the *Development Regulations 1993*’.

It is proposed to insert a map of Aquaculture (Murray Point) Zone in the Land Not Within A Council Area (Coastal Waters) Development Plan (the area will duplicate the area shown as the Murray Point aquaculture zone as described in the Aquaculture (Zones – Lower Eyre Peninsula No.2) Policy 2007).

## Tod River

Establish a new “Aquaculture (Tod River) Zone” with the following Objective and Principle of Development (PDC) —

### “OBJECTIVES

- 1 The ecologically sustainable development of the farming of bivalve mollusc.

### PRINCIPLES OF DEVELOPMENT CONTROL

- 1 Development should be primarily in the form of the farming of bivalve molluscs, and associated activities.

### PROCEDURAL MATTERS

#### Public Notification

Categories of public notification are prescribed in schedule 9 of the *Development Regulations 1993*’.

It is proposed to insert a map of Aquaculture (Tod River) Zone in the Land Not Within A Council Area (Coastal Waters) Development Plan (the area will duplicate the area shown as the Tod River aquaculture zone as described in the Aquaculture (Zones – Lower Eyre Peninsula No.2) Policy 2007).

## 6 CONSTRAINTS

The following matters were taken into account in creating this zone policy, in order to secure the objectives of the *Aquaculture Act 2001*—

- (a) The development and management of aquaculture resources in coastal waters adjacent to Port Lincoln within the framework of ecologically sustainable development;
- (b) The protection of proclaimed conservation areas and Australian Sea-lion (*Neophoca cinerea*) breeding colonies in the region;
- (c) The distribution and habitat of protected species;
- (d) The protection of historic shipwrecks;
- (e) The protection of sites of Aboriginal heritage value in the region;
- (f) The impact of aquaculture development on the tourism and residential qualities of the region;
- (g) The impact of aquaculture development on commercial and recreational fishing in the region; and
- (h) The impact of aquaculture on sensitive species and habitat in the region.

Zone development took into consideration the following—

- National parks, conservation parks and conservation reserves proclaimed under the *National Parks and Wildlife Act 1972*. Aquaculture development should be located at least 1,000 metres seaward from these reserves;
- Marine parks and reserves;
- Aquatic reserves under the *Fisheries Management Act 2007*;
- Recreation reserves;
- Indigenous heritage sites recorded under the Register of the *Aboriginal Heritage Act 1988*;
- Non-indigenous and natural heritage sites. Heritage sites are recorded under the register of the *Heritage Act 1993*;
- Shipwrecks proclaimed under the *Historic Shipwrecks Act 1981* or the Commonwealth *Historic Shipwrecks Act 1976*. Aquaculture development within the zone should be located at least 550 metres from a proclaimed shipwreck;
- Sites of scientific importance including geological monuments;
- The health status of farmed and wild stock in the area, with particular emphasis on the occurrence of diseases listed as notifiable under the *Livestock Act 1997*;
- Mineral reserves;
- Areas valued for their outstanding beauty or amenity;

- Navigational channels and shipping lanes. Aquaculture development within the zone should be located not to obstruct nor interfere with navigation channels, access channels and shipping lanes;
- Ports. Flinders Port manages the port waters at Port Lincoln in accordance with the *Harbors and Navigation Act 1993*. The boundary of the port is described in schedule 3a of the *Harbors and Navigation Regulations 1994*;
- Recreational fishing sites. Aquaculture development within the zone should be located to take into account the requirements of traditional fishing grounds;
- Known Indigenous fishing sites;
- Known commercial fishing sites;
- Launching sites. Aquaculture development within the zone should avoid frequently used natural launching sites, safe and secure anchorage areas;
- Diving areas;
- Shipping. Aquaculture development within the zone should avoid commercial shipping movement patterns or activities associated with existing jetties and wharves; and
- Threatened species. Aquaculture development within the zone should avoid habitats of threatened species (under NPW Act or EPBC Act). A 15 kilometre buffer around major Sea-lion colonies, and 5 kilometre buffer around minor colonies has been established to ensure no finfish aquaculture occurs in these areas.

Zone development also considered—

- Flushing currents – current rates have to be sufficiently high to allow appropriate dispersal of non-solid wastes from the site. Currents should not be strong enough to cause problems with securing of aquaculture facilities.
- Water depth – allow sufficient room between the bottom of farming infrastructure and the sea floor.

Detailed and independent investigations of many aspects of the area were carried out by consultants (PPK & SARDI, 2002; Sinclair Knight Merz, 2001) prior to the development of the policy. The scientific reports indicated areas suitable for the various types of aquaculture activity prescribed in the Policy.

## 6.1 Physical Characteristics

The seabed of this region consists mostly of silty sand close inshore, with heavier sands further to sea. The tides are generally small as with the rest of the State, however there can be larger tides when strong winds or storms occur. During the summer period, winds generally blow towards the land from the southeast and out to sea across the zones from the northwest during winter. Strong wind events occur during all seasons, and the strongest wind events are able to create waves that would disturb the seabed to a depth of almost 16 m. Water circulation in the region is dominated by tidal influences, with wind making very little modification to circulation patterns. Incoming tides

tend to push water northwards through the study region, and outgoing tides tend to move waters southwards (Sinclair Knight Merz, 2001).

Bicker Isles represent two small (about 250 and 420 metres at their widest) rocky outcrops located approximately midway between the southern extremity of Boston Island and the mainland. Water depths within the known aquaculture zone vary between 10 and 16 metres, with the seafloor composed predominately of bare sand.

Boston Bay is a large, natural harbour created by Boston Island and lies at the bottom south western corner of Spencer Gulf. Boston Island, located centrally in the bay, is about 5 km long and about 2 km wide. The north-south aligned bay is approximately 15 km long and about 5 km wide and has a maximum depth of about 16-17 metres (Petrusevics, 1993). Water exchange between Boston Bay and Spencer Gulf occurs mainly through a channel about 4 km wide located north of Boston Island. Boston Bay is physically connected to the relatively shallower Proper Bay, Spalding Cove and Spencer Gulf. Boston Bay is sheltered from the predominately south westerly wind and swell and, as a result, has developed sandy beaches and few cliffs. The region supports extensive seagrass beds and biologically diverse communities of fish and invertebrates (Glover and Olsen, 1985).

Within the Lincoln offshore sector, sediments are mostly composed of poorly sorted silts and fine sands, predominated by skeletal remains of carbonate-secreting organisms. The contribution of plankton to the organic matter remaining in the sediments has been calculated to be in excess of 80% using concentration-dependent stable-isotope mixing models (Fernandes *et. al.*, 2006). An erosional area has been identified south of Rabbit Island where sediments contain up to 50% siliciclastic<sup>3</sup> material, grain size distributions are better sorted and coarser, and organic carbon and total nitrogen contents are very low. In contrast, deeper waters north of Cape Donington have been identified as a depocentre for fine sediments, which contained organic matter levels twice those elsewhere in the region despite the extremely high carbonate contents (Fernandes *et. al.*, 2006).

Additional observations of the seafloor corresponding to the north-eastern section of the Lincoln offshore sector using underwater video were conducted in November 2006 for PIRSA Aquaculture. In all, 8 transects were filmed, each depicting a relatively barren seafloor, characterised by medium to coarse sand, low to medium bioturbation (a subjective measure of benthic infaunal activity, notably from polychaete worms) and low undulation. The dominant epibenthic fauna observed were razorfish (*Pinna bicolor*) and small sponges. Despite the depth range of approximately 21 to 23 metres, sparse seagrass (*Posidonia* species) was observed in 2 of the 8 transects. Transect 4 contained a single patch whereas seagrass was dispersed along approximately 20% of transect 8. The location of seagrass in these northern most transects probably corresponds to the small patches of seagrass originating from shallower waters to the south east of Point Bolingbroke as mapped by Sinclair Knight Merz in 2001.

---

<sup>3</sup> Siliciclastic rocks are clastic non-carbonate sedimentary rocks that are almost exclusively silica-bearing, either as forms of quartz or other silicate minerals.

Louth Bay is a wide, carbonate rich bay open to the southeast, with water depths ranging from 10 to 20 metres. The northern end of the bay is more exposed to southerly winds and ocean swell than the southern end of the bay, where occasional beach ridges are fronted by wide sand flats. Louth Island has a 1 km sand spit extending from the northern side with sea cliffs and shore platforms on the southern side (Sinclair Knight Merz, 2001). Seagrass meadows are present in Peake and Moonlight Bays. The Todd River is an important regional habitat being the only estuarine river on the Lower Eyre Peninsula, with mud flats adjacent to the mouth.

Proper Bay is a bedrock embayment containing 53 km of shoreline and extensive, dense seagrass meadows, with low energy sand flats in the southern portion which form relatively stable beaches backed by low stable fore dunes. Water depths range from one metre in the western end to approximately ten metres in the eastern end, which opens to the southern end of Boston Bay (Sinclair Knight Merz 2001). Hydrodynamic studies indicate that it can be considered separate from Boston Bay (Petrusevics, 1993).

Sandy beaches run along Peake Bay, Louth Bay and North Shields. Seagrasses occur 500-1000 metres offshore in the shallow protected waters of Peake Bay, Louth Bay and Proper Bay. The dominant seagrass species include *Posidonia australis* and *P. sinuosa* with lower levels of *Halophila australis* and *Amphibolis antarctica*. In more exposed areas like Point Boston, Point Bolingbroke and Cape Donington there are subtidal rocky shore macroalgal communities dominated by *Cystophora* species (Edyvane, 1999). North Shields has low, erosional cliffs and Proper Bay has sand flats. Offshore islands including the Sir Joseph Banks Group are low lying islands consisting of granite overlain by limestone. In depths over 15 metres the bottom tends to be mainly bare, coarse sediment with undulations increasing in size with distance from the coast.

The area has a temperate climate characterised by cool, wet winters (average temperatures between 8-16°C) and warm dry summers (average temperatures between 15-25°C) with an average temperature range of 12-20°C and an average rainfall of 490 mm. The average annual evaporation (measured at Port Lincoln) is approximately 1,500 mm.

A major factor influencing the winds of the area is the seasonal migration of the subtropical high-pressure systems. During summer, the west to east migration of high pressure systems produces winds from different directions depending on the location of the centre of the high pressure system. When the centre of the system is located over the Great Australian Bight, south-easterly winds dominate over the area, however if the centre is located over the Tasman Sea, north-easterly winds prevail over the region. In summer, the effect of differential land-sea heating produces sea breezes that approach the coastline from the south-east. In winter, due to the tropical migration of the high pressure systems, north-westerly winds and associated transient south-westerlies caused by the migration of west to east moving low pressure systems, prevail over the region (Sinclair Knight Merz, 2001).

Tidal elevations within the region are characterised by a Spring-Neap cycle of approximately fourteen days. Diurnal tidal influences are of similar magnitude to those of a semi-diurnal type, which provides a 'mixed' tidal signal for the

region. During most of the Spring-Neap cycle, two tides per day can be expected but with diurnal inequalities so that the tidal range of the two events in a single day will be different. Near the Neaps, the diurnal influence dominates so that only one tide per day is experienced. The neap condition is commonly referred to, in local context as a 'dodge' tide. The tidal signal throughout the region (at Port Lincoln and Reevesby Island) shows a high correspondence, indicating that at a given time the same phase of tide will be found throughout the region. Disturbances of the sea level produced at distances remote from the region can induce positive and negative deviations to tidal predictions in the region. Residuals of up to +0.76 m and -0.44 m (with respect to Indian Springs Low Water (ISLW)) have been recorded at Port Lincoln (Sinclair Knight Merz, 2001).

## 6.2 Indigenous Heritage

It is acknowledged that it is vital to the well being of Aboriginal community members that their traditional values and practices are respected and that their heritage and native title interests are taken into account when aquaculture developments are planned for a particular area. PIRSA Aquaculture facilitates the involvement of local Aboriginal representatives in its process for developing and amending aquaculture policy and zoning.

The policy area falls within the Barngarla Native Title Claim (SAD6011/98) (National Native Title Tribunal website). This claim includes the Sir Joseph Banks Group, Dangerous Reef, Thistle Island and Jussieu Peninsula, which extend beyond the proposed zone boundaries.

Specific areas of significance include Poonindie and Tulka Fish Trap. Poonindie is socially and historically significant as a successful attempt to create an economically viable and socially relevant community for Aboriginal people after European settlement. Tulka Fish Trap is listed on the register of the National Estate.

A move to create an Indigenous Land Use Agreement (ILUA) for the Eyre Peninsula region commenced in 2006. Under the ILUA model, separate agreements can be formulated with the different groups involved, such as fishers or aquaculture operators, Local, State and Federal Government.

## 6.3 Reserves and Conservation areas

Lincoln National Park – located at south east tip of Eyre Peninsula, about 10km south-east of Port Lincoln, comprising an area approximately 21,693 ha (DEH 2007), and includes Jussieu Peninsula, and Smith, Hopkins, Lewis, Little, Owen and Albatross, Liguanea, Bicker Isles and Rabbit Island, Donington Reef, Horse, Carcase and Curta Rocks.

The Sir Joseph Banks Group Conservation Park – includes twenty islands in Spencer Gulf, South Australia, eighteen of which are in the Conservation Park. The largest of these are Reevesby, Roxby, Stickney and Hareby Islands and in total they cover an area of about 1,242 ha. The boundary of these islands extends seaward for 2 nautical miles from the low water mark.

Sleaford Mere Conservation Park – consists of a large, coastal brackish lake about 688 ha in size and is located off Proper Bay Road 4 km south-west of Tulka via Port Lincoln.

## 6.4 Sensitive Habitats

The Sir Joseph Banks Group Conservation Park contains ecologically significant benthic and pelagic biodiversity, representative of South Australia's unique Flindersian (transitional warm-cold temperate' waters) marine flora and fauna. The Sir Joseph Banks Group of islands provide habitat for the endangered greater stick-nest rat (*Leporillus conditor*), and supports most of the breeding population of the Cape Barren Goose (*Cereopsis novaehollandiae*) and is considered the species' most important breeding area in South Australia.

Many species of animals utilise the islands of the Sir Joseph Banks Group for breeding, including the Australian Sea-lion (*Neophoca cinerea*), one of the world's rarest marine mammals. This species breeds on English Island and Dangerous Reef, the latter supporting the third largest breeding population of Australian Sea-lions in the world.

Marine waters adjacent to Lincoln National Park contain areas of significant heritage and cultural significance (geographical monuments of Cape Catastrophe, Memory Cove and Cape Donington) as well as significant great white shark (*Carcharodon carcharias*) populations (including areas that are significant for breeding females), seabird breeding areas and as breeding and habitat areas for New Zealand Fur Seals (*Arctocephalus forsteri*) and Australian Sea-lions. The area is also utilised by a range of cetaceans including Southern Right Whales (*Eubalaena australis*).

## 6.5 Protected Species

The *National Parks and Wildlife Act 1972* provides the legislative framework dealing with native fauna in this State. Most native mammals, reptiles and birds are protected in South Australia. Under the provisions of the Act it is an offence to kill, hunt, catch, restrain, injure, molest or harass a protected animal. Rare, vulnerable and endangered species are listed in schedules 7, 8 and 9 of the Act.

The *Fisheries Management Act 2007* provides the provisions, under Section 71 for interactions with marine mammals, in particular killing or injuring of the same. Under the provisions of Section 71(1)(a) of the Act, a person must not kill, injure or molest, or cause or permit the killing, injuring or molestation of, a marine mammal. Under the same Section of the Act it, is an offence to take protected species, which include white shark (*Carcharodon carcharias*), also known as great white shark. A statutory defence exists in cases where the defendant proves that the alleged offence was not committed intentionally and did not result from any failure on the part of the defendant to take reasonable care to avoid the commission of the offence.

Syngnathid fishes are protected under the provisions of section 71 of the *Fisheries Management Act 2007*. Syngnathid fishes are likely to be present, especially in the seagrass, algal and reef assemblages. It is known that at least some seahorses are abundant around finfish cages, using them as an alternative habitat to seagrass beds and algal assemblages. There will be no adverse impact on syngnathids, as cages will not be placed over dense seagrass beds and algal assemblages.

The Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) addresses the protection of matters of national environmental significance.

A search of the Protected Matters Database was conducted on the Australian Government Department of the Environment and Water Resources web site (2007) to obtain a list of the threatened species that are considered to potentially occur in the region. This data is derived primarily from general distribution maps, and thus it is likely that at least some of the species listed will not occur.

Threatened species listed on the data base include—

- Australian Sea-lion (*Neophoca cinerea*) (listed as vulnerable) – breeding known to occur within area.
- Blue whale (*Balaenoptera musculus*) (listed as endangered) – species or species habitat may occur within area.
- Southern right whale (*Eubalaena australis*) (listed as endangered) – species or species habitat known to occur within area.
- Humpback whale (*Megaptera novaeangliae*) (listed as vulnerable) – species or species habitat likely to occur within area.
- Great white shark (*Carcharodon carcharias*) (listed as vulnerable) – species or species habitat known to occur within area.
- Albatross – two species are listed as endangered & six species are listed as vulnerable; species or species habitat may occur within area.
- Petrels – one species listed as endangered & three species listed as vulnerable; species or species habitat may occur within area.
- Many migratory species – consisting of bird, marine mammals and shark which may migrate in and out of this area, occur within this region.

All marine mammals, and sharks have the potential to become entangled in nets or mooring lines. Seabirds may be adversely affected by activity around any feeding, roosting or nesting sites in the area. However, section 19 of the *Aquaculture Regulations 2005* specifies that each licence holder must have a written strategy approved by the Minister to minimise adverse interactions with seabirds and large marine vertebrates. In addition, risks posed by the aquaculture activity are assessed at the time of application through the ESD Assessment process consistent with the National ESD Framework.

In November 2002 Cabinet approved the establishment of a Marine Mammal-Marine Protected Areas Working Group (MM-MPA AWG) to develop management arrangements to address the proximity of aquaculture developments to core areas of proposed marine protected areas and significant marine wildlife habitats such as seal colonies and whale breeding areas.

The MM-MPA AWG concluded that the only aquaculture activity to pose a risk to seal/sea lion colonies is finfish aquaculture, and the only seal/sea lion colonies at risk from finfish aquaculture are breeding colonies of Australian Sea-lions. The New Zealand Fur-seal also interacts with aquaculture

operations, is not considered to be at risk from finfish aquaculture, and as such it is proposed that no restrictions will apply in relation to the New Zealand Fur-seals.

Cabinet considered the MM-MPA AWG report and in 2005 Cabinet noted the following recommendation in order to reduce the potential risk to Australian Sea-lion breeding colonies from finfish aquaculture—

- Finfish aquaculture located within 5 km of any Australian sea lion breeding sites will not be approved;
- Finfish aquaculture will not be approved within 15 km of the eight major Australian sea lions breeding colonies (namely The Pages, Dangerous Reef, Seal Bay, West Waldegrave Island, Olive Island, Franklin Islands, Purdie Island and Nicolas Baudin Island);
- Finfish aquaculture to be located between 5-15 km of minor Australian sea lion breeding colonies will have a risk assessment applied to the during the licence assessment process specifically related to seals; and
- Over 15 km, there will be no restrictions in relation to finfish aquaculture.

Some of the Lincoln offshore subtidal aquaculture zone may be subject to a risk assessment. The potential for marine animal interactions has been, and will continue to be considered thoroughly by PIRSA in the development of this Policy.

## **6.6 Fisheries Nursery and Juvenile Habitats**

The Lower Eyre region includes a variety of marine habitats of significance for various protected, commercially and socially significant marine fauna and flora. Rocky reef, seagrass meadow and unvegetated soft bottom are the predominant habitat types within and near the zone area. Rock reefs are high biodiversity habitats that are significant for adult fish, cephalopods and abalone. Seagrass meadows are important sources of marine primary production that provide habitats for juvenile and larval fish, crustaceans and molluscs (Bryars, 2003). Aquaculture leases are situated with careful consideration to limit disturbance of significant and sensitive habitats.

## **6.7 Carrying Capacity and Assimilative Capacity**

The concepts of ‘carrying capacity’ and ‘assimilative capacity’ are important and interrelated tools for natural resource management. Carrying capacity equates to the biomass (tonnage) of culture product that can be added to the environment without deleterious effects. Assimilative capacity refers to the extent to which the environment can cope with a particular activity without unacceptable change (O’Byrne and Lee, 2003).

Estimating carrying and assimilative capacities for finfish aquaculture is a relatively simpler task than for shellfish. This is largely due to the additive versus extractive nature of finfish and shellfish production respectively. For finfish aquaculture, it is possible to determine, using mass balance equations of the type described by Beveridge (1987), the changes in concentration of nitrate and ammonia in the water column. The level of confidence in these estimations reflects the empirical understanding of sources and sinks for these waste products and their interaction.

For shellfish aquaculture, estimating carrying capacity is more complicated as potential production must be estimated from available food resources. At present there are difficulties in confidently predicting potential production. Firstly, there is limited data to ascertain the availability of food for shellfish, namely phytoplankton and non-phytoplanktonic sources such as detritus and resuspended material. Secondly, processes such as shellfish filtration rate, excretion and respiration rates, and assimilation efficiencies need to be investigated within South Australian coastal conditions and compared to seasonally varying food concentrations and temperature (Parsons Brinkerhoff and SARDI Aquatic Sciences, 2003).

For finfish aquaculture, carrying capacity modelling has been undertaken separately for Boston Bay and Lincoln offshore aquaculture zone only. Petrusевичs (1993) modelled the carrying capacity of Boston Bay for southern Bluefin tuna (*Thunnus maccoyii*) and estimated a mean environmentally sustainable annual production of 1,750 tonnes. It should be noted that apart from research, educational and tourism purposes, prescribed wild-caught tuna is not permitted within the current aquaculture zone, however other finfish species are. Maximum production currently allowed of other finfish species is 1,000 tonnes. No modelling for shellfish aquaculture carrying capacity has been undertaken for any of the zones described within this Report.

A report by independent marine consultants Sinclair Knight Merz Pty Ltd (2001) modelled both the 'carrying capacity' and 'assimilative capacity' of the Lincoln offshore subtidal zone for current and future *T. maccoyii* aquaculture development. Such an approach is recommended to assess the potential cumulative impacts of multiple operations (Fernandes *et. al.*, 2002). However, due to the datasets required, a specific indication of the acceptable carrying and assimilative capacities for aquaculture could not be obtained. To improve this knowledge a number of environmentally related research projects were commissioned by the Aquafin CRC in 2002. In lieu of their finalisation and subsequent modelling, PIRSA Aquaculture has taken a conservative approach with regard to managing resources in Lincoln offshore sector. This involves setting a maximum allowable biomass for this zone, in this case tonnage of prescribed wild-caught tuna, based on production figures from the last five years.

According to EconSearch (2006) data, total processed weight of tuna from the zone peaked at 9,290 tonnes in 2003/04. As approximately 13 to 15% (D. Ellis on behalf of the Tuna Boat Owners Association of Australia, pers. comm., 28 June 2006) wet weight of each tuna is removed during processing, a maximum biomass of 10,500 tonnes of prescribed wild-caught tuna farmed in the zone at any one time can be derived. Due to the favourable site-based, compliance environmental monitoring results to date, this output-based control is recommended to protect the marine ecosystem and allow flexibility to the industry. Consequently it is recommended that a maximum allowable biomass held in the Lincoln offshore sector at any one time be 10,500 tonnes. This limit may be reviewed as further research, environmental monitoring and modelling indicate it is possible to do so and the Minister can subsequently amend the biomass total through gazettal.

Again, this approach is conservative whereby the input of nitrogenous compounds to the environment from prescribed wild-caught tuna aquaculture remains constant despite an increase in potential nutrient sinks via an increased zone size. Correspondingly, the zone's potential assimilative capacity has increased, yet the potential increase in carrying capacity has not.

## 7 REFERENCES

- Australian Government Department of the Environment and Water Resources. Worldwide web electronic resource. URL: <http://www.deh.gov.au/erin/ert/epbc/imap/map.html>. Date visited 5/2/07
- Beveridge, M. C. M. (1987) Cage Aquaculture. 352pp. Fishing News Books Ltd, Farnham.
- Bryars, S. 2003. An inventory of important coastal fisheries habitats in South Australia. Fish habitat Program, Primary Industries and Resources South Australia.
- Department for Environment and Heritage. Worldwide web electronic resource. URL: [http://www.parks.sa.gov.au/publish/groups/public/@reserveplanning/documents/all/parks\\_pdfs\\_protected\\_areas.pdf](http://www.parks.sa.gov.au/publish/groups/public/@reserveplanning/documents/all/parks_pdfs_protected_areas.pdf). Date visited 5/2/07
- EconSearch. (2006). The Economic Impact of Aquaculture on the South Australian State and Regional Economies, 2004/05. A report prepared for PIRSA Aquaculture.
- Edyvane, K. (1999). Conserving marine biodiversity in South Australia - Part 2 Identification of areas of high conservation value in South Australia. Primary Industries and Resources South Australia.
- Fernandes, M., Cheshire, A. and Doonan, A. (2006) Sediment geochemistry in lower Spencer Gulf, South Australia: implications for southern bluefin tuna farming. *Australian Journal of Earth Sciences* 53:421-432.
- Fernandes, T.F., Eleftheriou, A., Ackefors, H., Eleftheriou, M., Ervik, A., Sanchez-Mata, A., Scanlon, T., White, P., Cochrane, S., Pearson, T.H., Read, P.A., 2002. MARAQUA: The Management of the Environmental Impacts of Marine Aquaculture. Final Report: European Union FAIR Programme, PL98-4300. Fisheries Research Services, Aberdeen, Scotland. 70 pp. + appendices.
- Glover, C. J. M. and Olsen, A. M. (1985) Fish and major fisheries. In *Natural History of Eyre Peninsula*, edited by C. R. Twidale, M. J. Tyler and M. Davis, pp. 169-181. Royal Society of South Australia.
- Hirst, B., 2006, *Technical guidelines for describing maritime boundaries* Commonwealth of Australia 2006.
- "Lincoln National Park Draft Management Plan", National Parks and Wildlife, Department for Environment Heritage and Aboriginal Affairs, South Australia, June 1999
- Native Title Tribunal. Worldwide web electronic resource. URL: [http://www.nntt.gov.au/applications/claimant/SC96\\_4.html](http://www.nntt.gov.au/applications/claimant/SC96_4.html), visited 5/2/07
- O'Bryen, P. J. and Lee, C. S. (2003) Management of aquaculture effluents workshop discussion summary. *Aquaculture* 226(1):227-242.
- Petrusevics, P. (1993) Assessment of the carrying capacity of Boston Bay South Australia with a view towards maximizing the Southern Bluefin

Tuna resource. Fisheries Research and Development Corporation  
Project 93/169.

Parsons Brinkerhoff & SARDI Aquatic Sciences. (2003). Technical review for aquaculture management plans – phase 2. Volume B. Central Spencer Gulf. (Parsons Brinkerhoff, Adelaide).

PPK Environment & Infrastructure Pty Ltd and SARDI Aquatic Sciences (2002). Technical Review for SA Aquaculture Management Plans – Phase 1. Unpublished report for Aquaculture SA

Sinclair Knight Merz (2001). Technical Investigations Report for the Plan Amendment Report relating to marine aquaculture in the Lower Eyre Peninsula. 159 pp.

## 8 APPENDIX A – GLOSSARY OF TERMS

<b><i>Adaptive Management</i></b>	Management involving active response to new information of the deliberate manipulation of fishing intensity or other aspects in order to learn something of their effects. Within a stock, several sub-stocks can be regarded as experimental units in which alternative strategies are applied.
<b><i>Aquatic Reserve</i></b>	An area of water, or land and water, established as an aquatic reserve by proclamation under the <i>Fisheries Management Act 2007</i> .
<b><i>Assimilative capacity</i></b>	The capacity of a natural body of water to receive wastewaters without deleterious effects to aquatic life.
<b><i>Benthic</i></b>	Of or relating to or happening on the bottom under a body of water.
<b><i>Biodiversity</i></b>	The variability among living organisms from all sources (including terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are a part) and includes: (a) diversity within species; and (b) diversity of ecosystems.
<b><i>Biomass</i></b>	The total live weight of a group (or stock) of living organisms (e.g. fish, plankton) or of some defined fraction of it (e.g. spawners), in an area, at a particular time.  Any quantitative estimate of the total mass of organisms comprising all or part of a population or any other specified unit, or within a given area at a given time; measured as volume, mass (live, dead, dry or ash-free weight) or energy (joules, calories).
<b><i>Closures</i></b>	Prohibition of fishing during particular times or seasons (temporal closures) or in particular areas (spatial closures), or a combination of both.
<b><i>Carrying capacity</i></b>	The maximum population of a given organism that a particular environment can sustain.
<b><i>Ecologically sustainable development (ESD)</i></b>	Using, conserving and enhancing the community's resources so that ecological processes, on which life depends, are maintained, and the total quality of life, now and in the future, can be increased.
<b><i>Ecosystem</i></b>	A dynamic complex of plant, animal, fungal, and microorganism communities and the associated non-living environment interacting as an ecological unit.
<b><i>Habitat</i></b>	The place or type of site in which an organism naturally occurs.
<b><i>Harvest</i></b>	A productivity measuring technique.
<b><i>Infauna</i></b>	Aquatic organisms (usually animals, but sometimes algae) that live within particulate media such as sediments or soil.
<b><i>Marine protected area (MPA)</i></b>	An area of land and/or sea especially dedicated to the protection and maintenance of biological diversity and of natural resources, and managed through legal or other effective means.
<b><i>Organic enrichment</i></b>	The supply of organic material (eg waste feed, faeces) to the seafloor.
<b><i>Population</i></b>	A group of individuals of the same species, forming a breeding unit and sharing a habitat.
<b><i>Spatial</i></b>	Of or relating to space.
<b><i>Stakeholder</i></b>	An individual or a group with an interest in the conservation, management and use of a resource.
<b><i>Stock</i></b>	A group of individuals of a species occupying a well defined spatial range independent of other groups of the same species, which can be regarded as an entity for management or assessment purposes.



## 9 APPENDIX B – LIST OF ACRONYMS

AAC	Aquaculture Advisory Council
CRC	Co-operative Research Centre
DAAR	Department for Aboriginal Affairs and Reconciliation
DAC	Development Assessment Commission
DEH	South Australian Department for Environment and Heritage
DTEI	Department for Transport, Energy and Infrastructure
DWLBC	Department of Water, Land and Biodiversity Conservation
EMP	Environmental Monitoring Program
EPA	Environment Protection Authority
EPBC Act	The Commonwealth <i>Environment Protection and Biodiversity Conservation Act 1999</i>
ERDB	Eyre Regional Development Board
ERDC	Environment, Resources and Development Committee
ESD	Ecological Sustainable Development
ILUA	Indigenous Land Use Agreement
LGA	Local Government Association
MPA	Marine Protected Area
NPW Act	<i>National Parks and Wildlife Act 1972</i>
NRM	Natural Resource Management
PAR	Plan Amendment Report (now known as Development Plan Amendment)
PIRSA	Department of Primary Industries and Resources, South Australia
SARDI	South Australian Research and Development Institute
SATC	South Australian Tourism Commission
The Minister	Minister for Agriculture, Food and Fisheries





Figure 2 Map of Boston Bay and Lincoln Offshore aquaculture zone

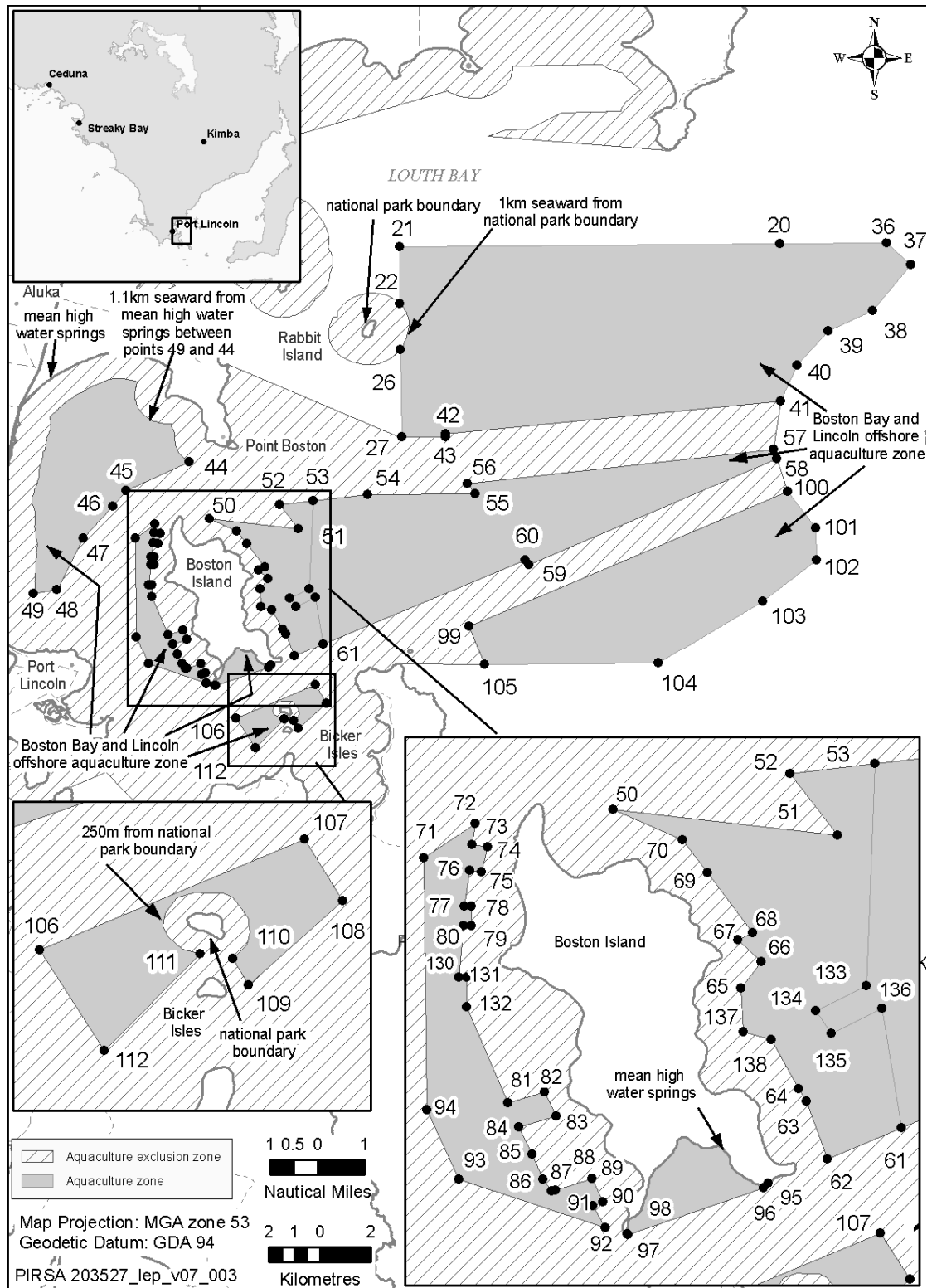


Figure 3 Map of Louth Bay (outer) aquaculture zone and Tod River aquaculture zone

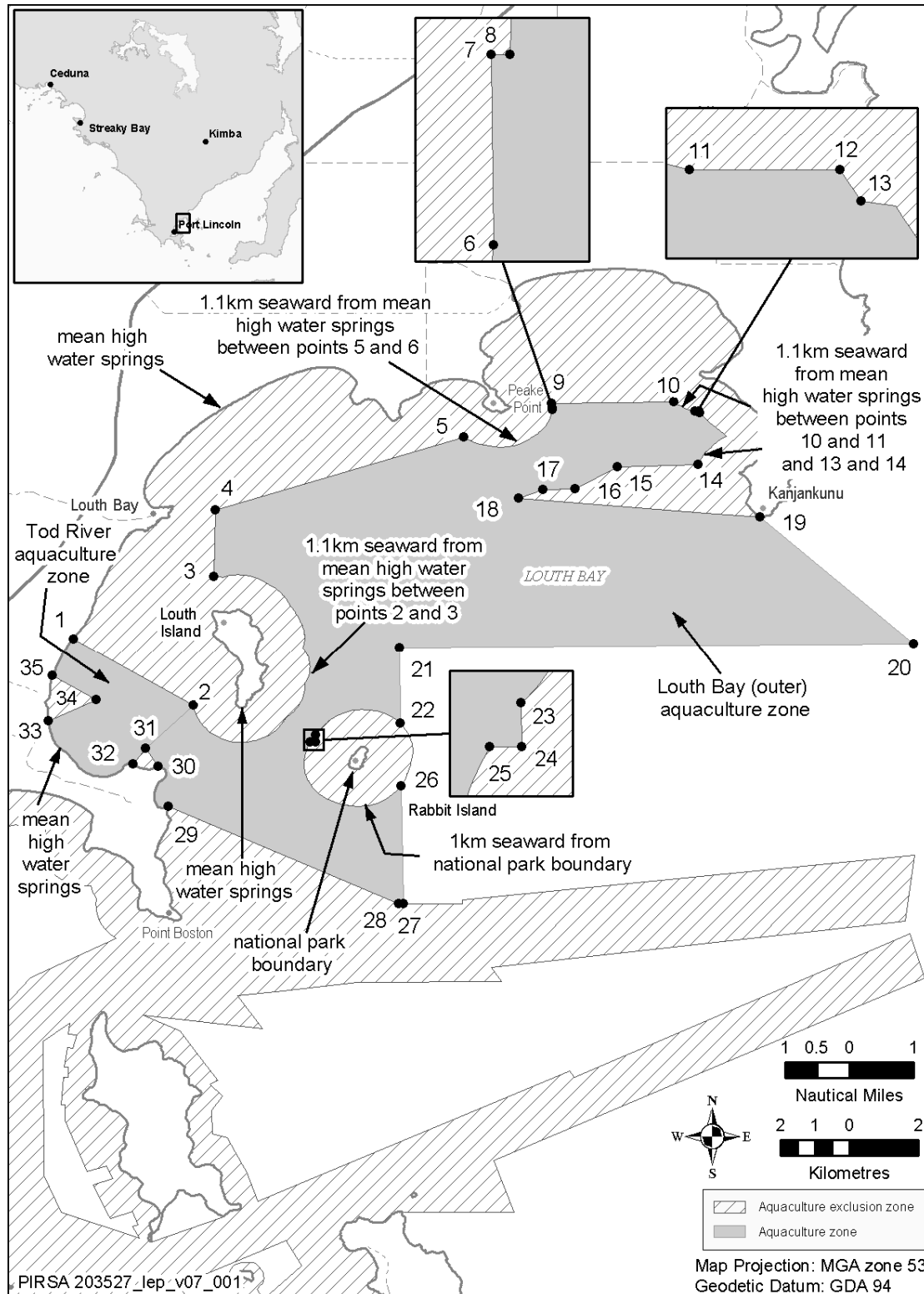


Figure 4 Map of Lincoln aquaculture exclusion zone

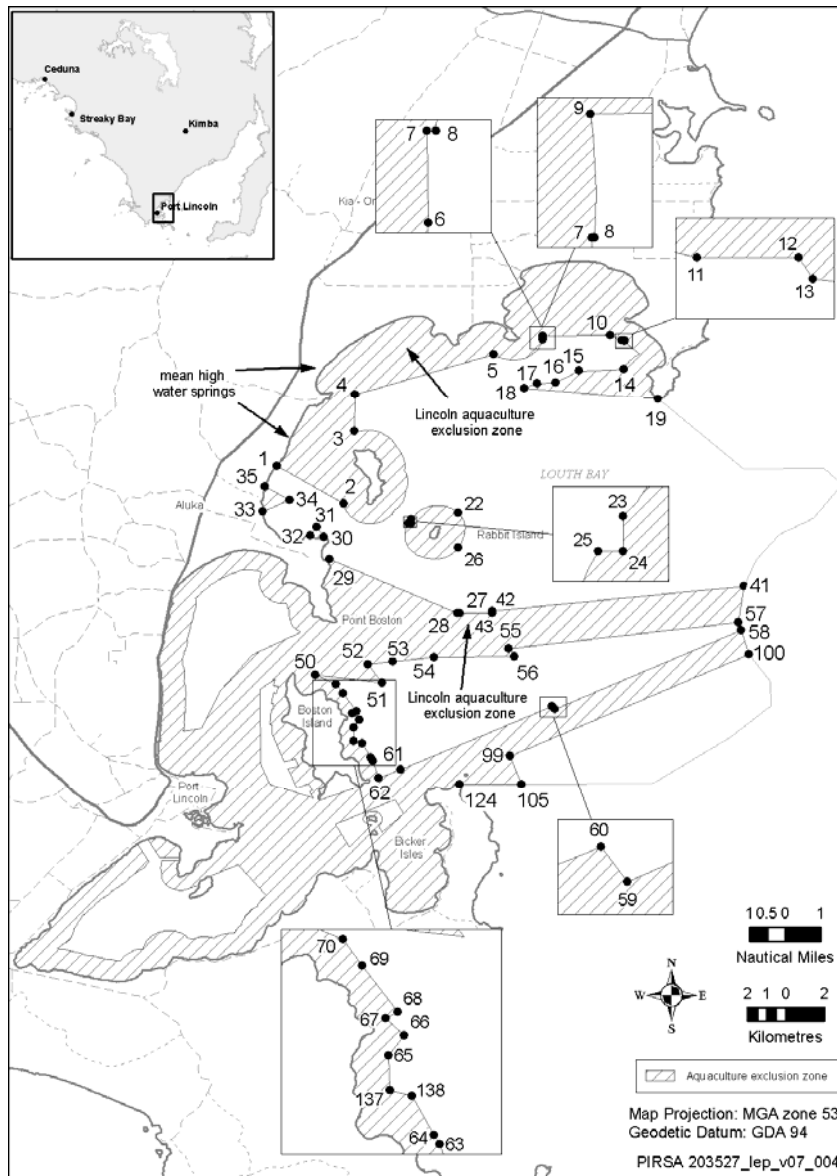


Figure 5 Map of Proper Bay (outer) aquaculture zone and Murray Point aquaculture zone

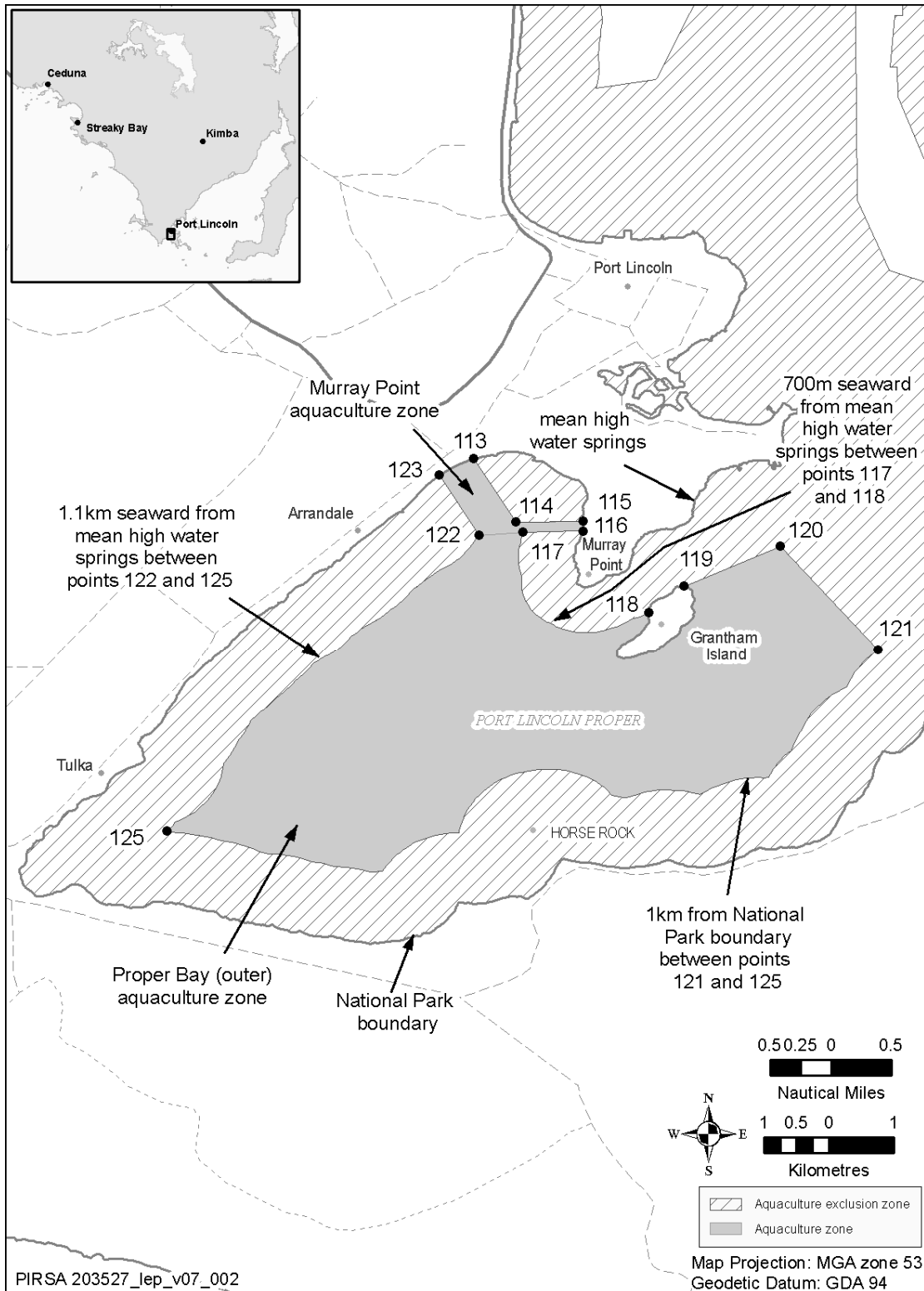
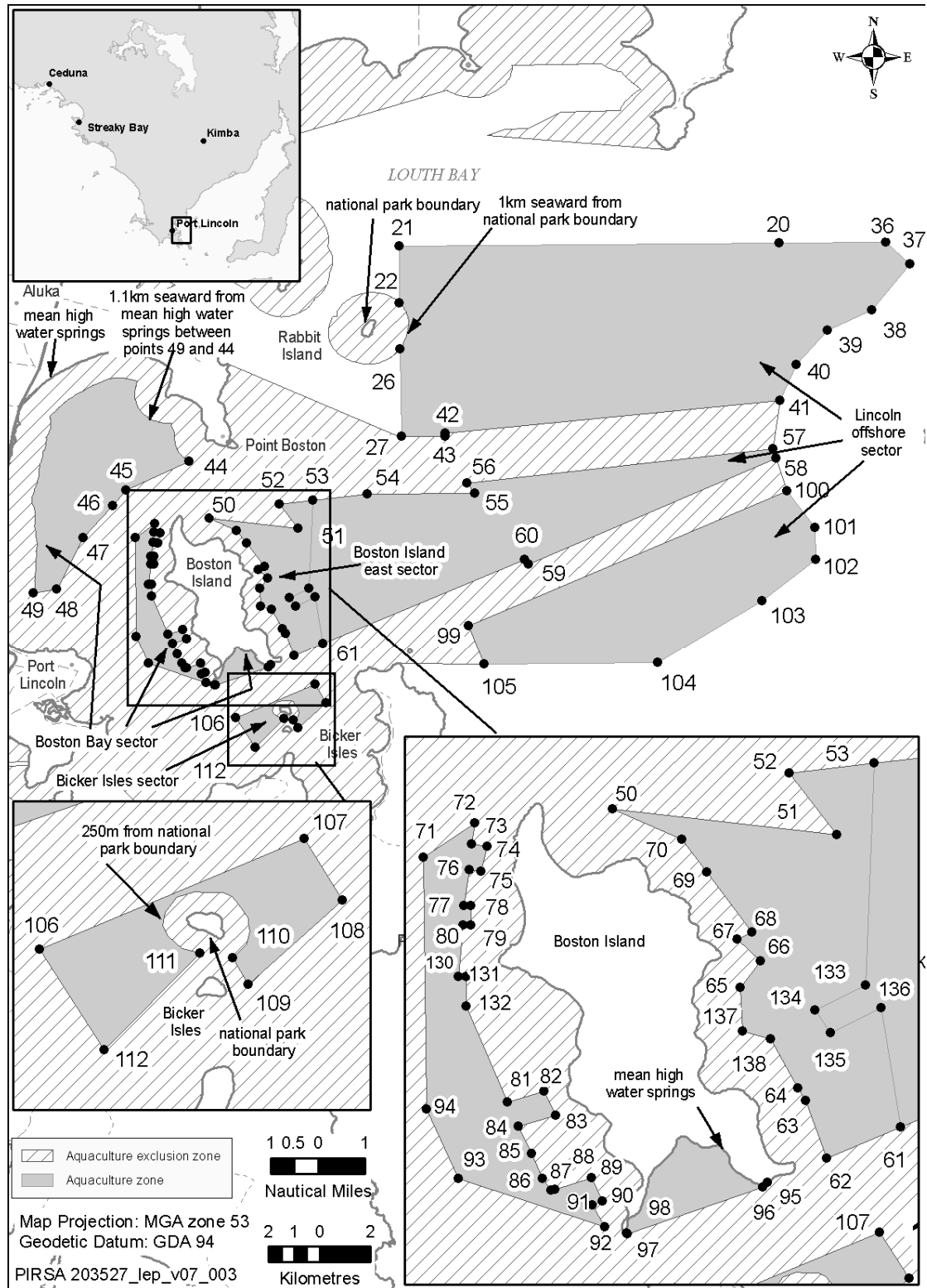


Figure 6 Map of the Boston Bay and Lincoln Offshore aquaculture zone showing the Lincoln offshore sector, the Bicker Isles sector, the Boston Island east Sector and the Boston Bay Sector



## 11 APPENDIX D – RELEVANT LEGISLATION

On 12 January 2006 the *Development Regulations 1993* were amended to recognise Aquaculture Zone Policies prepared under the *Aquaculture Act 2001*. The amendment enables the Minister for Urban Development and Planning to amend a development plan in accordance with an approved aquaculture policy under the *Aquaculture Act 2001*.

As detailed in part 3.1 of the Policy it is intended to amend the Land Not Within A Council Area (Coastal Waters) Development Plan once the Policy has been approved and gazetted by the Minister for Agriculture, Food and Fisheries.

The amendment to the *Development Regulations 1993* also enables any form of aquaculture development identified in an aquaculture zone policy under the *Aquaculture Act 2001* to be assigned to Category 1 development, subject to the approval of the Minister for Urban Development and Planning. This means that the class of aquaculture development specified in the Policy is classified as a *complying* development and is exempt from the public notification and consultation under the provisions of the *Development Act 1993*, however consultation on licence applications must still occur under the *Aquaculture Act 2001*.

The amendment removed duplication of processes for aquaculture development whereby aquaculture development in a aquaculture zone would have undergone a public consultation process under the *Development Act 1993* in addition to a 2 month public consultation process under the *Aquaculture Act 2001* for policies and licences. This amendment does not replace the requirement for a public notification of the Minister's intention to grant an aquaculture licence, inviting written submissions to be made within the period allowed in the notice.

Relevant provisions of the Land Not Within A Council Area (Coastal Waters) Development Plan apply to aquaculture development. The Development Plan states that aquaculture development should be undertaken in an 'ecologically sustainable way', in 'a manner which recognises the social and economic benefits to the community' and so as 'to conserve environmental quality, in particular water quality, and other aspects of the coastal environment including sea floor health, visual qualities, wilderness, ecosystems, and biodiversity'. Additionally, aquaculture should be undertaken 'in a manner which recognizes other users of marine and coastal areas and ensures a fair and equitable sharing of marine and coastal resources' and minimizes 'conflict between water and land based users', 'adverse impact on the visual amenity of the coastal environment and unspoilt views adjacent to the coast' and 'adverse impacts on sites of ecological, economic, cultural, heritage or scientific significance.' The Policy is consistent with these provisions in that it seeks to ensure the ecologically sustainable development of the aquaculture industry and recognises and respects other users of the marine resource.

## **South Australia's Strategic Plan**

The Policy seeks to further the objectives of the State Government goals and strategies that are contained in the South Australia's Strategic Plan and is consistent with the objectives of that Strategy.

South Australia's Strategic Plan is organised around 6 objectives and aims to reach 98 measurable targets by 2014.

Aquaculture Policies under the *Aquaculture Act 2001* provide the necessary policy framework to facilitate aquaculture development in South Australia. The new and developing aquaculture industry is greatly assisting economic development and will help meet the following Strategic Plan targets:-

T1.1 Economic Growth, T1.5 Business Investment, T1.10 Jobs, T1.14 Total Exports.

South Australia's strategic plan 2007 provides a process of 'regionalising' that will mean developing coordinated regional approaches to pursuing those South Australia's Strategic Plan targets that reflect priorities specific to each region. The aquaculture industry is expected to be a focal industry in the 'regionalising' process.

### **Aboriginal Heritage Act 1988**

The *Doing it Right* policy on Aboriginal affairs commits the Government to "partnership and transparency", to ensuring that "decision making and priority setting is inclusive of Aboriginal views and opinion".

Aboriginal communities have long and close ties with the coast and the sea in South Australia. The coast is important to Aboriginal people as a source of camping sites, food and water. The coast and sea are often linked to dreaming stories and can be rich in heritage sites and objects as well as ancestral remains. The *Aboriginal Heritage Act 1988* provides for the protection and preservation of Aboriginal sites, objects and remains, whether registered or not, without an authorisation from the Minister for Aboriginal Affairs and Reconciliation pursuant to section 23. Section 20 of the Act requires that any Aboriginal sites, objects or remains discovered on land, be reported to the Minister for Aboriginal Affairs and Reconciliation. Penalties apply for failure to comply with the Act. Some native title claims and Indigenous Land Use Agreements include areas of the sea as well as the land, and aquaculture operators should take care to respect Aboriginal rights in such waters.

The *Aboriginal Heritage Act 1988* establishes the Aboriginal Heritage Committee to advise the Minister for Aboriginal Affairs and Reconciliation and to represent the interests of Aboriginal people through the State in the protection and preservation of Aboriginal heritage.

### **Native Title Act 1993**

On 1 January 1994 the Commonwealth *Native Title Act 1993* commenced operation. The Act was part of the Australian Government's response to the High Court's decision in *Mabo v Queensland No. 2*, which found that Australian common law can recognise the rights and interests over land and

water possessed by Indigenous people in Australia under their traditional laws and customs - 'native title'. The Act adopts this common law definition of 'native title'.

In its current amended form, the Native Title Act (1993) —

- Recognises native title rights and sets down some basic principles in relation to native title in Australia, including that native title can not be extinguished other than through the Act;
- Validates “past acts” over land, such as the grant of pastoral or mineral interests, which may be invalid because of the existence of native title;
- Provides for a “future act” regime in which native title rights are protected and conditions are imposed on proposed activities affecting native title;
- Extinguishes native title completely over areas covered by valid acts of exclusive possession, like granting freehold title;
- Extinguishes native title to the extent that it is “inconsistent” with valid acts of nonexclusive possession, like some types of pastoral leases;
- Provides a process by which native title rights can be established and compensation determined, and by which determinations can be made as to whether future grants can be made or acts done over native title land and waters;
- Enables Indigenous Land Use Agreements (ILUAs) to be made between native title parties and other interest holders; and
- Provides for a range of other matters, including the establishment of a National Aboriginal and Torres Strait Islander Land Fund.

### **Planning Strategy for Regional South Australia**

The Planning Strategy for Regional South Australia, January 2003, contains a number of strategies relevant to the development of the Policy. In particular, the Policy is consistent with strategies relating to diversifying primary production into new areas to replace or complement existing activities and the integrated and sustainable management of natural resources in a manner that maintains ecological processes.

### **Australia's Oceans Policy**

Australia's Oceans Policy sets in place a framework for integrated and ecosystem-based planning and management for Australia's marine jurisdictions. It promotes ecologically sustainable development of the ocean resources and encourages internationally competitive marine industries, whilst ensuring the protection of marine biological diversity. The key tool is Regional Marine Planning i.e., planning based on large areas that are ecologically similar, and seeks to integrate the use, management and conservation of marine resources at the ecosystem level.

Marine Plans establish an overarching strategic planning framework to guide State and local government planners and natural resource managers in the development and use of the marine environment. Fundamental to these

Marine Plans is an ecologically based zoning model. Each of these zones is supported by goals and objectives.

### **Marine Parks Bill 2007**

On 20 June 2007, the Minister for Environment and Conservation formally introduced the *Marine Parks Bill 2007* into Parliament. The Bill passed through Parliament on 20 November 2007.

The Marine Parks Bill provides a legislative framework for the dedication, zoning and management of South Australia's marine parks. The *Marine Parks Bill 2007* recognises that Aquaculture is an important and growing industry in this State and provides significant benefits to South Australia. The needs of this lucrative industry have also been catered for with commitments to accommodate, as far as possible, existing aquaculture operations. This has resulted in an accord with the Minister for Agriculture, Food and Fisheries on the relationship and likely interactions between proposed marine parks and aquaculture developments in South Australian waters. This will enable DEH and PIRSA to work together to address key priorities from South Australia's Strategic Plan, specifically to treble exports by 2014 (T1.12) and to create 19 marine parks by 2010 (T3.4), such that each is given optimal effect without detriment to the other.

The accord identifies the general areas of the State's waters where—

- there will be little or no interaction between future marine parks and aquaculture development;
- there may be some interaction but where mutually acceptable outcomes can be reached through pragmatic planning processes; and
- further discussion will be required to resolve potential conflicts.

South Australia's marine parks will be zoned for multiple-use to protect coastal, estuarine and marine ecosystems, while also providing for continued ecologically sustainable use of suitable areas. This means that most activities, including aquaculture operations, will still be allowed within a marine park. However, some activities will not be permitted in particular zones. Areas with high conservation values will be designated as either Restricted Access Zones or Sanctuary Zones to provide the necessary level of protection for habitats, species, ecological and geological features. Both of these zones preclude commercial fishing, recreational fishing and aquaculture operations.

Aquaculture policies will be prepared having regard to Marine Park objectives and boundaries.

### **Natural Resource Management Act 2004**

The Policy has been prepared having regard to the *Natural Resource Management Act 2004* (NRM). The intent of this Act is to establish an integrated system of natural resource management that will assist in achieving sustainable natural resource management in South Australia. Both the *Aquaculture Act 2001* (and policies prepared under it) and the NRM legislation are underpinned by ecologically sustainable development principles and are intended to complement each other. Natural Resource Management Regional Plans are required to recognise best practice by an

industry sector. The *Aquaculture Act 2001* and management policies established under it provide a very good basis for managing the industry against best practice.

Aquaculture zones described in the Aquaculture (Zones-Lower Eyre Peninsula No. 2 Policy 2007 lie within the Eyre Peninsula Natural Resources Management (NRM) Board. The Policy must take into consideration issues raised within the Eyre Peninsula Catchment Water Management (CWM) Plan. As all three aquaculture zones relate only to marine aquaculture there are no matters of water allocation, groundwater or surface water, specific to these aquaculture zones. The policy is consistent with the Eyre Peninsula NRM/CWM Plan.

### **Environment Protection Act 1993**

The Policy was developed within the context of the *Environment Protection Act 1993* and the Environment Protection (Water Quality) Policy 2003 (the “Water Quality Policy”).

The Water Quality Policy established under the *Environment Protection Act 1993* came into operation on 1 October 2003. The principal object of the policy is to achieve the sustainable management of waters by protecting or enhancing water quality while allowing economic and social development. In particular, the Water Quality Policy requires all reasonable and practicable measures to be taken to avoid the discharge or deposit of waste into any waters or onto a place from which it is reasonably likely waste will enter any waters. The Water Quality Policy prescribes water quality criteria that must not be contravened and prohibits the discharge or deposition of pollutants into any waters that results in—

- Loss of seagrass or other native aquatic vegetation; or
- Reduction in numbers of any native species of aquatic animal or insect; or
- Increase in numbers of any non-native species of aquatic animals or insect; or
- Reduction in numbers of aquatic organisms necessary to a healthy aquatic ecosystem; or
- Increase in algal or aquatic plant growth; or
- Water becoming toxic to vegetation on land; or
- Water becoming harmful or offensive to humans, livestock or native animals; or
- Increased turbidity or sediment levels.

A *Draft Code of Practice for Vessel and Facility Management: Marine and Inland Waters* (EPA, 2005) has been developed by the EPA. This code applies to people, organisations and agencies that own, operate and use vessels, vessel construction and maintenance facilities (including launch facilities), and vessel storage facilities (including marinas and boat/yacht clubs) within the state waters of South Australia. For the purposes of this draft

code, State waters include inland waters, estuarine and marine waters (which include coastal state and territorial waters vested in the state).

The Objects of the *Environment Protection Act 1993* include the promotion of the principles of ecologically sustainable development, and in particular, to prevent, reduce, minimise and, where practicable, eliminate harm to the environment. Section 25 of the *Environment Protection Act 1993* imposes a *general environmental duty not [to] undertake an activity that pollutes, or might pollute, the environment unless...all reasonable and practicable measures to prevent or minimise any resulting environmental harm [are taken]*. This duty is enforceable through environment protection orders. The *Environment Protection Act 1993* also provides that communities must be able to provide for their economic, social and physical well-being.

The Environment Protection Act 1993 defines general offences relating to environmental harm and environmental nuisance. Environmental harm is material environmental harm if...it consists of an environmental nuisance of a high impact or on a wide scale, it involves actual or potential environmental harm (not being merely an environmental nuisance) that is not trivial or it results in actual or potential loss or property damage of an amount, or amounts in aggregate, exceeding \$5,000. Serious environmental harm is defined as environmental harm which involves actual or potential harm to the health or safety of human beings that is of a high impact or on a wide scale of other actual or potential environmental harm (not being merely an environmental nuisance) that is of a high impact or on a wide scale, results in actual or potential loss or property damage of an amount or amounts in aggregate, exceeding \$50, 000.

This Policy is consistent with the provisions of the Water Quality Policy and *Environment Protection Act 1993* in that it seeks to minimise or prevent harm to the environment associated with aquaculture.

### **South Australia's Food Plan**

South Australia's Food Plan was developed with the objective of increasing the food industry's contribution to the South Australian economy to \$15 billion by 2010. The Food Plan identifies eight strategies to accelerate the food industry's growth. The Policy is aligned with strategies relating to market driven food exports, sustainable production and a committed government. Aquaculture Policies support the growth of the food industry - specifically the seafood industry - by allocating and managing marine tenure in which the industry can grow sustainably. In addition, the Policy is consistent with the objectives of the South Australia Seafood Plan in that it seeks to consolidate existing industry and allow appropriate expansion in aquaculture production.

### **Directions for Regional South Australia**

The South Australian Government's regional development policy *Directions for Regional South Australia* identifies a number of objectives for regional development. The Policy is aligned with objectives relating to planning and infrastructure building, responsive government and economic generation.

### **Harbors and Navigation Act 1993**

The *Harbors and Navigation Act 1993* vests the seabed in the fee simple with the Minister responsible for administration of that Act. That is, section 15 (1) of the *Harbors and Navigation Act 1993* vests all adjacent and subjacent land in the Minister for Transport. Adjacent land is land extending from the low water mark on the seashore or the edge of any navigable waterway or body of water to the nearest road or section boundary, or to a distance of fifty metres from high water mark (whichever is the lesser distance). Subjacent land is land underlying navigable waters within the jurisdiction. Under the *Aquaculture Act 2001*, plans such as aquaculture policies can be prescribed in State waters. State waters being those waters adjacent to the State and territorial sea, and other navigable waters declared as such by regulation. Matters of titles and jurisdiction related to the territorial sea adjacent to the State and further addressed in the *Commonwealth Coastal Waters (State Powers) Act 1980*, the *Seas and Submerged Lands Act 1973* and *Coastal Waters (State Title) Act 1980*. Section 15 (4) of the *Harbors and Navigation Act 1993* provides that the *Crown Lands Act 1929* does not apply to land vested in the Minister under Act but the Crown may, with the concurrence of the Minister, exercise any other power that it has to grant a lease or licence over its land in relation to land vested in the Minister under this Act.

Part 6 of the *Aquaculture Act 2001* provides for the grant of aquaculture leases in “State waters; or State waters and adjacent land within the meaning of the *Harbors and Navigation Act 1993*”. Section 20 of the *Aquaculture Act 2001* provides that the grant of aquaculture leases is subject to the concurrence of the Minister responsible for administration of the *Harbors and Navigation Act*. The Policy is consistent with these provisions as they relate to the jurisdiction of the *Aquaculture Act 2001* and the requirement for concurrence.

### **Coast Protection Act 1972**

The *Coast Protection Act 1972* establishes the Coast Protection Board. The Coast Protection Board has a number of functions including...*to protect the coast from erosion, damage, deterioration, pollution and misuse*. The Policy is consistent with the provisions of the *Coast Protection Act 1972* in that it seeks to protect the coast by minimising any risk of erosion, damage, deterioration, pollution and misuse of the resource, through appropriate siting of aquaculture zones and aquaculture exclusion zones, the specification of appropriate types and levels of aquaculture development.

### **Native Vegetation Act 1991**

The *Native Vegetation Act 1991* sets out objectives relating to native vegetation in South Australia. Objectives relevant to this Policy include the conservation of the native vegetation of the State in order to prevent further reduction of biological diversity and further degradation of the land and its soil and the limitation of the clearance of native vegetation to clearance in particular circumstances including circumstances in which the clearance will facilitate the management of other native vegetation or will facilitate the efficient use of land for primary production. This Policy is consistent with these objectives in that it seeks to minimise impacts on native vegetation through

appropriate siting of aquaculture zones and aquaculture exclusion zones around sensitive habitats.