Government of South Australia
Primary Industries and Resources SA

Policy Report

Supporting
the Aquaculture (Zones – Anxious Bay) Policy 2007

gazetted on 8 November 2007

CONTENTS

1 INTRODUCTION

The Anxious Bay Policy Report ("the Report") supports the Aquaculture (Zones – Anxious Bay) Policy 2007 ("the Policy").

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:-

- an explanation of the purpose and effect of the draft policy;
- a summary of any background and issues relevant to the draft policy and of the analysis and reasoning applied in formulating the policy; and
- 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 Anxious Bay was previously managed under the Elliston Aquaculture Management Plan (PIRSA 1996) prepared under the *Fisheries Act 1982*. With the introduction of the *Aquaculture Act 2001*, there is a need to develop an aquaculture zone policy for the area.

Zone policies are developed to ensure that they are both relevant to community and industry needs and, where appropriate, any issues raised are dealt with during the zone planning phase rather than during the individual licence application process. Consequently, the Report supporting the Policy has been developed to inform and involve all stakeholders in the decision making process for the allocation of marine resources to aquaculture.

To assist, the Report has been broadly based on the concept of Benefit Cost Analysis, which is a method for organising information to aid decision-making. While it has not been possible to provide benefits and costs in monetary terms, a qualitative assessment of each of the benefits and costs expected to arise from the proposed zone has been provided.

In summary, the proposed zones will promote the orderly and efficient development of the aquaculture industry and recognises the industry as a legitimate user of the State's marine resources, providing guidance and clarity regarding the aquaculture industries access to marine resources.

On 21 December 2006 the Report and the Policy was referred to prescribed bodies and relevant public authorities as well as regional stakeholders, local indigenous communities, Native Title claimants, local governments and industry for comment after approval was given for release by the Aquaculture Advisory Committee (AAC) and the Minister.

The Minister consulted with and considered the advice of the AAC on matters raised as a result of the two-month public consultation. As prescribed by the *Aquaculture Act 2001,* following approval of the draft Policy by the Minster, the draft 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 draft Policy, the Policy will be presented to both Houses of Parliament, where either House may disallow it.

2 PROPOSED ZONES

The scope of the Policy covers the Anxious Bay area on Eyre Peninsula.

Aquaculture in Anxious Bay was previously managed under the Elliston Aquaculture Management Plan (PIRSA, 1996) prepared under the *Fisheries Act 1982*. The scope of this plan was greater and applied to waters off the Elliston District Council coastline, from Venus Bay to Sheringa Beach.

The Policy establishes two zones as follows:-

2.1 Anxious Bay aquaculture exclusion zone

The Anxious Bay aquaculture exclusion zone provides a buffer between aquaculture development, conflicting and other marine resource uses and areas of high conservation significance.

In addition an aquaculture exclusion zone is proposed around the Waldegrave Islands Conservation Park, adjacent to the Lake Newland Conservation Park and inclusive of Waterloo Bay. The intent of having an exclusion zone abutting reserves proclaimed under the *National Parks and Wildlife Act 1972* is consistent with The Land Not Within A Council Area (Coastal Waters) development plan which states "Marine aquaculture and other offshore development should be located at least: … (b) 1000 metres seaward from the boundary of any Reserve under the *National Parks and Wildlife Act*, unless a lesser distance is agreed with the Minister responsible for that Act".

The Anxious Bay aquaculture exclusion zone incorporates an area of around 8,637 hectares (ha) and is described in Schedule 2.

2.2 Anxious Bay aquaculture zone

An aquaculture zone identifies a zone within State waters in which specified classes of aquaculture will be permitted (subject to this Act and other applicable Acts).

The proposed Anxious Bay aquaculture zone complies with The Land Not Within A Council Area (Coastal Waters) development plan which states "Marine aquaculture and other offshore development should be located at least: … (b) 1,000 metres seaward from the boundary of any Reserve under the *National Parks and Wildlife Act*, unless a lesser distance is agreed with the Minister responsible for that Act".

Figure 1: Anxious Bay zone as described in the *Development (Aquaculture Development No 2) Variation Regulations 2006*			
Area Name:	Anxious Bay	GDA 94 Zone 53	
		Eastings	Northings
Coordinates:	0	479038	6285448
	1	482487	6285483
	2	482490	6284136
	3	481215	6284023
	4	479716	6284020
	5	479303	6284129

It is proposed that an amendment to Schedule 9 of the *Development Regulations 1993* by revoking the Anxious Bay planning zone as described in part 9(1)(c) of the schedule, and bringing into operation the *Aquaculture (Zones – Anxious Bay) Policy 2007,* be gazetted simultaneously.

The proposed Anxious Bay aquaculture zone incorporates an area of around 452 ha and is described in schedule 1. The zone provides 120 ha for mollusc aquaculture (including abalone) and algae farming. 100 ha is already allocated in the zone.

Oyster and mussel farming will not be permitted in the zone.

Lleonart (2001) observed that placing abalone farms in close proximity to areas with significant oyster farming could pose a risk to abalone farms in an area due to mudworm infestations.

There are concerns about the biofouling potential of mussels if they are allowed in the zone. Blue mussels (*Mytilus galloprovincialis)*, the species predominately farmed in South Australia, occurs naturally in South Australia and as such, is not considered an exotic species.

The aggregate biomass of molluscs being farmed in the waters in the zone at any one time must not exceed 1,200 tonnes (gross weight), or, if some other amount is specified by the Minister by notice in the Gazette, that other amount.

Approval of leases and licences in this zone 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 important to the adaptive management arrangements used to manage and regulate the industry.

The main management objective for this area is to ensure the current mollusc and algae farming in the area is ecologically sustainable. The main issue is the perceived or actual encroachment on other resource users, for example, recreational and commercial fishing (including abalone fishing), and concerns about the potential for interactions with marine mammals.

3 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 of relevance to this Policy.

The following section details the specific amendments to a development plan as a result of the consultation and gazettal of the Policy.

3.1 Subsequent Development Plan Amendments

The Policy 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 – Anxious Bay) 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 – Anxious Bay) 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*.

As such, it is proposed to amend the Land Not Within A Council Area (Coastal Waters) Development Plan, subject to the approval of the Aquaculture (Zones – Anxious Bay) Policy 2007, by establishing one new aquaculture zone with associated Objectives and Principles of Development Control.

Specific details are as follows: -

Anxious Bay

Establish a new "Aquaculture (Anxious Bay) Zone" with the following Objective and Principle of Development (PDC):

"OBJECTIVES

1 The ecologically sustainable development of mollusc and algae aquaculture.

PRINCIPLES OF DEVELOPMENT CONTROL

1 Development should be primarily in the form of algae and subtidal mollusc aquaculture and associated activities, incorporating a range of species such as abalone, cockles, scallops and algae.

PROCEDURAL MATTERS

Public Notification

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

Insert a new zoning map to delineate the extent of the Aquaculture (Anxious Bay) Zone (see Schedule 4).

It is intended to revoke the *Development (Aquaculture Development No 2) Variation Regulations 2006* that amended the *Development Regulations 1993* when the above development plan amendment comes into operation.

3.2 Constraints

In the creation of the Policy to secure the objectives of the Act, the following matters will be taken into account:

(a) The development and management of aquaculture resources in coastal waters adjacent to Anxious Bay 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 protection of historic shipwrecks in the region;

(d) The protection of sites of Aboriginal heritage value in the region;

(e) The impact of aquaculture development on the tourism and residential qualities of the region;

(f) The impact of aquaculture development on commercial and recreational fishing in the region; and

(g) The impact of aquaculture on sensitive species and habitat in the region.

Zone development must take 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 Act 1982*;
- 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;
- Mineral reserves;
- Areas valued for their outstanding beauty or amenity;
- Navigational channels, ports and shipping - Aquaculture development within the zone should be located not to obstruct nor interfere with navigation channels and access channels;
- Recreational fishing sites - Aquaculture development within the zone should be located to take into account the requirements of traditional fishing grounds;
- 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 adverse impacts to 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.

The zones should also consider: -

- 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 sea cages and sea floor.

Video filmed of the seafloor by PIRSA Aquaculture between 2006 and 2007 suggest that current rates are sufficiently high and water depths range from 20 and 26 metres within the zone. This indicates that the area is potentially suitable for culture of supplementary fed aquatic organisms.

The biogeographic report (Madigan, 2007) describes Anxious Bay as a large embayment on the west coast of Eyre Peninsula facing south-westerly into the Great Australian Bight. It is characterised by sandy beaches, limestone rocky shores and offshore islands. Underwater video observations within the zone made by PIRSA Aquaculture depict a predominantly barren, fine to medium grained, sandy seafloor ranging in depth from approximately 20 to 35 metres. Occasional patches of sparse seagrass (*Posidonia* sp.) occur in the shallower areas adjacent to small sections of sparsely vegetated, low-profile limestone rocky reef. Sand riffles are evident in areas experiencing high current flows.

3.2.1 Physical Characteristics

The coast in this region is extremely exposed and aquaculture using current technology is only likely in the relatively sheltered area behind Waldegrave Island. Future technological developments may make more exposed sites accessible to aquaculture.

Anxious Bay sits in the Newland Biounit on the west coast of the Eyre Peninsula. The Newland Biounit extends for 38 km along the coast, from Talia Caves to Cape Finniss on the Eyre Peninsula and covers an area of approximately 45,000 ha. The area is characterized by bare, fine to medium grained sand substrate interspersed with scattered patches of seagrass and macroalgae. There are also scattered areas of heavy limestone or calcarenite reef (Edyvane, 1999).

A biogeographical report (Madigan and Lauer, 2006) on a 20 ha site approximately 1.5 kilometres north of Waldegrave Islands Conservation Park indicate the water depth ranged from 24 to 26 metres, and depicted a relatively uniform, sandy benthic environment, virtually devoid of epibenthic flora and fauna.

The Waldegrave Islands Conservation Park, which encompasses Waldegrave Island, Little Waldegrave Island and the Watchers, is separated from the mainland by a 3 km passage and lies 1 km south of the proposed Anxious Bay aquaculture zone. Waldegrave Island is a domed granite base with a calcarenite mantle and is characterised by spectacular coastal cliffs and sandy beaches. Little Waldegrave Island is a large granite rock with a minimal calcarenite capping (Department for Environment and Heritage, 2006)

3.2.2 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 will facilitate the involvement of local Aboriginal

representatives in its process for developing and amending aquaculture policy and zoning.

There is no Indigenous Land Use Agreement (ILUA) in this area. A move to create an ILUA about fishing and aquaculture 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.

There are two Native Title Claims, one by the Nauo-Barngarla (SC97/8), which may extend into coastal waters and extends to the East of Elliston, and the Wirangu No. 2 claim (SC97/006) which extends north from Elliston to approximately Streaky Bay. Although the Wirangu No. 2 claim currently extends only to low watermark, the native title rights and interests held by Wirangu claimants extend to the inter-tidal zone and beyond.

3.2.3 Reserves and Conservation Areas

The Island Parks of Western Eyre Peninsula Management Plan (Department for Environment and Heritage, 2006) lists 17 reserves that occur off the western Eyre Peninsula between Head of Bight and the southern tip of the peninsula.

The Waldegrave Islands Conservation Park lies 7km north-west of Elliston and encompasses Waldegrave Island and Little Waldegrave Island and the Watchers. Waldegrave Islands and the Watchers were constituted by statute in 1972 to conserve the Cape Barren Goose (*Cereopsis novaehollandiae*) breeding habitat and Australian Sea-lion haul-out areas.

Lake Newland Conservation Park is a coastal park of some 8,912 hectares (ha) that lies between Venus Bay and Elliston. The park protects very significant wetlands, which are considered to be of international importance for Banded Stilts (*Cladorhynchus leucocephalus*) and of importance as summer feeding habitat for the state vulnerable Hooded Plover (*Thinornis rubricollis*). The Lake Newland Conservation Park Management Plan (Department for Environment and Heritage, 2003) describes the natural qualities of Lake Newland Conservation Park and suggests how they might be conserved and managed to retain their significant features.

Venus Bay Conservation Park and the Point Labatt Aquatic Reserve are located to the North of the Policy area.

The Policy will develop buffers between conservation parks, such as Waldegrave Island and Lake Newland Conservation Parks.

Waldegrave Islands Conservation Park is in the Register of the National Estate. The Park is significant as it is largely free of human interference and as such is an important breeding ground for such uncommon bird species as the Cape Barren Goose (*Cereopsis novaehollandiae*) and the White-bellied Sea-Eagle (*Haliaeetus leucogaster*). Also present are Ospreys, Muttonbirds, Black Tiger Snakes and the Bush Rat (*Rattus fuscipes)*.

3.2.4 Sensitive Habitats

Marine waters and coastal islands in the area contain seabird breeding areas and are breeding and habitat areas for the New Zealand Fur-seal (*Arctocephalus forsteri*) and Australian Sea-lions.

West Waldegrave Island is one of five of the 73 known breeding sites for Australian Sea-lions that produce more than 100 pups each year (McKenzie et. al., undated).

The area is also utilised by a range of cetaceans including Southern Right Whales (*Eubalaena australis*).

3.2.5 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. Schedules 7, 8 and 9 of the Act list rare, vulnerable and endangered species.

The Osprey (*Pandion haliaetus*) (listed as rare), Cape Barren Goose (*Cereopsis novaehollandiae)* (listed as rare), and White-bellied Sea-Eagle (*Haliaeetus leucogaster)* listed as vulnerable are recorded in the area.

The *Fisheries Management Act 2007* provides the provisions, under Section 71 for interactions with aquatic mammals, in particular the taking, injuring, damaging or otherwise harming, interfering with, harassing or molesting of aquatic mammals or aquatic resource of a protected species.

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

The following list of threatened species is considered to potentially occur in the region.

- Australian Sea-lion (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 *(*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 may occur within area.
- Albatross - Two species are listed *as* endangered and five species are listed *as* vulnerable. Species or species habitat may occur within area.
- Petrels - One species listed as endangered and two species listed as vulnerable - Species or species habitat may occur within area.

- A number of birds, marine mammals and shark species listed as migratory species may occur within the area.

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.

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, but is not considered to be at risk from finfish aquaculture. 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 aimed at reducing 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 lion 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".*

The potential for marine animal interactions has been, and will continue to be, considered very thoroughly by PIRSA in the development of this Policy.

Marine algae species of conservation significance (as outlined by Turner (2000)) identified a number of species in this region, including *Symplegma arenosa.*

3.2.6 Assimilative Capacity

Current abalone farming methods at Anxious Bay use naturally occurring algae as the food supply. Abalone is fed with manufactured feed only

when necessary (i.e. when sufficient algae supplies are not available). Assimilative capacity modelling for scallops and cockle farming is not appropriate, as these species do not rely on manufactured feed.

Assimilative capacity modelling for abalone farming within the zone has not been undertaken. However, it is possible to estimate empirically the amount of total nitrogen that could potentially be released when the zone is at full production. Appropriately expressed as a daily concentration, the value can be compared with water quality criteria expressed in Schedule 2 of the Environment Protection Authority's (EPA) 2003 Water Quality Policy.

For the purposes of calculating the amount of total nitrogen that could potentially be released when the zone is at full production, it is assumed that stock will be fed only manufactured feed. This is, in effect, modelling the "worst-case" environmental scenario. At full production, approximately 960 tonnes of product could be produced per annum. The Food Conversion Ratio (FCR) for abalone has been estimated at 1.5:1 i.e. 150 tonnes of manufactured feed is required to produce 100 tonnes of abalone (Fleming et. al., 1996). Therefore, 960 tonnes of abalone would require 1,440 tonnes of manufactured feed per annum. The protein content of these predominately plant-based feeds is approximately 27% and the nitrogen content of protein around 16%, both expressed as dry weight matter (Coote et. al., 1996). So the total amount of nitrogen being fed to stock per year, over 120 hectares, could be 62,208 kg. Approximately 30% of the feed may be uneaten (18,662 kg) leaving 43,546 kg to be consumed. Protein digestibility for abalone is estimated to be 72% (Coote et. al., 1996), so 31,353 kg of total nitrogen would be digested with the remaining 12,193 kg of total nitrogen being excreted directly to the environment. Of the digested quantity, approximately 35% (10,888 kg) would be anabolised and retained within the abalone tissue (Mai et. al., 1995) with the remainder (20,465 kg) excreted as ammonia. Therefore, a total of approximately 51,320 kg of nitrogen could be added to the environment each year, over 120 hectares.

Assuming a uniform depth of 20 m over the entire 120 hectares, the volume of water into which this nitrogen will be added is 24 GL. Assuming an instantaneous and homogenous dispersal over the entire 120 hectares, the concentration of total nitrogen from farming at full production would be 0.006 milligrams per litre per day. The EPA's water quality criteria expressed in Schedule 2 of the 2003 Water Quality Policy applicable to aquaculture for total nitrogen is 5 mg/L, over 800 times greater than the calculated value. The calculation above has a number of conservative assumptions and does not take into consideration any of the nitrogen 'sinks', such as: uptake by phytoplankton, dilution and dispersion by tides and currents or removal of nitrogen to sediments and the atmosphere.

The Minister for Agriculture, Food and Fisheries has the ability within the policy to alter the maximum biomass through notice in the Gazette. This provides a proactive mechanism to enable flexibility in dealing with the

maximum biomass allowed within the zone and enables further research and environmental monitoring results to be taken into consideration as they become available.

4 IMPACTS OF PROPOSED ZONING

The creation of an aquaculture zone and an aquaculture exclusion zone provide certainty for industry stakeholders, improve community confidence and facilitate the consolidation of existing industry.

The creation of an aquaculture zone and an aquaculture exclusion zone may minimise adverse impacts on the visual amenity or natural character of the coast and foreshore, particularly in areas of outstanding beauty or areas of high public use.

The following sections outline some of the production, social and environmental benefits expected from creating an aquaculture zone and an aquaculture exclusion zone.

4.1 Production Costs and Benefits of Proposed Zoning

This area currently has 100 ha of aquaculture development approved. The creation of the Anxious Bay aquaculture zone Policy provides for a consolidation of this existing industry and provides for an additional 20 hectares available for farming of molluscs. The Policy also allows for the farming of macroalgae.

The total area for the Anxious Bay aquaculture zone covers 452 ha. This enables the existing aquaculture industry some flexibility to move sites within the zone.

The additional 20 ha available for lease will require the construction of up to 40 sea cages. There will be a cost to establish and maintain these sites and undertake environmental monitoring for them.

4.1.1 Abalone

The area immediately north of Waldegrave Island has a current allocation of 100 ha for subtidal mollusc development. Details of current leases and licences are available on the PIRSA Aquaculture public register (PIRSA, 2007).

An increase in the leased area to 120 ha will allow industry to increase the area available for subtidal mollusc development by 20%.

4.1.2 Macroalgae

Abalone feed on algae in the wild and on macroalgae that grows on marine based farming infrastructure. In cases when the growth of macroalgae on such infrastructure is insufficient for production purposes, farms may utilise a supplementary supply of macroalgae (from suppliers licensed to collect beach cast macroalgae) or manufactured food.

The farming of macroalgae under licence on leased sites could provide a source of supplementary food for farmed abalone in the zone.

4.1.3 Other Aquaculture

The proposed Anxious Bay aquaculture zone is designated specifically for molluscs farming (including abalone, cockles and scallops) and algae farming.

This restriction will prevent potentially adverse interactions between differing forms of aquaculture, such as finfish and mollusc culture.

Oyster and mussel farming is excluded from the zone. This restriction will prevent potentially adverse interactions between abalone, and oysters and mussels.

4.1.4 Commercial Fishing Impacts

The waters adjacent to Elliston provide productive fishing grounds for the Southern rock lobster. Large numbers of vessels operate in these waters and in harvesting the rock lobster, vessels utilise the offshore islands and sheltered bays for overnight anchorage.

The Western Abalone Licence Sector works extensively from the Elliston/Anxious Bay area in accessing the productive grounds of Anxious Bay, Flinders Island, Sheringa Beach and Talia Caves (District Council of Elliston, 2007).

The two main species of abalone taken by the commercial fisheries generally inhabit reef areas and would not generally occur in the area of the proposed Anxious Bay aquaculture zone, as this zone has been sited on a sandy benthic environment. The commercial catch and fishery-independent data suggest that fishing area 8 is an important fishing ground within the Western Zone of the South Australian abalone fishery (Mayfield et. al., 2005). Gross value of production of abalone harvested each year from area 8 is approximately $3M[1].

The northern edge of the Anxious Bay aquaculture zone is immediately adjacent to the Anxious Bay prawn trawl grounds.

The Anxious Bay Aquaculture exclusion area takes into account the requirements of commercial fishing grounds providing certainty that aquaculture will not be developed to the east of the current aquaculture zone, thus minimizing the potential conflict between aquaculture and commercial fishing in that area. The Anxious Bay aquaculture exclusion zone covers the majority of the area between Waldegrave Island, Black Hill and Walkers Rock which is used by the marine scale sector fishing for King George whiting (*Sillaginodes punctatus*) and the majority of fishing area 8A in the Western Zone Abalone Fishery. The aquaculture exclusion zone to the east of the proposed Anxious Bay aquaculture zone is over 1,000 hectares in size.

4.2 Social Costs and Benefits of Proposed Zoning

Mazur (2005) suggests that social costs may include impacts on visual amenity, proximity to boat ramps, proximity to recreational fishing areas, swimming beaches and nature conservation areas, and impacts on cultural and indigenous heritage.

There have been concerns raised by sectors of the Elliston community over the existing and future expansion of aquaculture development in the Elliston area in relation to these social costs.

[1] Pers Comms Michael Tokley, Executive Officer, Abalone Industry Association of South Australia Inc

The creation of an aquaculture zone may be regarded as a social cost as the zone allows for an additional 20 hectares beyond the current allocation of 100 hectares for the existing industry. However, the community had the opportunity to be consulted on what species can be farmed within the zone and the extent of aquaculture in the zone. The Policy was released for a 2-month public consultation period from Thursday 21 December 2006 and 28 February 2007.

Concern has also been raised about the requirements for onshore infrastructure to support marine aquaculture, including launching facilities.

An additional 20 hectares beyond the current allocation of 100 hectares for the existing industry may have indirect impacts on the mainland adjacent to the zone. This area is within the Musgrave Prescribed Wells area. An indirect impact is the associated infrastructure that may be required to develop on land (ie storage, cleaning/processing and transport requirements). It may also include increased housing demand for additional employees and the associated requirement of new services (power, water). The onshore development is outside the scope of the Policy and is generally subject to development approval by local council.

The public consultation process associated with the creation of the Anxious Bay aquaculture zone and the Anxious Bay aquaculture exclusion zone provides opportunities for stakeholder and community input into aquaculture planning and management decisions. These in turn can increase public confidence and acceptance of decisions, and allow for informed discussion of issues.

The creation of the Anxious Bay aquaculture exclusion zone gives the community reassurance that a buffer will exist between aquaculture development, conflicting marine resource uses and areas of high conservation significance.

The creation of the Anxious Bay aquaculture zone provides industry with the opportunity to increase production by 20%, and this is expected to lead to more employment. From economic analyses, abalone farms would be expected to create 3.5 jobs per hectare.

4.2.1 Visual Amenity

The distance from the Anxious Bay aquaculture zone to the nearest mainland beach or boat ramp is over five kilometres. It is highly unlikely that infrastructure associated with aquaculture development in the zone would be visible from these locations.

4.2.2 Recreation Fishing Impacts

Aquaculture development within the zone has been located to take into account the requirements of recreational fishing grounds and the potential conflicts between aquaculture and recreational fishing.

In order to provide certainty that aquaculture will not be developed to the east of the current aquaculture zone, the Anxious Bay aquaculture exclusion area takes into account the requirements of recreational fishing grounds. The Anxious Bay aquaculture exclusion zone covers the majority of the area between Waldegrave Island, Black Hill and Walkers Rock which is used by

recreational fishers fishing for King George whiting (*Sillaginodes punctatus*). The aquaculture exclusion zone to the east of the proposed Anxious Bay aquaculture zone is over 1,000 hectares in size.

4.3 Environmental Cost and Benefits of Proposed Zoning

The additional 20 ha available for lease may mean that there is the potential for aquaculture to interact with areas of the environment that previously had no aquaculture activity present.

Principle 18 of the "Land Not Within A Council Area (Coastal Waters) development plan states that marine aquaculture should be located at least 1000 metres seaward from the boundary of any Reserve under the *National Parks and Wildlife Act*, unless a lesser distance is agreed with the Minister responsible for that Act. Although this provision is not a mandatory requirement, the Anxious Bay aquaculture exclusion zone adjacent to the Waldegrave Islands Conservation and Lake Newland Conservation Park establishes a clear requirement that aquaculture development will not occur in this buffer area. A greater level of protection results in an environmental benefit.

Over 50% of the aquaculture exclusion zone has been established for other reasons, including the protection of habitats and scenically attractive areas, providing additional benefit.

The introduction of biomass limits in the aquaculture zone and the ability for the Minister to adjust the limit, depending on environmental impact, is another benefit.

5 REFERENCES

- Australian Government. Australian Heritage Council. Worldwide web electronic resource. URL: http://www.ahc.gov.au/register. Date visited 6/3/07.
- Australian Government Department of the Environment and Water Resources. Worldwide web electronic resource. URL: http://www.environment.gov.au/cgi-bin/abrs/fauna/details.pl?pstrVol=TUNICATA;pstrTaxa=1573;pstrChecklistMode=2#taxonomy. Date visited 06/03/07.
- Coote, T. A, Hone, P. W., Van Barneveld, R. J. and Maguire, G. B. (1996). Optimum protein level in a semi-purified diet for juvenile greenlip abalone (*Haliotis laevigata*). Aquaculture Nutrition 6(4): 213-219.
- Department for Environment and Heritage. (2006) Island Parks of Western Eyre Peninsula Management Plan, Adelaide, South Australia.
- District Council of Elliston Website. Worldwide web electronic resource. URL: http://www.elliston.sa.gov.au. Date visited 6/3/07
- Edyvane, K. (1995) Marine Biogeography and Conservation Values of the Elliston – Venus Bay – Investigator Group Region, South Australia. South Australian Research and Development Institute, Research Report Series.
- 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.
- Fleming, A. E., Van Barneveld, R. J. and Hone, P. W. (1996) The development of artificial diets for abalone: A review and future directions. Aquaculture 140:5-53
- Lleonart, M. (2001). Australian abalone mudworms: avoidance and identification – A farm manual. Fisheries Research Development Corporation, Abalone Subprogram, 33 p.
- Mai, K., Mercer, J. P. and Donlon, J. (1995). Comparative studies on the nutrition of two species of abalone, *Haliotis tuberculata* L. and *Haliotis discus hannai* Ino. IV. Optimum dietary protein level for growth. Aquaculture 136:165-180.
- McKenzie, J., Goldsworthy, S., Shaughnessy, S., McIntosh, R., Understanding the impediments to the growth of Australian sea lion populations, ISBN No 0 7308 5325 X web page http://www.deh.gov.au/biodiversity/threatened/recovery/public-comment/n-cinerea-issues/index.html .
- Madigan, S. and Lauer, P. (2006). Biogeographic report for Australian Bight Infrastructure P/L (ABI) licence (no AQ00028 lease no LA00008).
- Madigan, S. and Lauer, P. (2007). Biogeographic report for Proposed Anxious Bay Aquaculture Zone.
- Marine Mammal-Marine Protected Areas Aquaculture Working Group (2004). Recommendations and Report to address the proximity of finfish aquaculture to significant seal and Sea-lion colonies in South Australia.
- Mayfield, S. & Ward, T.M. (2005). Importance of fishing area 8 to the Western Zone Abalone (Haliotis laevigata and H. rubra) Fishery.
- Mazur, N., Aslin, H., & Byron, I. (2005). Community Perceptions of Aquaculture: Final Report Bureau of Rural Sciences: Canberra.

- PIRSA. (1977). Lower Eyre Peninsula Aquaculture Management Plan. Aquaculture Group, Primary Industries South Australia (Fisheries), Adelaide, South Australia, February 1997. 120 pp.
- Primary Industries South Australia. (May 1996). Elliston aquaculture management plan.
- Primary Industries and Resources South Australia. (2006). Ecologically sustainable development (ESD) assessment report for AQ00029 conducted 6/2/2006.
- Primary Industries and Resources South Australia. (2006). Ecologically sustainable development (ESD) assessment report for FA00019 conducted 7/2/2005.
- Primary Industries and Resources South Australia. PIRSA Aquaculture public register. Worldwide web electronic resource. URL: https://info.pir.sa.gov.au/aquapr/page/gui3/map.html. Date visited 06/03/07.
- Stuart, K. & Marsh, R. (2003). Marine debris monitoring in South Australia: A report on the 2001 and 2002 annual anxious bay litter surveys. (South Australian Research and Development Institute, Adelaide). 21pp.
- The South Australian Government Gazette. The Development (Aquaculture Development No 2) Variation Regulations 2006 (No. 38 of 2006). 16 February 2006. Page 618.
- Turner, David J. (2000). Conservation Status of Endangered Marine Algae (COSEMA) - Online Database of Rare and Endangered Australian Macroalgae. Worldwide web electronic resource. URL: http://www.reefwatch.asn.au/cosema/. Date visited 06/03/07.

6 APPENDICES

6.1 Appendix A – Glossary of Terms

Adaptive Management	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.
Aquatic Reserve	An area of water, or land and water, established as an aquatic reserve by proclamation under the *Fisheries Act 1982*.
Assimilative capacity	The capacity of a natural body of water to receive wastewaters without deleterious effects to aquatic life.
Benthic	Of or relating to or happening on the bottom under a body of water.
Biodiversity	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.
Biomass	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).
Closures	Prohibition of fishing during particular times or seasons (temporal closures) or in particular areas (spatial closures), or a combination of both.
Carrying capacity	The maximum population of a given organism that a particular environment can sustain.
Ecologically sustainable development (ESD)	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.
Ecosystem	A dynamic complex of plant, animal, fungal, and microorganism communities and the associated non-living environment interacting as an ecological unit.
Habitat	The place or type of site in which an organism naturally occurs.
Harvest	A productivity measuring technique.
Infauna	Aquatic organisms (usually animals, but sometimes algae) that live within particulate media such as sediments or soil.
Marine protected area (MPA)	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.
Organic enrichment	The supply of organic material (eg waste feed, faeces) to the seafloor.
Population	A group of individuals of the same species, forming a breeding unit and sharing a habitat.
Spatial	Of or relating to space.
Stakeholder	An individual or a group with an interest in the conservation, management and use of a resource.

Stock	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.

6.2 Appendix B – List of Acronyms

AAC	Aquaculture Advisory Council
ABARE	Australian Bureau of Agricultural and Resource Economics
Aq-CCEAD	Aquatic Consultative Committee on Emergency Animal Diseases
CRC	Co-operative Research Centre
DAAR	Department for Aboriginal Affairs and Reconciliation
DAC	Development Assessment Commission
DEH	Department for Environment and Heritage
DNA	Deoxyribonucleic acid
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 *Environment Protection and Biodiversity Conservation Act 1999*
ERDB	Eyre Regional Development Board
ERDC	Environment, Resources and Development Committee
ESD	Ecological Sustainable Development
FAO	Food and Agriculture Organization of the United Nations
FRDC	Fisheries Research and Development Corporation
ILUA	Indigenous Land Use Agreement
ISLW	Indian Springs Low Water
LGA	Local Government Association
MPA	Marine Protected Area
NATPLAN	National Marine Spill Contingency Plan
NPW Act	*National Parks and Wildlife Act 1972*
NRM	Natural Resource Management

NIMPCG	National Introduced Marine Pest Coordination Group
PAR	Plan Amendment Report
PIRSA	Department of Primary Industries and Resources, South Australia
RESA	Regional Environmental Sustainability Assessment
SA Water	South Australia Water
SARDI	South Australian Research and Development Institute
SATC	South Australian Tourism Commission
SMK	Sinclair Knight Merz
The Minister	Minister for Agriculture, Food and Fisheries
TAFE	Technical and Further Education

6.3 Appendix C – Maps and coordinates

The Anxious Bay aquaculture zone comprises the area described in Schedule 1 and depicted on the map in Schedule 3.

The Anxious Bay aquaculture exclusion zone comprises the area described in Schedule 2 and depicted on the map in Schedule 3.

Unless otherwise mentioned, all lines are geodesics based on the Geocentric Datum of Australia 1994 (GDA94) as defined in the Commonwealth of Australia Gazette GN35 of 6 September 1995. All co-ordinates are expressed in terms of GDA94. The map is provided for convenience of reference only.

SCHEDULE 1

ANXIOUS BAY AQUACULTURE ZONE

The Anxious Bay aquaculture zone comprises the state waters contained within and bounded by a line commencing at 33°34′13.59″ South, 134°46′26.91″ East (Point 1), then easterly to 33°34′12.68″ South, 134°48′40.69″ East (Point 2), then southerly to 33°34′56.42″ South, 134°48′40.71″ East (Point 3), then westerly to 33°35′00.01″South, 134°47′51.24″ East (Point 4), then westerly to 33°34′55.99″ South, 134°47′21.21″ East (Point 5), then westerly to 33°34′55.96″ South, 134°47′03.48″ East (Point 6), then westerly to 33°34′56.44″ South, 134°46′37.08″ East (Point 7), then northerly to the point of commencement.

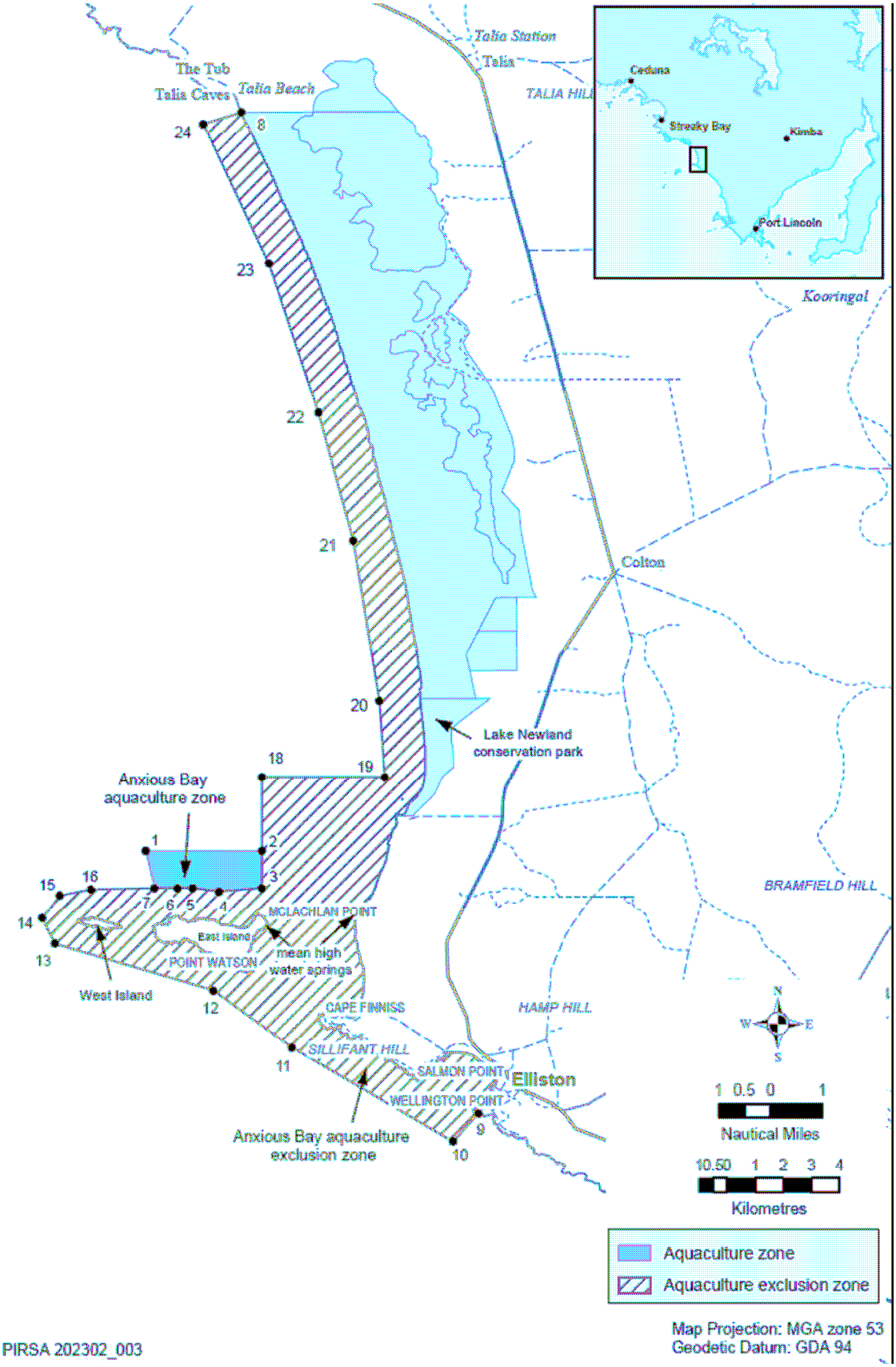
SCHEDULE 2

ANXIOUS BAY AQUACULTURE EXCLUSION ZONE

The Anxious Bay aquaculture exclusion zone comprises the state waters contained within and bounded by a line commencing at 33°20′16″ South, 134°47′33″ East (Point 24), then easterly to the line of Mean High Water Springs closest to 33°20′03″South, 134°48′17″ East (Point 8), then generally southerly along the line of Mean High Water Springs to the location closest to 33°39′14.95″ South, 134°52′50.2″ East (Point 9), then south-westerly to 33°39′48″ South, 134°52′21″ East (Point 10), then north-westerly to 33°38′ South, 134°49′15″ East (Point 11), then north-westerly to 33°36′54″ South, 134°47′45″ East (Point 12), then north-westerly to 33°36′01″ South, 134°44′43″ East (Point 13), then north-westerly to 33°35′32″ South, 134°44′28″ East (Point 14), then north-easterly to 33°35′05″ South, 134°44′48″ East (Point 15), then easterly to 33°34′58″ South, 134°45′24″ East (Point 16), then easterly to 33°34′56.44″ South, 134°46′37.08″ East (Point 7), then easterly to 33°34′55.96″ South, 134°47′03.48″ East (Point 6), then easterly to 33°34′55.99″ South, 134°47′21.21″ East (Point 5), then easterly to 33°35′00.01″ South, 134°47′51.24″ East (Point 4), then easterly to 33°34′56.42″ South, 134°48′40.71″ East (Point 3), then northerly to 33°34′12.68″ South, 134°48′40.69″ East (Point 2), then northerly to 33°32′47.89″ South, 134°48′40.62″ East (Point 18), then easterly to 33°32′48″ South, 134°51′02″ East (Point 19), then northerly to 33°31′20″ South, 134°50′ 56″ East (Point 20), then northerly to 33°28′16″ South, 134°50′26″ East (Point 21), then northerly to 33°25′49″ South, 134°49′46″ East (Point 22), then northerly to 33°22′57″ South, 134°48′49″ East (Point 23), then northerly to 33°20′16″ South, 134°47′33″ East (Point 24), then easterly to the point of commencement, but excludes state waters landward of the line of Mean High Water Springs of East Island and West Island.

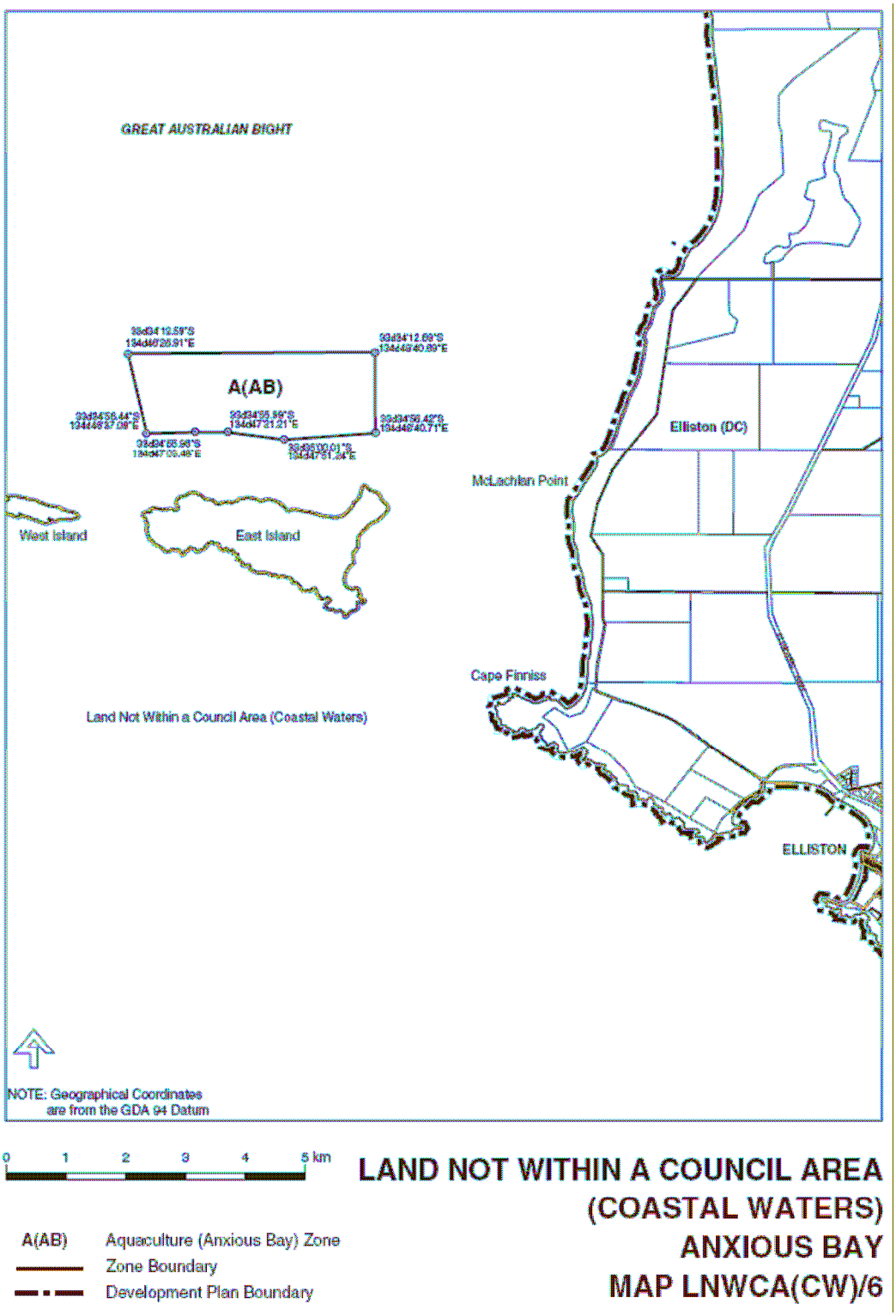
SCHEDULE 3

MAP OF THE ANXIOUS BAY AQUACULTURE ZONE AND THE ANXIOUS BAY AQUACULTURE EXCLUSION ZONE



SCHEDULE 4:

NEW ZONING MAP TO DELINEATE THE EXTENT OF THE AQUACULTURE (ANXIOUS BAY) ZONE



6.4 Appendix D - Relevant Policies and Legislation

Development Act 1993 and Development Regulations 1993

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 would be classified as a *complying* development and exempt from the public notification and consultation under the provisions of the *Development Act 1993. H*owever 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 an 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.

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 and 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 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.

The Anxious Bay aquaculture zone lies 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 the Anxious Bay aquaculture zone relates only to marine aquaculture there are no matters of water allocation, groundwater or surface water, specific to the aquaculture zone. The policy is consistent with the Eyre Peninsula NRM/CWM Plan.

Environment Protection Act 1993

The Policy was developed to be consistent with 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 that waste will enter any waters. The Water Quality Policy prescribes water quality criteria that must not be contravened and prohibits the discharge of 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 in a sustainable way. 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 *Harbours 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 the Harbors and Navigation Act 1993but 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.