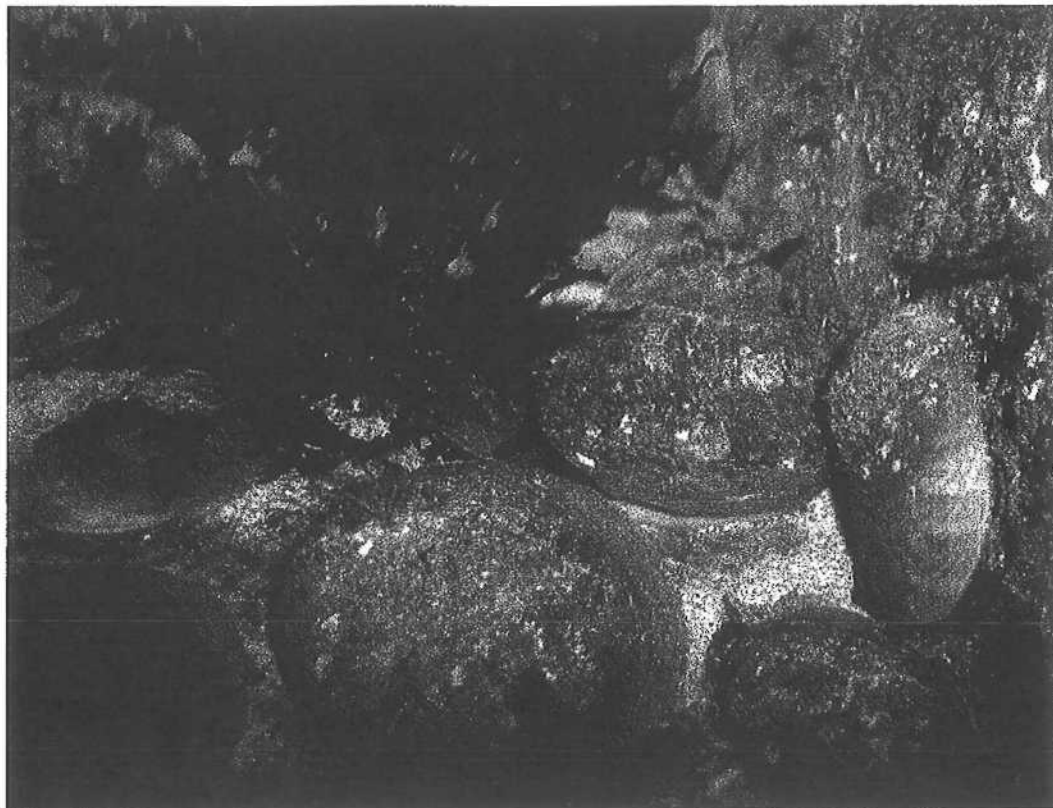


Technical Summary

To support an application to vary an aquaculture license.

Under Sections 135 & 142 of the *Fish Resources Management Act (FRMA)* 1994

Sea based Culture of Greenlip Abalone in Flinders Bay, Augusta, WA



August 2012

Some of the technical information in this report has been adapted from a previous lease application by Two Oceans Abalone Pty Ltd prepared in 2009 by

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Version: 2.3

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PURPOSE OF DOCUMENT

This is a technical summary prepared for all relevant decision-making authorities. The document has been prepared in accordance with the Environmental Protection Authority's "Guide to Preparing an Environmental Scoping Document", and after consultation with authorities and other relevant agencies, groups and persons.

This technical brief presents information relating to:

- The intended variation of scope and location of the existing aquaculture lease (AL0019)
- The potential environmental impacts, their significance and the proposed management responses to be taken by the proponents; and
- A review of the relevant State and Commonwealth legislation

Oceans Grown Abalone Pty Ltd (OGA)

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SUMMARY DESCRIPTION OF THE PROPOSAL

The primary focus of OGA's business is the commercial aquaculture of Greenlip Abalone (*Haliotis laevis*) in Flinders Bay, near Augusta, Western Australia. However, the company wishes to:

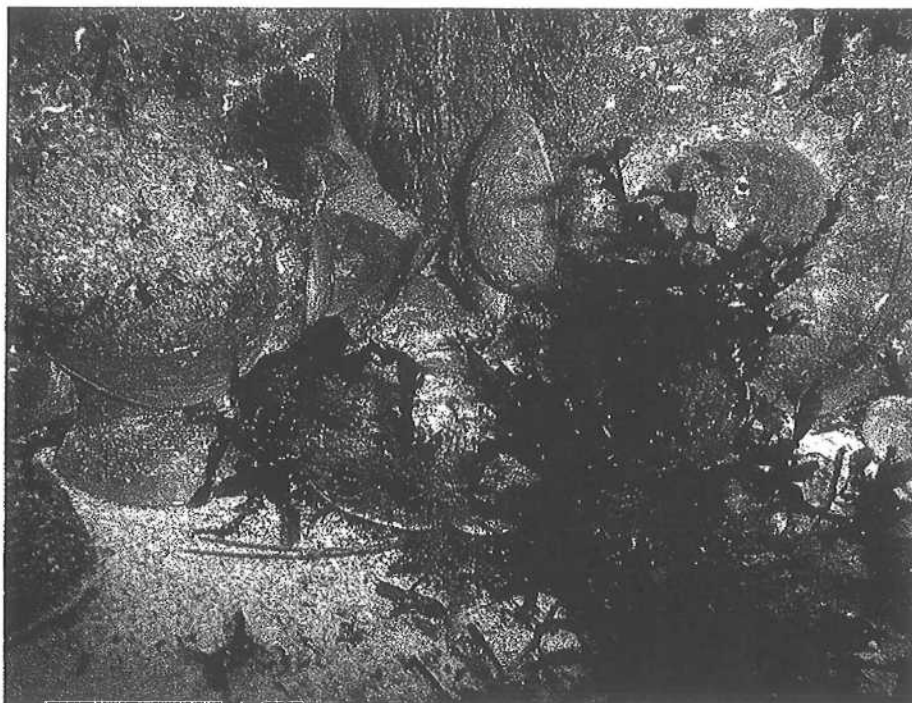
- Vary the location, size and boundary coordinates of the proponents current aquaculture lease (Aquaculture Lease No. AL0019).

The above variation will allow the existing business to achieve its commercial objectives using a new low stocking density farming method that relies on using 100% naturally available feed.

This business will involve the capture of live abalone in Flinders Bay, Augusta by abalone divers using commercial fishery quota as issued by the Department of Fisheries (DoF). The live animals will be re-located to the land-based hatchery in Bremer Bay. At the hatchery, the abalone will be induced to spawn, and the resulting spat grown to a length of 40-50mm at the land based facility. The animals will then be transferred, after health certification from the DoF, to the proposed, OGA, grow out site. These animals will be grown until ready for harvesting, processing and sale.

The aquaculture method is 'ranching'. This method uses purpose built artificial habitats constructed from concrete. The habitat modules are located in an area of Flinders Bay where there are large sandy areas interspersed with seagrass beds of various seagrass spp. Greenlip abalone are opportunistic feeders that rely on the algal wrack drifting past the reefs on which they live. The seagrass in Flinders Bay has many species of fast growing, ephemeral, epiphytic red algal species growing on the seagrass blades that break off during swell and tide that drifts in the currents, providing feed for abalone.

Figure 1: Abalone feeding on wrack (drift) seaweed on the trial site.



The main limiting factor for abalone in the natural environment is suitable habitat. The aquaculture lease area in Flinders Bay has been carefully selected for the abundance of abalone food. If there were suitable habitat (granite/limestone reefs) then abalone in this area would be naturally abundant. OGA intention is to provide suitable habitat for the abalone to grow on. There are **no feed inputs** to grow the abalone – there is abundant algal wrack drifting in the currents to provide the required nutrition for vigorous health and growth. Large scale commercial trials conducted by OGA, under the auspices of Department of Fisheries Research exemption, in the Area of Interest (AOI) have proven this concept.

Abalone used in this business are cultivated from the same genetic stock as wild abalone occurring in the region. These abalone are placed on the habitat modules at an average size of 50mm and are left for nature to 'grow' them. The OGA divers act as 'gardeners' – removing predators, seeding habitat modules and harvesting abalone.

A summary table showing the Main Characteristics of the proposal, and Key Commitments on the part of the proponents is shown in Appendix 1 of this report.

BACKGROUND TO APPLICATION REQUEST TO VARY AQUACULTURE LEASE No. AL0019

The proponents have been conducting research into marine aquaculture of Greenlip Abalone since 2009. This activity has taken place over the following three distinct phases of scientific research and development:

1. Early Phase;
2. Mid Phase;
3. Optimization Phase.

These three phase will be outlined below.

Early Phase

When an Aquaculture Lease (AL0019) was granted to Two Oceans Abalone Pty Ltd. Early research on this lease showed that the ranching of abalone, by providing habitat (constructed of concrete in varying shapes) is technically possible. A small number of abalone were trialed (in the order of 1000 abalone on 6 habitat units) and initial results were very encouraging in regard to both growth rate and survival.

Mid Phase

In 2011, a commercial decision was made to conduct a much larger scientific trial with a view examining growth rate and survival in regard to:

- Various habitat module designs;
- Stocking Density;
- Size at release;
- Water Depth;
- Location within Flinders Bay.

Approximately 28,000 abalone have been used in this trial, with significant replication to allow for scientific rigor. The trial will be completed January 2013,. At this time CURTIN University have been engaged to conduct an independent review of the data and counts of the abalone stock on the OGA leases.

Optimisation Phase

As the proponents view abalone ranching as having real economic investment potential an application was made to the CEO of Department of Fisheries for a further two R&D sites at other areas within Flinders Bay (Via section 7(2)(a) of FRMA 1994 – instrument of exemption Dated 29th September 2010). This was to allow the company to assess other locations within Flinders Bay as to suitability of commercial abalone ranching. The two R&D sites selected were also at shallower depths than AL0019, an important consideration for commercialisation. AL0019 has an average depth profile of 19m, whilst R&D site 1 is 14m and R&D site 2 is 15m. Commercial dive times are significantly longer at 15m compared to 19m.

Analysis of the research data collected to date has shown that all 3 sites are acceptable sites for commercial abalone ranching activities. The proponents are seeking a variation to their existing Lease, AL0019 to expand the existing lease area slightly closer (towards the mainland) to enable the company to take advantage of the shallower depth (15m cf. 19m) as company divers working on a 32% NITROX mix will have a safe dive profile of up to 6 hours per day at 15m depth, compared with 3 hours per day at 19m. Having the commercial abalone ranching lease at the

15m depth significantly increases the economic viability and dive safety of the business compared to the current lease (AL0019) which has an average depth of 19m. Divers can have their first one or two dives at the 19m site, then move to the 15m location to complete their daily dive profiles.

Next Phase

The next phase of the project is enter the commercialisation phase. In this phase the company is seeking an additional 80 hectares. Marine ranching of abalone is a extensive method of aquaculture. Stocking densities must be kept low to ensure enough feed (algal wrack drifting in water column) is available to the abalone to promote vigorous growth, low mortality and good health.

OGA's plan to only install habitat on the lease covering just 1% of the proposed lease area (or area of interest). Each habitat module has a base footprint of 1.2m^2 , with each module having an available surface area of abalone habitat of 4.8m^2 . It is estimated that each habitat module will over the course of 12 months supply a 10kg live weight harvest per module. 80 hectares will allow enough area for the installation of 6700 modules over a 4 year period, allowing for a maximum annual harvest of 67T per year – a volume considered commercially viable, when combined with the production capacity of the existing lease (no. AL0019).

THE AREA OF INTEREST

The area of interest (AOI) for the proposal is 800m x 500m or 80 hectares within Flinders Bay. The location and depth of the area is as follows:

The relationship of the AOI to the mainland is shown in Figure 2.

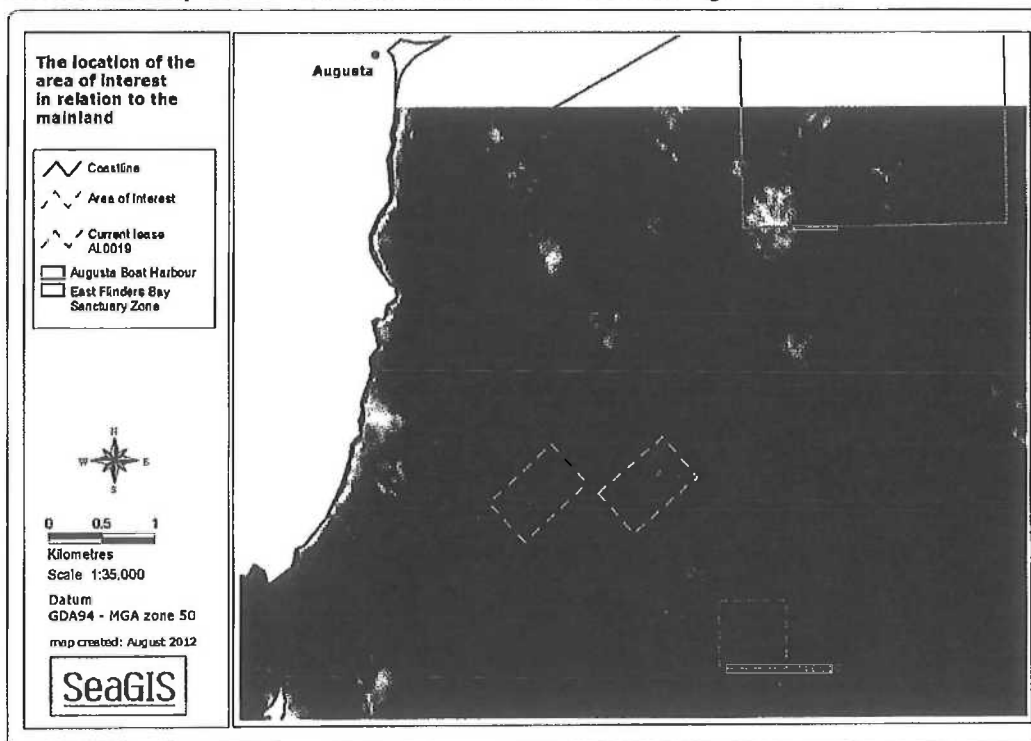


FIGURE 2: The location of the area of interest in relation to the mainland.

The area is within the proposed *Ngari Capes Marine Park* (the Park) and lies within a proposed marine park General Use Zone. A Marine Park General Use Zone is defined as

"areas of a proposed marine park not included in sanctuary, recreation or special purpose zones. Conservation of natural resources in general use zones is a priority but activities such as sustainable commercial fishing, aquaculture, pearling and petroleum exploration and production are permissible provided they do not compromise the conservation values."
(Department of Environment and Conservation, 2006, pg. vii).

It can be seen in Figure 1 that the AOI overlays a small navigation channel for the Augusta Marina. Consultation with both the Department of Transport (DoT) indicates that OGA's proposed new aquaculture method will not impact on the type and nature of vessel movements planned for in the marina.

REGIONAL SETTING OF PROPOSAL

A comprehensive summary of the physical, biological and social features of the Leeuwin-Naturaliste bioregion has been documented by the Department of Environment and Conservation in the *Ngari Capes Marine Park Indicative Management Plan* (Department of Environment and Conservation, 2006). Much of the following has been taken from this report and in some cases appears "word for word". The author of this report acknowledges this, and wishes to clearly credit the original work.

Flinders Bay is located on the southern coast of Western Australia between Cape Leeuwin and Black Point and is approximately 19,600 ha. Hardy Inlet opens into Flinders Bay, drains the Blackwood and Scott rivers, and is one of two permanently open estuaries on the south coast of Western Australia. The general substrate in the bay is of Quaternary sands overlying Cretaceous sediments, with sparse seagrass beds and macroalgae on low relief limestone or granite reefs (Western Australian Planning Commission, 2003; Department of Environment and Conservation, 2006).

Air temperature ranges from an average maximum of 23.3° C in January/February to an average minimum of 11.3° C in July. Average rainfall is approximately 1,000 mm, most of which occurs over winter, while evaporation is roughly 1,000 mm annually. Winds in Flinders Bay are characterised by variable, relatively weak winds in winter, while during summer diurnal winds are typical. This is characterised by hot easterlies in the mornings and strong southwest – southeasterly breezes in the afternoon (Department of Environment and Conservation, 2006).

Sea surface temperatures range from approximately 22.3° C in summer to 15.5° C in winter. During autumn and winter the eastern region of Flinders Bay experiences the presence of the eastward flowing Leeuwin Current, the time of this current's strongest flow. The broad circulation of Flinders Bay is influenced by winds, but finer scale studies have not been performed in this region in any great detail. Although Flinders Bay is more sheltered than the west facing region between Cape Naturaliste and Cape Leeuwin, it is still subjected to the same heavy swells and the south facing expanses are exposed to the strong wave action. Under these swell conditions, littoral currents move sediments eastward in Flinders Bay (Department of Environment and Conservation, 2006).

Tides are typically mixed (diurnal and semi-diurnal) and less than 1 m, with a range of 0.7 m during spring tides and 0.5 m during neap tides. These tides are of

importance in the Hardy Inlet with respect to the development and movement of strong haloclines. The seasonal freshwater discharge from the Hardy Inlet creates tidal currents in the nearshore area, ranging from 0.3 ms^{-1} to 0.5 ms^{-1} in summer to 1 ms^{-1} in winter (Department of Environment and Conservation, 2006).

The Blackwood and Scott Rivers form a component of the Blackwood Basin. This is the largest catchment in Western Australia's south west ($23,000 \text{ km}^2$) and has been extensively cleared for various agricultural purposes. As a result of the intense anthropogenic uses of this area, the Blackwood and Scott Rivers, and thus the Hardy Inlet, experiences eutrophication issues.

A 2002 report (Kelsey, 2002) estimated that an annual nutrient load to the Hardy Inlet via the Blackwood and Scott Rivers consisted of 1,540 tonnes of total nitrogen, and 43 tonnes of total phosphorus. This study attributed much of this nutrient load to uses such as dairy, pigs, intensive animal production, seasonal horticulture, irrigated perennial horticulture, and grazing and improved pastures. However this study did not investigate nutrient input from landfill rubbish tips in the catchment (Kelsey, 2002). In addition, the town of Augusta has a secondary sewerage treatment system which is licenced to release up to $180 \text{ m}^3 \text{ day}^{-1}$, and released $40,624 \text{ m}^3$ in 1999/2000, though not all properties in Augusta are connected to this system (Western Australian Planning Commission, 2003).

The sea birds found in Flinders Bay include Rock Parrots (*Neophemaea petrophila*), Fairy Penguins (*Eudyptula minor*), Little Penguins (*Eudyptula minor*), Bridled Terns (*Sterna anethetus*), and various ospreys, albatross', and gulls (Thomson-Dans *et al.*, 2003; Department of Environment and Conservation, 2006).

Concerning marine flora, macroalgae is more dominant than seagrasses in Flinders Bay. Over 150 species of macroalgae exist there including *Ecklonia radiata*, *Cystophora* spp., *Sargassum* spp., and various species of turfing macroalgae. *Sargassum* spp. are predominant in the more sheltered areas (Western Australian Planning Commission, 2003; Department of Environment and Conservation, 2006).

Thirteen species of seagrasses (including *Amphibolis antactica*, *Amphibolis griffithi*, *Halophila ovalis*, *Heterozostera tasmanica*, and *Posidonia ostenfeldi*, and *Thalassodendron pachyrhizum*) are to be found in Flinders Bay. Nearshore, these species form perennial dense to medium beds, while offshore the seagrass beds are dominated by *T. pachyrhizum* and are ephemeral or sparse (Western Australian Planning Commission, 2003; Department of Environment and Conservation, 2006).

A diverse range of invertebrate life is associated with the low relief macroalgal reefs in Flinders Bay. Species include ascidians (*Pyura* spp.), calcareous sponges, octocorals and soft corals, crustaceans, and gastropods. The commercially important Western Rock Lobster (*Panulirus cygnus*) is also found in Flinders Bay. A 2006 review of the south west determined that the dominant and most diverse invertebrates in Flinders Bay were abalone, seastars, sea urchins, and sea cucumbers (Western Australian Planning Commission, 2003; Department of Environment and Conservation, 2006; Limbourn and Westera, 2006).

The south west is home to a diverse range of fish including West Australian Jewfish (*Glaucosoma hebraicum*), Western Blue Groper (*Achoerodus viridis*), Harlequin Fish (*Othos dentex*), Australian Salmon (*Arripis truttacea*), Tailor (*Pomatomus saltatrix*), Australian Herring (*Arripis georgianus*), and Black bream (*Acanthopagrus butcheri*). The Great White Shark (*Carcharodon carcharius*), has been reported from the Flinders Bay area. It is thought that the sharks feed on juvenile seals in this area.

Bronze Whaler Sharks (*Carcharhinus brachyurus*) are also found in the area and constitute a significant proportion to commercial fisheries (Western Australian Planning Commission, 2003; Department of Environment and Conservation, 2006).

Three species of whales are known to occur in Flinders Bay, being the Humpback (*Megaptera novaeangliae*), the Southern Right (*Eubalaena australis*), and the Blue Whale (*Balaenoptera musculus*). The Southern Right Whale has been known to utilise Flinders Bay as a calving and nursery ground (Western Australian Planning Commission, 2003; Department of Environment and Conservation, 2006).

Bottlenose Dolphins (*Tursiops truncatus*) are common inhabitants of Flinders Bay. Common (*Delphinus delphis*) and Striped (*Stenella caeruleoalba*) Dolphins have only been recorded as "stranded" within Flinders Bay (Western Australian Planning Commission, 2003; Department of Environment and Conservation, 2006).

Flinders Bay is the most westerly breeding colony for New Zealand Fur Seals (*Arctocephalus forsteri*). This species is found from the Recherche Archipelago to north of Cape Leeuwin. Australian Sea Lions (*Neophoca cinerea*) are also found in Flinders Bay. These sea lions are distributed from the Houtman Abrolhos Islands to South Australia. In addition to these relatively common species, the Sub Antarctic Fur Seal (*Arctocephalus tropicalis*) and the Leopard Seal (*Hydrurga leptonyx*) are occasionally reported as strandings (Western Australian Planning Commission, 2003; Department of Environment and Conservation, 2006).

All cetaceans in Commonwealth waters are protected under the *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act). The three whale species found in Flinders Bay are threatened species declared to be specially protected under the *Wildlife Conservation Act 1950*. The New Zealand Fur Seal and Australian Sea Lion are specially protected under the *Wildlife Conservation Act 1950* and it is an offence to disturb these animals. Departmental licences are needed for tourism operators and wildlife viewing is controlled by a code of conduct, which includes minimum approach distances, maximum boat speeds and use of lights in the vicinity of wildlife. These restrictions also apply to non-commercial activities. For example, boats must stay 100 m away from a whale or if a whale approaches a boat, it must be in neutral or move the vessel at less than five knots away from the whale (Department of Environment and Conservation, 2004).

Aboriginal presence in the south west, including the Flinders Bay/Augusta region, dates back almost 40,000 years. Although there are no recorded aboriginal sites in Flinders Bay, it is likely that archaeological sites exist on/in the seabed due to the rise of the sea level in recent geological years. The first permanent European settlement was established in Flinders Bay in the 1830s, in response to the whaling and sealing industries in the region at the time (Department of Environment and Conservation, 2006).

Currently, commercial fishing is economically important in the south west, with a combined fisheries value of \$14.1 million in 2010/11. Over 75% of this value is attributable to the abalone and shark industries. The Hardy Inlet Estuarine Fishery is another economically important fishery in the south west. Species targeted in this region include Australian Salmon (*Arripis truttacea*), Herring (*Arripis georgianus*), Pilchards (*Sardinops neopilchardus*), Bronze Whaler Sharks (*Carcharhinus brachyurus*), Blue Sprat (*Spratelloides robustus*), and Whitebait (*Hyperlophus vittatus*) (Department of Environment and Conservation, 2006).

The town of Augusta, located adjacent to the Blackwood River Estuary, is one of four major urban communities in the south west. The population in this region is currently one of the fastest growing in the state, and is contributed to by long time residents, retirees, and second home owners. This area also experiences high levels of short term visitation due to its relative proximity to Perth. Flinders Bay, as is most of Western Australia's south west, is a popular location for recreational activities. Surfing, fishing, diving, boating, water sports, and a wide range of shore-based activities are common past-times in the region. Species commonly targeted by recreational fishers include Australian Salmon (*Arripis truttacea*), Tailor (*Pomatomus saltatrix*), Australian Herring (*Arripis georgianus*), and Black bream (*Acanthopagrus butcheri*) (Department of Environment and Conservation, 2006).

OPERATIONAL DESCRIPTION

Capture of Abalone

The proposal remains that adult wild Greenlip Abalone will initially be collected from the Flinders Bay area by abalone divers and will be part of the normal commercial quota for the abalone fishery.

Abalone Spat

These above abalone will be taken to a hatchery as broodstock, and induced to spawn. Only F1 or first generation spat will be used in this business. When the resulting spat have attained the desired size of 40-50 mm, they will be transferred to the habitat modules for grow out. All spat will be:

- cultivated under the auspices of a DoF approved, biosecurity plan; and
- health certified by the DoF before locating on the lease

This is to ensure that all spat are of higher than or equivalent health status to that of aquatic animals already living in Flinders Bay.

The hatchery used by OGA has already received the necessary DEC/DoF approvals (888 Abalone Pty Ltd aquaculture licence) and operates under the auspices of a DoF approved, biosecurity plan.

Grow Out Habitat

The grow out apparatus are 1.2m x 1.2m x 0.6m (width x length x height) and constructed from concrete by HaeJoo Pty Ltd, a company that specialises in artificial habitat construction.

Each habitat module will hold approximately 130 abalone. This stocking density allows for a rolling annual harvest of approximately 10kg abalone/unit/year, over 3 year classes. Stocking densities are equivalent to or less than the stocking density of that found on healthy abalone reefs in Augusta.

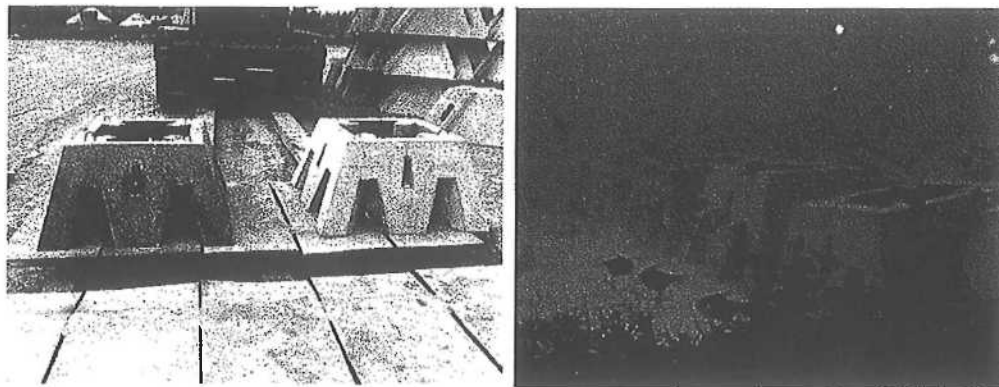


FIGURE 3: Structure and design of habitat modules to be used.

Please note that the submerged apparatus used for the project may not necessarily be identical to the diagram as advances in, and modifications to apparatus design continue.

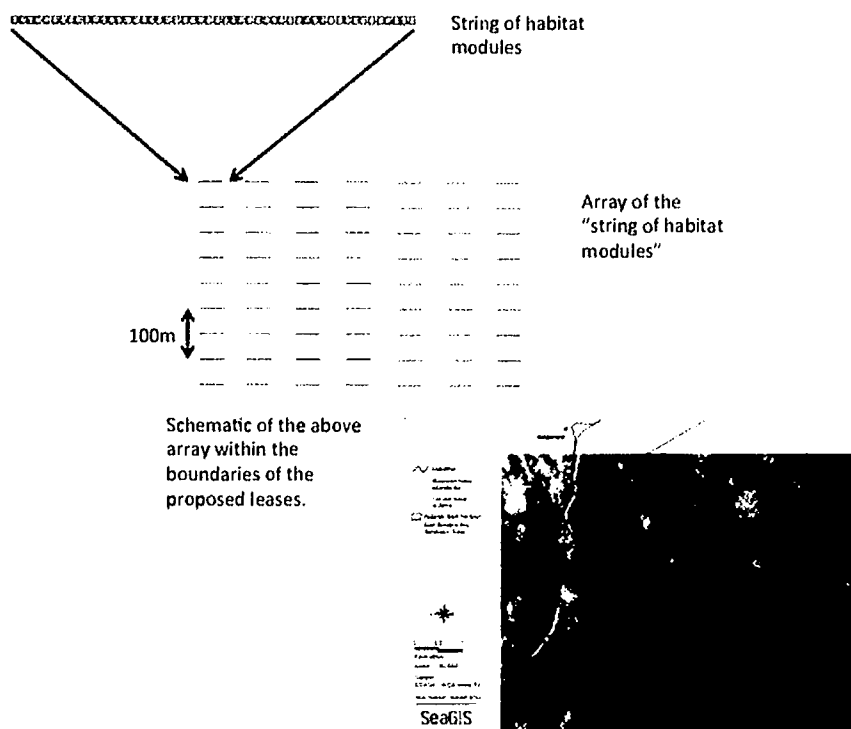
The abalone feed upon the macroalgae that naturally drifts past the submerged apparatus. Due to the extensive nature of this proposed aquaculture method the operation requires a larger AOI. This will enable the proponent to spread the aquaculture method to fit naturally available food. Based on evidence from the proponent's Research sites (Department of Fisheries Research Exemption) only 1.44 ha of 120ha will be used, as the proponent considers this to be sustainable level. This is only 1% of the AOI.

The operation will consist of 700 habitat modules, with an increase of 2,000 annually for the following three years, resulting in a total of 6700 on a permanent basis. The following figure (No. 4) provides a schematic diagram.

The plan is to have 'strings' of 50 habitat modules approximately 60m in length. These strings will follow the contours of the sand areas between seagrass beds.

In area used by the habitat modules, is only 1.2% of the total AOI.

FIGURE 4: Schematic view of mooring and attachment of the submerged grow out apparatus.



Grow Out

It is anticipated that grow out of the abalone will take approximately 2-3 years. Over this period the abalone will increase from between 40-50 mm to 130 mm, with an expected growth rate of 35mm/yr. During grow out the abalone will feed on naturally occurring macroalgae. This supply of food results from the scouring forces of ocean currents.

Harvesting

When the abalone have reached a size of approximately 130 mm they will be harvested by diver from the apparatus for processing on land.



FIGURE 5: Abalone at approximately 130 mm, cultured at the proponents current lease.(AL0019)

BASIS FOR JUSTIFYING PROPOSAL AND SELECTING PREFERRED OPTION

Aquaculture of Greenlip Abalone

The *Abalone Aquaculture in Western Australia Policy Guideline* (Department of Fisheries, 2011) was developed to assist prospective abalone aquaculturists in the preparation of proposals and as a guide for the DoF when considering aquaculture application proposals. This management paper contains information relating to environmental impact, broodstock and translocation issues, and policies concerning manner of culture, genetic translocation, and the distribution/sale of cultured abalone. It is also of note that within this management paper, the culture of Greenlip Abalone (*H. laevigata*) is regarded as having potential in Western Australia.

Greenlip Abalone are naturally distributed from Tasmania and western Victoria to Cape Naturaliste (Freeman, 2001). Therefore the AOI is essentially at the westernmost region of this species distribution.

Choice of Flinders Bay

The location of the AOI in Flinders Bay is one of few along the Western Australian south coast which offers the required protection from the swell while still providing sufficient current flow and depth for the proposed operation. In addition the town of Augusta provides existing land based infrastructure, such as a hatchery and boat ramps (and a \$30M Marina due for completion March 2014) in relatively close proximity to the grow out platforms that will be necessary for a successful venture.

Also of note is that previous approval was given for a 120 tonne land based abalone farm within Flinders Bay in 2003, which was to utilise artificial feed. The nutrient flows of such a land based operation would have been much greater than that of the proposed sea based aquaculture venture outlined in this document. The fact that this

proposal is nutrient neutral and replaces an option that would have elevated nutrient levels in Flinders bay also influenced the decision of the proponents.

Benthic Features

As mentioned earlier in the document, the major substrate in Flinders Bay is of unconsolidated Quaternary sands overlying Cretaceous sediments

The proponents have mapped the seabed habitat using underwater visual census techniques and documented the various benthic habitat types. The results of this mapping technique are shown in the following figure as is the AOI.

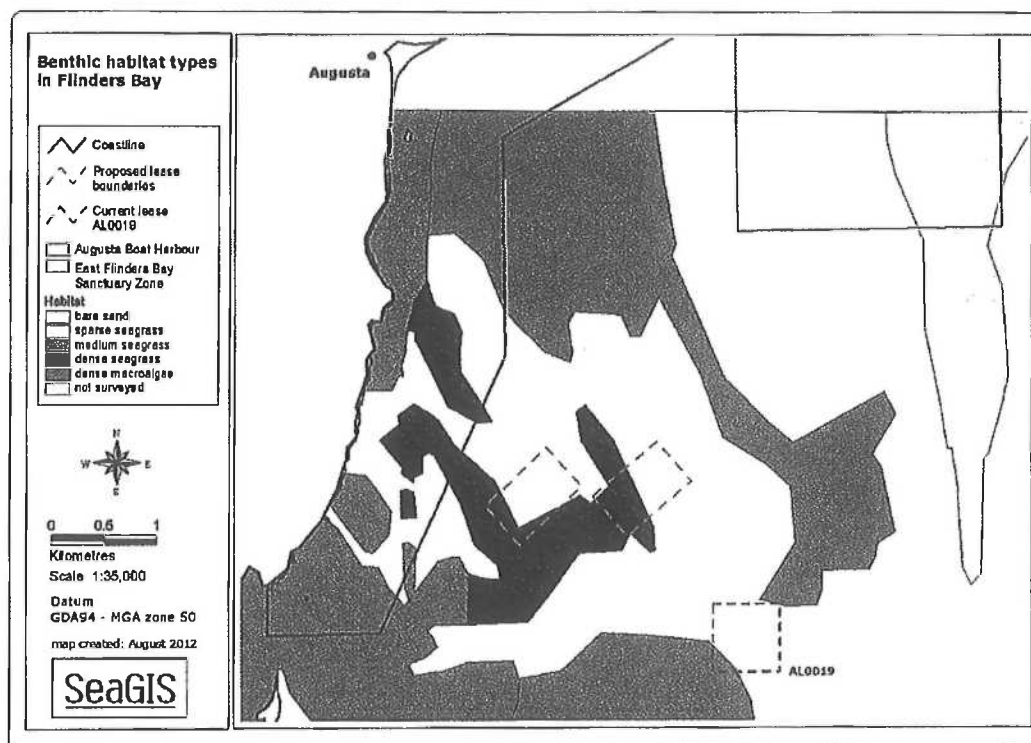


FIGURE 6: Benthic habitat types in Flinders Bay.

There are a number of habitats in the Bay ranging from productive benthic primary producers such as dense seagrass and dense macroalgae to the less productive sparse seagrass and sand. Water depth and the according light attenuation is the driver behind changes in habitat productivity.

The AOI consists mostly of sand habitat, areas of sparse and medium seagrass beds, and macroalgal wrack washed into the area.

The nearest geographic features to the AOI are St. Alouarn and Flinders Islands both roughly 3km from the AOI. The nearest reef structures of note are found in the region of St. Alouarn and Flinders Islands, thus approximately 2 to 3 km from the AOI. These characteristics lessen the probability of any significant impact on benthic structures as a result of this proposal.

Wind

The most unique feature of the AOI in Western Australia's south west is the shelter from swell offered by the islands and reefs to the west, while still experiencing a relatively strong current profile. The typical winds in Flinders Bay vary with season. During winter, the winds are generally weak and variable, with the exception of the passage of cold fronts bringing with them strong westerly winds lasting a day or two on a weekly basis. The summer pattern is typified by a reduction in the incidence of cold fronts, hot easterly winds in the morning and strong southwest – southeasterly breezes in the afternoon (Department of Environment and Conservation, 2006). Thus the AOI is protected from the stronger westerly winds during winter by the mainland/Cape Leeuwin, and some protection from the south to westerly component of the seabreeze by the nearby islands to the south of the AOI. The unique geographical features of the area allow for diving to be viable at the AOI up to 300 days/year.

Current & Wave Height

Sea based aquaculture operations such as this one should be located where current flow is sufficient to distribute "drift" macro-algae.

In Flinders Bay the large scale current flow is driven by the prevailing winds, while littoral currents have been noted to travel in an easterly direction due to swell (Department of Environment and Conservation, 2006). Therefore during winter, the season with the weakest winds but greatest swell activity, sufficient current flow will be present to distribute macro-algae.

Nutrient Flows

This project will not introduce any new nutrients to Flinders Bay. The apparatus will allow a settling point for naturally occurring drift macroalgae. As a result, the program is nutrient neutral.

These are not nutrients being added to Flinders Bay, but naturally occurring nutrients being temporarily localized. As previously stated, a land based farm was previously approved which would have resulted in larger amounts of nutrient inputs.

By way off contrast, Hardy Inlet and Flinders Bay already experience annual nutrient inputs of approximately 1,540t total nitrogen and 43t total phosphorus from agricultural sources in addition to roughly 40,000m³ of secondary sewerage annually (Kelsey, 2002; Western Australian Planning Commission, 2003). Therefore this proposal will be in a region already experiencing significant anthropogenic nutrient inputs of a much greater magnitude than that possible of the proposed operations. The figures below demonstrate the extent of difference between current nutrient inputs and those expected from the proposed venture.

ADHEREANCE TO POLICY GUIDELINES

Determination of a Management Unit

A management area determined by the EPA is generally in the order of 50km². Flinders Bay as a whole is in the order of 196km². While investigations into the direction and intensity of ocean currents are underway, it will be assumed that any potential impacts could occur equally in any direction. Thus a box 7 km X 7 km centred on the AOI is the assumed management area.

This, along with the AOI is shown in the following figure.

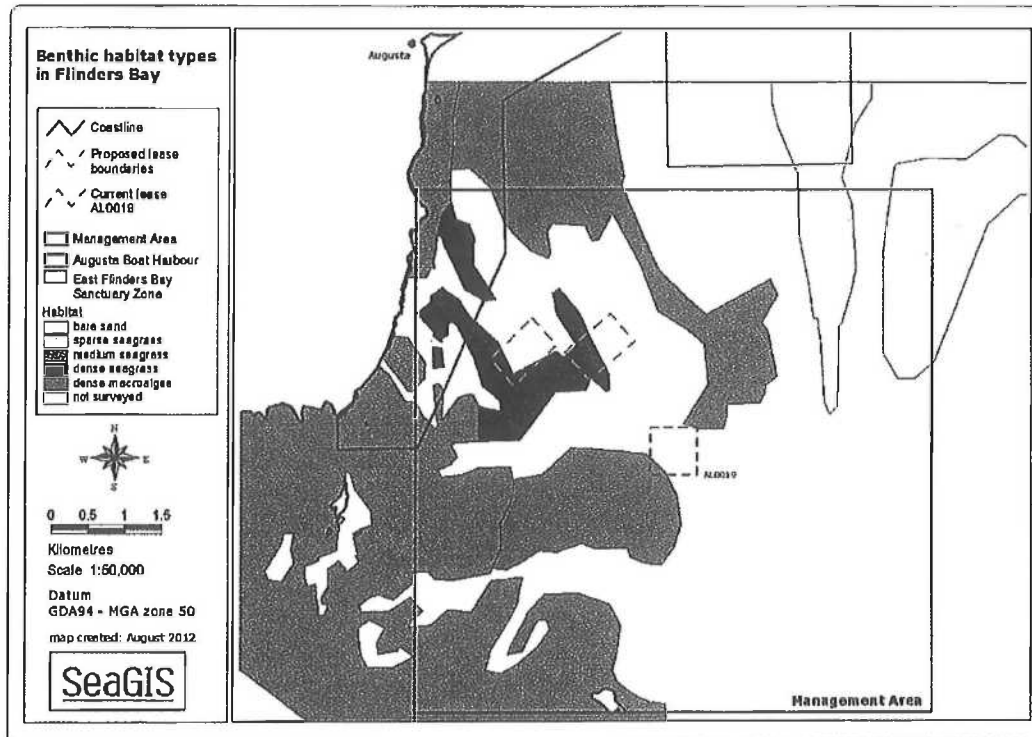


FIGURE 8: Management Unit and AOI.

Benthic Primary Producer Habitat Protection (EPA)

Sand or sparse/ephemeral seagrass bed habitat types in *Ngari Capes Marine Park* make up approximately 31,092 ha. With the proposed AOI consists of an area of 120 ha, of which only 1% will be utilized for the placement of the habitat modules. On this basis, OGA's proposal represents 0.0037% of sand or sparse/ephemeral seagrass bed habitat types of the *Ngari Capes Marine Park*.

Key Ecological & Social Values of the Proposed Marine Park

As outlined in the draft management plan for the Park, the objectives of a marine conservation reserve system are:

- to preserve representative as well as special ecosystems in the marine environment; and

- to put a formal management framework in place to ensure the various uses of marine conservation reserves are managed in an equitable, integrated and sustainable manner.

The proponents will adopt the first of these points in their Environmental Values (EVs). The second point will be modified to reflect the limited role in integrated management. The second EV will read:

- to work within, and assist in the development of a formal management framework in place to ensure the various uses of marine conservation reserves are managed in an equitable, integrated and sustainable manner.

Furthermore, the Environmental Quality Objectives (EQOs) for the management of the sea based component will also be those of the Park. The full objectives of the Park are:

Conservation

- to maintain the marine biodiversity of the proposed marine park;
- to maintain ecological integrity (i.e. key ecosystem structure and function);

Science and Education

- to promote education, nature appreciation (through recreation and tourism opportunities) and scientific research in the proposed marine park.

Public Participation

- to promote community involvement in the management of the proposed marine park.

Recreational Uses

- to facilitate, manage, and, where appropriate, assist in the management of recreational activities within an equitable and ecologically sustainable framework; and

Commercial Uses

- to facilitate, manage, and, where appropriate, assist in the management of commercial activities in the proposed marine park within an equitable and ecologically sustainable framework.

. With this in mind, the project will adopt the Environmental Values (EQOs)

The land and sea components of the project will be managed to be consistent with the Park objectives of:

Conservation

- to maintain the marine biodiversity of the proposed marine park;
- to maintain ecological integrity (i.e. key ecosystem structure and function);

Science and Education

- to promote education, nature appreciation (through recreation and tourism opportunities) and scientific research in the proposed marine park.

These key ecological and social values of the *Ngari Capes Marine Park* (Department of Environment and Conservation, 2006) are listed in the table below:

Table 1: The key ecological and social values of the *Ngari Capes Marine Park* (Department of Environment and Conservation, 2006)

Ngari Cape Marine Park's Key Ecological & Social Values

Geomorphology: A complex coastal topography consisting of low profile, low energy sandy bays.

High water quality

A rich finfish fauna including tropical and temperate species

Marine Mammals

Seabirds and Shorebirds

Marine nature-based tourism

Commercial fishing

Recreational fishing

Coastal use: amenity

It is anticipated that the aquaculture venture will not impact these values. As pointed out elsewhere in the report, the estimated nutrient input into Flinders Bay is much less than that currently occurring through Hardy Inlet. The project also has a waste disposal plan under which all litter will be returned to shore for disposal.

State Water Quality Management Strategy No. 6

As outlined in State Water Quality Management Strategy No.6 (SWQS6), there is an overarching model used by the EPA to protect water resources. This is shown below.

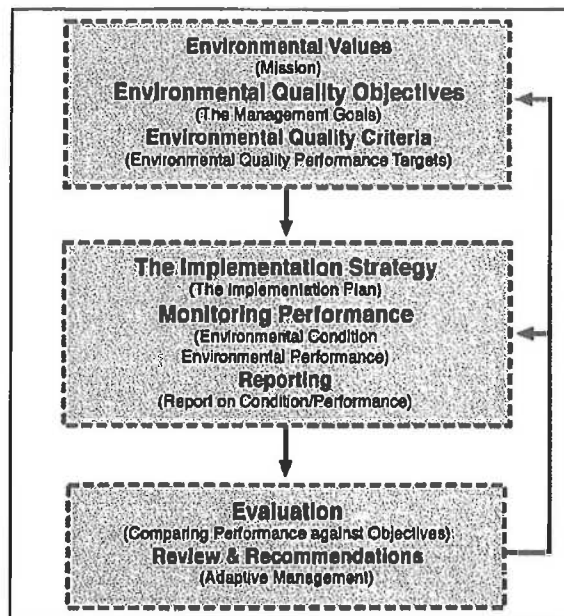


FIGURE 8: Overarching model used by the EPA to protect water resources.

The proponents plan to use this framework in developing their management plans and management responses. Where appropriate, the proponents will adopt the objectives and targets already published in state planning instruments or management plans.

	Management Objective/s	Performance Measures	Desired Trend/s
Water Quality	To ensure that the water quality of the proposed marine park is not significantly impacted by nutrient and sediment loading from catchment-based activities.	1. Pathogens: Faecal coliform conc. in seawater	1. Constant or higher health status.
Seagrass Communities	To ensure seagrass communities are not degraded by pollution from land based activities.	1. Diversity 2. Above ground biomass (areal extent and density) of perennial seagrass meadows	1. Constant or positive 2. Constant or positive
Deep Communities Reef	To ensure that 'deep reef' communities are not degraded by commercial and recreational fishing activity.	1. Diversity 2. Biomass	1. Constant or positive 2. Constant or positive
Invertebrates	To ensure that species distributions and abundance of invertebrates are not unacceptably impacted by commercial and recreational fishing activity within the proposed marine park.	1. Diversity 2. Abundance	1. Constant or positive 2. Constant or positive
Marine Mammals	To ensure marine mammals in the proposed marine park are not significantly disturbed by physical disturbance from boating activities.	1. Abundance 2. Diversity	1. Constant or positive 2. Constant or positive

TABLE 1: Relevant Management Objectives.

This table will form the basis of the development of Environmental Quality Criteria (EQC) for the project. The variations from the table (for reasons of relevance) are all within the "Water Quality" section. These are:

- The replacement of "abalone disease" in place of "Faecal coliform"

The remaining components of the "overarching model" in the above figure are more quantitative and will be articulated in the following section.

COMMUNITY AND OTHER STAKEHOLDER CONSULTATION PROGRAM

Participants

The list of agencies, groups and individuals consulted by the proponents, and Dan Machin (Azure Consulting Group) on behalf of the proponents to date includes:

- Department of environment and conservation
- Marine Parks Reserve Authority
- DoF
- Department of Transport
- CEO, Recfishwest
- Augusta and Margaret River Shire
- Aquaculture Council of Western Australia
- WAFIC

Issues Raised

A list of issues raised during the community consultation process to date has been compiled by the proponents. Aspects of the project with potential negative impacts include:

- Abalone disease outbreaks;
- Predator removal; and
- Interactions with cetaceans & pinnipeds

These are addressed in more detail in following sections of this submission.

Aspects of the project with potential positive impacts include:

- Positive financial impacts on the local and WA economy
- Job creation in the fields of tourism, aquaculture and science in Augusta
- Synergistic benefits for the wild catch abalone industry such as joint marketing etc

Issues that do not relate to potential environmental impacts are discussed below. Issues relating to potential environmental impacts are discussed in the following section.

Recreational Fishing Access

RecFishWest received a briefing and offered their support for the project. RecFishWest did note that some form of access to recreational fishers was an important consideration. They suggested that the proponents establish fixed moorings on the perimeter of the operation to allow recreational fishers to take advantage of the increased fish stocks while still preserving the safety and security of the site. This suggestion has been accepted by the proponents and is included in the Key Commitments Table in Appendix 1

SUMMARY OF POTENTIAL ENVIRONMENTAL IMPACTS, AND THEIR SIGNIFICANCE

In line with DEC guidelines, the proponents have designed the project to avoid environmental impact where possible, and to minimize it where avoidance is not feasible (no introduced feed etc).

Consultation and the literature review leads the proponents to expect that none of the interactions will be significant. Similarly, there is confidence that all environmental impacts could easily be managed by license conditions placed on a DoF aquaculture license.

These potential impacts are discussed in this section in no particular order.

Cetaceans

Bottlenose Dolphins (*Tursiops truncatus*) are common inhabitants of Flinders Bay. Common (*Delphinus delphis*) and Striped (*Stenella caeruleoalba*) Dolphins have only been recorded as "stranded" within Flinders Bay. The abundance of dolphins is generally increasing in the south west region (Western Australian Planning Commission, 2003; Department of Environment and Conservation, 2006).

Three species of whales are known to occur in Flinders Bay, being the Humpback (*Megaptera novaeangliae*), the Southern Right (*Eubalaena australis*), and the Blue Whale (*Balaenoptera musculus*). The Southern Right Whale has been known to utilise Flinders Bay as a calving and nursery ground. The abundance of whales is generally increasing in the south west region (Western Australian Planning Commission, 2003; Department of Environment and Conservation, 2006).

A local whale charter operator and president of Whale and Dolphin Watch Australia, Steve Mitchell, was previously consulted in regards to the possible cetacean impacts of the proposed operation. Mr. Mitchell gave his full support to the proposal and did not envisage any problems due to the sonar capabilities of these mammals providing them with the capacity to avoid the structures associated with the operation. The habitat modules are only 0.6m high, and any mooring ropes on the lease for servicing are kept tight. There have been no noted interactions with cetaceans since the 'research' habitat modules have been in place since March 2011.

No interactions with dolphins and whales and habitat modules are expected and, within the context of this proposal, no long term impact is expected. OGA will operate in accordance with the Aquaculture Council of Western Australia's Code of Practice for Whale Interactions. On this basis, all interactions with cetaceans within the AOI, including sightings, will be documented and these records made available to any interested government agency. Staff will be given species identification training.

Seals and Sea-lions

Flinders Bay is the most westerly breeding colony for New Zealand Fur Seals (*Arctocephalus forsteri*). This species is found from the Recherche Archipelago to north of Cape Leeuwin. Australian Sea Lions (*Neophoca cinerea*) are also found in Flinders Bay. These sea lions are distributed from the Houtman Abrolhos Islands to South Australia. In addition to these relatively common species, the Sub Antarctic Fur Seal (*Arctocephalus tropicalis*) and the Leopard Seal (*Hydrurga leptonyx*) are occasionally reported as strandings. The abundance of pinnipeds is generally

increasing in the south west region (Western Australian Planning Commission, 2003; Department of Environment and Conservation, 2006).

Few interactions with sea-lions are expected and, within the context of this proposal, no long term impact is expected. Abalone are not considered a 'targeted' food by pinnipeds, therefore the presence of the grow out platforms should have no reason to attract or repel these animals.

All interactions with pinnipeds within the AOI, including sightings, will be documented and these records made available to any interested government agency. Staff will be given species identification training.

Introduced Diseases

To manage disease risks, decision making authorities, under the auspices of the "National policy for the translocation of live Aquatic Organisms – issues, principles and guidelines for Implementation (anon. 1999), use scientifically based hazard pathways, risk analysis and risk control measures to determine, if a translocation can be undertaken with an appropriate level of protection.

In the above context, these risk assessments are consistent with the following:

- World Trade Organisation and sanitary and phytosanitary principles;
- Office International des Épidémiologies (OIE) *Aquatic Animal Health Code* (2011);
- *ICES Code of Practice on the Introductions and Transfers of Marine Organisms* (2004);
- Commonwealth Government's Mutual Recognition Act 1992; and
- Inter-Government Agreement on Biosecurity (IGAB)

Ultimately, the aim is to only stock open systems and farming facilities with aquatic animals of higher than or equal health status to that of aquatic animals already living in the considered areas (OIE, 2011).

Australia's aquatic animal fauna is host to a wide range of aquatic animal pathogens. However only a small proportion of these are known to science and new diseases are discovered regularly. In abalone, over the last decade, the following has been observed:

- several significant new abalone diseases, some of which have been translocated;
- recognition that disease has played a part in the decline of some wild abalone populations; and
- no documented examples are known of abalone populations recovering from catastrophic impacts.

Relatively, few abalone diseases are known worldwide This has been recognised to be a result of the lack of examination (absence of proof, rather than proof of absence) (Handler et al 2006) and that more diseases were likely to emerge with increased in development of abalone aquaculture and live holding facilities.

One example of the above, is the emergence in Australia of Abalone viral Ganglioneutris (AVG) caused by abalone herpes-like virus (AbHV) in 2005. This is now recognised as a major commercial threat to both the wild capture and the aquaculture industries, and an environmental threat to wild populations in general.

The WA wild catch abalone sector are concerned over disease outbreaks such as those which have occurred in Victoria. It is noteworthy that for over ten years, both in the wild and aquaculture abalone sectors, there has been no evidence of mass mortalities or epidemic. This absence of any abalone kills attributable to these sectors should provide confidence that the statutory biosecurity arrangements manage these risks appropriately.

The proponents will continue to operate under a DoF approved, biosecurity plan that ensures that basic biosecurity conditions are continuously maintained. These arrangements are subject to independent third party audits and spot audits by Department of Fisheries, Aquatic animal Health staff.

This protocol includes health monitoring, certification programs and regular independent audits. A copy of the current biosecurity plan can be found in Appendix 2.

The proponents will be work closely with Dr Brian Jones, Principal Fish Pathologist, from DoF, and DoF policy officers to ensure that the expectations of all stakeholders on this issue are addressed.

Invertebrates

Predator removal

Based on empirical evidence from the proponents current operations, the key predator of the abalone is octopus. Current records note an average of 8 octopus are removed per week. To mitigate any impact on this stock, the abalone farming production units will be designed to minimize suitable habitat for octopus.

Current recreational bag limit is 15 per day, per person or 30 per day, per boat. It is on the above basis, the proponent expects that predator removal levels to within both recreational and commercial fishing limits. Any removal of octopus will be done in accordance with licence conditions set by the Department of Fisheries to ensure sustainable removal of this predator.

Based on this, it not anticipated that the project will affect the diversity of invertebrates. There are no monitoring programs proposed for this element.

Seagrass

Thirteen species of seagrasses (including *Amphibolis antactica*, *Amphibolis griffithi*, *Halophila ovalis*, *Heterozostera tasmanica*, and *Posidonia ostenfeldi*, and *Thalassodendron pachyrhizum*) are to be found in Flinders Bay. Nearshore, these species form perennial dense to medium beds, while offshore the seagrass beds are dominated by *T. pachyrhizum* and are ephemeral or sparse (Western Australian Planning Commission, 2003; Department of Environment and Conservation, 2006).

The proposed venture is not expected to have impacts upon the seagrass beds in Flinders Bay. The habitat modules to be installed will only physically take up 1% of the AOI. They will not be directly placed on seagrass beds, but in sandy areas adjacent the seagrass beds. The proponent has already noticed that seagrass beds at times increase in density and at times contract locally depending on the season,

storm events and sustained low swell periods. No negative effect has been observed on the seagrass beds from the habitat modules installed to date.

DO WE NEED THIS? – 1% use of EOI, 0.0000X% of Flinders Bay = NO IMPACT

Nutrients

As previously noted, this project will not introduce any nutrients into Flinders Bay and will only temporarily localize naturally occurring nutrient flows. Based on this, it not anticipated that the project will adversely affect water quality. There are no monitoring programs proposed for this element.

Drift "Wrack" Macroalgae

The feed utilised in the operation will be macroalgae that is naturally present in Flinders Bay. This macroalgae is released into the water column due to natural scouring and sloughing and be consumed, in part, by the abalone. Therefore it is not expected there will be any significant loss of macroalgal wrack to the ecosystem. At times 1000's of tonnes of algal wrack washes up onto the beaches in Flinders Bay after storm events.

Based on this, there are no monitoring programs proposed for this element. Though the proponent has developed a 'feed availability index' which is an observation of the amount of algal wrack laying on the seabed that is recorded every time the lease is dived to monitor how much feed is available to the abalone.

Changes to the Sea Floor Due to Shading

The AOI is in 15 metres of water and the habitat modules are positioned on sandy patches between seagrass beds. The proponents will only install habitat modules up to a maximum of 1.2% area of the AOI. As a result there is not expected that shading a small area of sandy bottom will cause a significant environmental impact in the management unit.

Based on this, there are no monitoring programs proposed for this element.

Waste Disposal

All waste generated during stocking of the grow out structures (transport containers etc) or during maintenance of the apparatus will be returned to the mainland for disposal in Augusta.

All circular plastics will be cut to prevent environmental harm should they accidentally be lost overboard at sea.

All plastics with the capacity to float will be cut or otherwise perforated to prevent environmental harm should they accidentally be lost overboard at sea.

All abalone mortalities will similarly be returned to shore for appropriate disposal.

Antibiotics, other Food Additives, and GM Products

The proponents will not use antibiotics, growth hormones, or genetically modified products in the proposed operation. There is therefore no risk associated with this issue.

PROPOSED STUDIES AND INVESTIGATIONS (SCOPE OF WORKS)

The extent of the Scope of Works has largely been outlined in the section "Summary of Potential Environmental Impacts, And Their Significance". These are summarized in table form in Appendix 2.

MANAGEMENT RESPONSES TO ENVIRONMENTAL ISSUES

Management responses to environmental issues are summarized in table form in Appendix 2.

ENVIRONMENTAL FACTORS RELEVANT TO THIS PROPOSAL

Environmental Factor	Relevant Area	Environmental Objective	Potential Impacts	Potential Management
INTEGRATION Biodiversity	-			
Marine Mammals - cetaceans & pinnipeds	Within the AOI	To avoid adverse impact on biological diversity, comprising the different plants and animals and the ecosystems they form, at the levels of genetic diversity, species diversity and ecosystem diversity	Cetacean or pinniped interactions.	Cetacean and pinniped observation formally included in all monitoring programs, under auspices of the ACWA marine mammal interaction plan.
Disease	Flinders Bay.	To avoid adverse impact on biological diversity, comprising the different plants and animals and the ecosystems they form, at the levels of genetic diversity, species diversity and ecosystem diversity	Mass mortalities amongst local abalone stocks with potential for negative ecosystem effects	Develop and implement a biosecurity plan, to the satisfaction of DoF, that the farm operates under.
Invertebrates	Flinders Bay.	To avoid adverse impact on biological diversity, comprising the different plants and animals and the ecosystems they form, at the levels of genetic diversity, species diversity and ecosystem diversity	Changes to invertebrate population	To mitigate any impact on this stock, the grow-out apparatus will be designed to minimize suitable habitat for octopus. Any removal of octopus will be done in accordance with licence conditions set by the Department of Fisheries to ensure sustainable removal of this predator.
Water quality	Beneath and around platforms	To maintain the integrity, ecological functions and	Increased nutrient levels in adjacent waters	See disease section above.

Environmental Factor	Relevant Area	Environmental Objective	Potential Impacts	Potential Management
		environmental values of the seabed and coast.		
Health of Seagrass Community	Seagrass meadows in Flinders Bay.	To maintain the integrity, ecological functions and environmental values of the seabed and coast.	Change in seagrass density, or species composition	Structures are placed on sand.
Macroalgal wrack	Flinders Bay	To maintain the integrity, ecological functions and environmental values of the seabed and coast.	Wrack enters environment from platforms	None. Macroalgal wrack is a natural part of the marine environment of both Flinders Bay, and the AOI.
Changes to sea floor from shading	Flinders Bay	To maintain the integrity, ecological functions and environmental values of the seabed and coast.	Changes to infauna in sea floor under apparatus.	None. AOI comprises 0.0046% of total sandy bottom/seagrass habitat in Flinders Bay.
Waste Management	Flinders Bay	To ensure that emissions do not adversely affect environmental values or the health, welfare and amenity of people and land uses by meeting statutory requirements and acceptable standards	Undefined potential impacts on natural ecosystems.	Develop a waste management protocol with all waste and mortalities to be returned to land for appropriate disposal. All continuous loop plastics to be cut All plastics with the potential to float to be cut.
Antibiotics & Genetically Engineered Material	Flinders Bay	To ensure that emissions do not adversely affect environmental values or the health, welfare and amenity of people and land uses by meeting statutory requirements and acceptable standards	Undefined potential impacts on natural ecosystems.	No use of antibiotics, growth hormones or GE products is intended in this proposal.
Recreational Fishers	Area of platforms	To ensure that existing and planned recreational	Large exclusion zones could alienate fishing	The proponents will supply fixed moorings at the

Environmental Factor	Relevant Area	Environmental Objective	Potential Impacts	Potential Management
		uses are not compromised	grounds from recreational fishers.	perimeter of the AOI for recreational anglers.
Visual Amenity	Around the site	To ensure that aesthetic values are considered and measures are adopted to reduce visual impacts on the landscape as low as reasonably practicable	The intrusion of man-made objects into otherwise natural vistas.	Apparatus are all submerged and therefore invisible.

TABLE 3: Environmental factors.

STUDY TEAM

Proposed Full-time employees

It is envisaged that the site will require a full time manager, and up to 12 full time employees. The majority, if not all of these personnel will have diving qualifications, and all be trained in data collection protocols and species identification.

APPLICABLE LEGISLATION

This proposal will be subject to both Commonwealth and State legislation.

Western Australian Environmental Protection Act 1986 & 1987

This document is submitted to the Western Australian Environmental Protection Authority (EPA) which will exercise its authority under the *Environmental Protection Act 1986 & 1987*.

Part IV the *Environmental Protection Act 1986* provides for an assessment of a proposal following referral from the proponent. This Scoping Document should serve to formally initiate the EPA process and provide sufficient documentation to allow the EPA to determine which level of assessment is placed on this proposed trial.

Western Australian Fisheries Resources Management Act 1994

This proposal will also be subject to *WA Fisheries Resources Management Act 1994* (FRMA) pertaining to the management of wildstock fisheries and aquaculture. Section 3 of the FRMA lists amongst its objectives:

- To conserve fish and to protect their environment;
- To enable the management of fishing, aquaculture and associated industries and aquatic ecotourism;
- To foster the development of commercial and recreational fishing and aquaculture;
- To achieve the optimum economic, social and other benefits from the users of the resources; and
- To enable the allocation of fish resources between users of those resources.

Under Section 92 of this Act the Executive Director may grant aquaculture licences subject to conditions being satisfied that, among other things, the activities to be conducted under licence have been approved by other relevant authorities. In recommending the granting of an aquaculture licence the Executive Director will have regard to Policy Guidelines issued by the Minister under the Act. Aquaculture leases are granted under Section 97 of the Act by the WA Minister for Fisheries. An aquaculture licence issued under the Act is renewed annually subject to the licensee remaining a fit-and-proper person.

It is intended that this document will also form the main part of an application for an Aquaculture Licence.

Commonwealth Environment Protection and Biodiversity Conservation Act 1999

Under the *Commonwealth Environment Protection and Biodiversity Conservation Act*

1999 (EPBC Act) an action requires approval from the Environment Minister if it will have, or is likely, to have a significant impact on a matter of national environmental significance. With relevance to this proposal matters of national environment significance include interactions with:

- Listed threatened species and communities;
- Migratory species protected under international agreements, and
- The Commonwealth Marine Environment.

When an entity proposes to take an action they believe might need approval under the EPBC Act, they must refer the proposal to the Commonwealth Environment Minister. The purpose of the referral stage is to determine whether a proposed action requires approval under the EPBC Act. If the Minister determines that an approval is required, the proposed action will proceed through the assessment and approval process.

It is the proponents evaluation that this project is not likely, to have a significant impact on a matter of national environmental significance.

LEVEL OF ASSESSMENT

The proponents feel that this project is unlikely to cause any significant environmental impact. The proponents already have received approval for and operate a 40ha lease in the area (AL0019). The previous application did not require formal assessment. It is felt that this lease variation application does not need formal assessment by the EPA and that all necessary management requirements could be articulated through license conditions on an aquaculture license issued by the WA DoF under the *WA Fisheries Resources Management Act 1994*.

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PERTH 6000

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Fee Paid	12461.00
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PF&P	
FPC	
MP/REG	
Registered	5/9/2012

Fish Resources Management Act 1994

APPLICATION FOR AN AQUACULTURE LEASE

Sections 97 & Regulation 67

To the Minister for Fisheries

The applicant named in Part A, hereby applies for an Aquaculture Lease to occupy and use the site described in Part B in or upon which aquaculture activities are or will be engaged in pursuant to an Aquaculture licence.

PART A

1. Applicant(s): Ocean Grown Abalone Pty Ltd

ABN:.....ACN: 148 155 042

Business Address: 617 Brindley St, Augusta WA 6290

☎: (08) 9758-1846

Facsimile No: (.....)

Mobile No: (04) 1791-0023

Mailing Address: PO Box 670, Victoria Park, 6797 email: bdadams@netserv.net.au

Emergency Contact Name: Brad Adams Contact No: (04) 1791-0023

If an Aquaculture Licence exists for the site relevant to the lease application:

Aquaculture Licence Number: Not applicable Date of Expiry:

Aquaculture Licensee.....

Note that:

- If the application is for a site that is licensed by a separate entity, written endorsement for the lease from the licensee must be attached, along with details of the arrangements with the existing licensee.

If no Aquaculture Licence exist for the site relevant to the lease application:

Please indicate the intentions in relation to the establishment of an Aquaculture Licence over the site:

- ☐ Have submitted an Aquaculture Licence application in the same name as the applicant for this lease application. Date:.....
- ☐ Intend to submit an Aquaculture Licence application in the same name as this lease application. Intended Date:.....
- ☐ An Aquaculture Licence application has been submitted in the name of a party other than that of the applicant for this lease. Applicant:.....Date:.....
- ☐ An Aquaculture Licence application will be submitted in the name of a party other than that of the applicant for this lease. Applicant:.....Date:.....
- ✓ **Other Have submitted an application for a variation of an Authorisation for the proposed lease areas**

Note that:

- If the application is for a site for which a separate entity is applying for an aquaculture licence, written endorsement of the respective applicants must be attached, along with details of the arrangements with the existing licensee.

PART B

2. Location of Site:

Onshore ☐

Offshore ✓

Description of the site:

Registered Proprietor(s) or persons holding interests of whatever nature over site (and describe those interests)

Western Australian waters: Department of Fisheries, EPA, DEC, and DoT all have forms of jurisdiction in the area.

3. *List other persons you are aware of with an interest in or over the site and the nature of that interest (eg a petroleum or native title interest)*

The applicant is not aware of other interests in or over the site

4. *Details of Guarantor for the Lease*

.....

.....

OR, elect for security matters to be dealt with by way of bond? YES ✓

6. Scale Plan attached

YES ✓

NO ☐

PART C

7. Lease Term, Species and Method of Aquaculture

7.1 Lease Term Requested: 21 years, plus 21 years

7.2 Aquaculture Species: Greenlip Abalone (*Haliotis laevis*)

7.3 Proposed culture technique: The proposal is for adult abalone to be collected from the wild and induced to spawn at a land based hatchery. Once the resulting juveniles have attained the desired size (40-50mm) the abalone will be transported to the habitat modules in Flinders Bay. The overall increase in abalone size is estimated to be from 40-50mm up to 120mm. This process should take approximately 18 months in the hatchery and three years in the ocean for grow out. The abalone will feed on naturally occurring, drift macroalgae from within Flinders Bay. When the abalone have achieved harvest size, they will be collected in the same manner as abalone are from the wild. After which they will be transported to land based facilities for processing. The hatchery has previously been approved by DoF and all abalone produced will be subject to health certification.

7.4 Purpose of use: Abalone aquaculture

Is there any information contained in this application which you consider to be confidential?

YES ☒

NO ☐

If yes, please specify:

Any financial information, which includes, but not limited, to the business plan.

8. Consent

In submitting this application I/We consent to the provision of this information to the fishing, aquaculture and pearling industry and/or community representative organisations to assist in consideration of any impact this development and / or aquaculture lease may pose.

9. Applicant's Declaration

I/We declare that the statements made in this Application and the Additional Information Sheet to support the Application for an Aquaculture Lease, and any other attachments submitted with this Application are true and correct.

10. Execution

Please tick the relevant box relating to the applicant and complete the particulars below:

- ☐ Individual/Partnership
☒ Corporation (incorporated under company legislation or under the *Corporations Act*)
☐ Appointed an Attorney for signing

10.1 Individual persons/partnership

Signature:.....

Date:.....

Signature:.....

Date:.....

Signature:.....

Date:.....

Signature:.....

Date:.....

10.2 Company or Body Corporate

The application must be executed under the seal of the company/body corporate or otherwise in accordance with the company's/body corporate's constitution.

.....
.....

In the presence of:

Date:.....



10.3 Power of Attorney

Signed by :....., as Attorney for:....., under Power of Attorney dated:,with register number:, who confirms that the Power of Attorney has not been revoked.

Copy of Power of Attorney Attached

YES ☐

Attachment 1