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12.0 CONCLUSIONS & RECOMMENDATIONS

Social

Residents of Bowen Shire appear supportive of aquaculture that will contribute to the economy of the region without adversely impacting on the environment or the recreational values of the region. The resident population of Bowen Shire may increase by around 140 individuals as a result of direct employment at Guthalungra.

An increase in the population of this magnitude over four to five years is unlikely to put undue pressure on the infrastructure and services of Bowen Shire. The Guthalungra prawn farm may help to slow the trend towards an older overall population in Bowen however the impacts will be slight and transient as this is an overriding global trend.

It is likely that the number residents with vocational, graduate and post graduate qualifications will increase in the Shire. It is not envisaged that the Guthalungra prawn farm will not put additional pressure on local services or infrastructure however the stabilisation in population and workforce may mean that service provision does not contract.

Around 10 new households per year will be established in Bowen over the development phase of the project. This is unlikely to put undue pressure on housing in the Shire. The Guthalungra project will not have negative impacts on adjacent or neighbouring land users, commercial or recreational resource users or local industries.

Cultural

Pacific Reef have shown a commitment to work with the Traditional Owners. The Guthalungra project provides an excellent opportunity to continue this close association.

Economic

The Guthalungra prawn farm will be a profitable operation. However viability is dependent on approval being granted for the full complement of ponds. The cost of the intake and discharge structures is relatively high and to ensure viability production capacity of 259 ha of production ponds is essential. It is highly likely that the Guthalungra prawn farm will help to improve the economic base and the social stability of the shire.

The Guthalungra prawn farm will be responsible for the direct employment of around 88 people (FTE'S), 70 full time and 40 part time. Flow on business activity from the operation (at full operation) may generate a further 30 jobs to give a total of around 118.

It is envisaged that most of the economic benefits will accrue to the Bowen Shire region. The direct business turnover (output) generated by the Guthalungra is estimated at $29 million. Flow-ons to other sectors may add another $14.3 million to regional business income (total $43.3 million). The sectors most likely to be affected include manufacturing, trade, business and property services and finance sectors.

Personal income of $2.8 million will be earned by Guthalungra employees and a further $1.6 million by wage and salary earners in other sectors or aquaculture businesses. It is anticipated that the demand from Guthalungra for local labour, goods and services will help to offset the contraction of other local industry and help to alleviate the range of economic and social pressures associated with the declining regional economy.

The cost of construction of Guthalungra is around $35 million. Most of this will be spent locally and regionally. Guthalungra will provide a catalyst for further investment in aquaculture in the region and will have a positive impact on the character of the local economy.

Consultation

The need for jobs and job security was raised as extremely important and the need to stem the dwindling economic base of the region a priority. Community residents stressed the need to address the issues of declining populations and job prospects for the younger generations.

Unacceptable environmental impacts, removal of access, or negative impacts on visual amenity that would impinge on high use recreational areas would not be supported. However support for achieving a better economic return from agricultural land was high and locals considered prawn farming as an opportunity for this to occur.

There is a level of caution and suspicion regarding aquaculture within the local community, this stems from the public float and subsequent failure of an aquaculture venture situated in the shire. . Environmental representatives and recreational users particularly fishermen indicated that the use of a pipeline to discharge into open offshore waters was preferable to discharging into tidal creeks, estuaries and inshore areas

Operation of the Farm

Pacific Reef will put in place a production and treatment system that will improve on industry best practice. The potential for the transfer of endemic or exotic diseases is considered low. The risk of stock to escape is considered low.

Amenity

The Guthalungra proposal will not be visible form the Elliot River or Abbot Bay. Visibility of the farm from Coventry Road and Saltworks Road will be severely restricted as a result of the planting and revegetation works proposed. Legitimate access through the operation will not be restricted.

Land Use

The proposed site is cleared and is currently used for cattle grazing. No negative impact on the viability of nearby and neighbouring properties is expected.

Soils

The soils of the area are geotechnically suitable for prawn farm development. Suitable construction techniques will ensure seepage from the ponds will be minimised. Any disturbance of acid sulphate soils will be managed on site. Earthworks calculation indicates that is enough soil on site to construct the proposed 259 ha of grow out ponds, treatment ponds and a seawater storage pond.

Impacts on HAT

The site is above Highest Astronomical Tide except for a small eroded area caused by cattle. This area will be rehabilitated during construction.

Flooding and Storm Surge

Flooding and storm surge may occur. All facilities are designed to cater for these events.

Water and Sewage

The site will have adequate potable freshwater and appropriately designed wastewater treatment facilities.

Traffic and Operational Noise

A workforce of around 100 people will be required. Traffic requirements can be met by the existing road infrastructure. The low level of noise generated on site should meet Queensland Environment Protection regulations.

Pipeline Construction

Water to the site will be pumped from Abbot Bay. The pipeline route will cross a salt pan, traverse a freshwater wetland and a secondary and primary dune before entering Abbot Bay. The pipeline will be buried. The ecological footprint post construction will be small. A track will traverse the wetland; this track will be designed so that the hydrology of the wetland is maintained. The wetland has already been heavily modified by two bunds on private property at both ends of the wetland. The pump station will sit behind the primary dune and meets the erosion requirements of the Beach Protection Authority.

Impacts on Terrestrial and Marine Communities

The vegetation on site and the pipeline route was found to have no *endangered* Regional Ecosystems (RE). Two *of concern* Regional Ecosystems occur within the study area:

- *Grevillea striata* open woodland is mapped for the main development area and adjacent areas, and the survey confirmed the presence of this RE although it is not as widely distributed as suggested by the EPA RE mapping; and
- *Ipomoea pes-caprae* and *Spinifex sericeus* grassland ± *Casuarina equisetifolia* occurs at the seaward extent of the proposed pipeline route where the pipeline enters Abbot Bay.

None of the habitat areas occurring within the main development area are of particular ecological significance given their disturbed condition and abundance elsewhere in the study region. The wetlands occurring within the main development area (farm dams, hypersaline flats) are of limited spatial extent and are not expected to be of particular ecological significance, particularly given their abundance elsewhere in the study region.

Two ecologically significant areas occur along the eastern section of the pipeline route:

- The band of habitat types occurring on the dune complex fringing Abbot Bay; and
- The freshwater wetlands established on marine deposits.

The band of habitat types occurring on the dune complex fringing Abbot Bay provide a diversity of habitat opportunities for fauna including shrubby woodland, Melaleuca wetland, grassy ephemeral wetland, and foredune vegetation. While these vegetation types are not uncommon in the study region, the tract traversed by the pipeline route extends for a considerable distance northwards to Cape Upstart with little disturbance, and is of considerable extent. This corridor of dunal habitats also links the terrestrial habitats of Cape Upstart with the riparian vegetation of the Elliot River, and the small National Park patch located to the north of Lot 370. These habitats are of local significance.

The freshwater wetlands established on marine deposits are not remnant habitat features but provide extensive foraging habitat for migratory waders. Migratory shorebirds/waders such as godwits, sandpipers, plovers, snipes and egrets utilise the saltmarsh and wetland areas the proposed pipeline route will traverse. This wetland is identified as Southern Upstart Bay wetland (QLD009) listed on the directory of important wetlands in Australia (Environment Australia, 2002a).

A total of five (5) migratory, wetland or marine terrestrial fauna species listed under the EPBC Act are known to utilise the study area. An additional twenty-three (23) species are at least moderately likely to occur in the study area. Twelve (12) of these species are listed on both the Japan-Australia Migratory Bird Agreement (JAMBA) and the China-Australia Migratory Bird Agreement (CAMBA), another three (3) are JAMBA only listed, and an extra seven (7) are CAMBA only listed.

None of these species are anticipated to be significantly affected by the proposal since:

- Habitats immediately adjacent to the main development area and proposed pipeline route will not be effected;
- Only relatively small areas of habitat will be disturbed by the development, and extensive areas of similar habitat occur locally and regionally; and
- The pipeline will be laid in the winter months during the dry season. Construction will only occur over a 12 - 16 week period.
- Migratory birds will not be impacted by construction works as they do not arrive in Australia until the wet season.
- The pipeline route through the wetland areas will be rehabilitated post construction.

Prawn Farm Discharge and Impacts

The proposed production of prawns will be in the order of 1600 tonnes per annum to be sold either domestically or internationally.

The prawn farm discharge will be treated using sedimentation and settlement ponds covering approximately 50 ha. It is predicted that the daily discharge rate of Total Nitrogen will be between 0.5 to 0.8 kg/ha/day, this will be achieved with a Feed Conversion Ratio of 1:1.8; and treatment efficiency of up to 50%;

Seagrass is present in Abbot Bay and is used by dugong and turtles as a food source. Conservative modelling of discharge rates and total nitrogen concentrations in Abbot Bay indicated less than 5% of the seagrass area identified in Abbot Bay may potentially be impacted by the discharge. According to ESD principles and a risk based approach, this may represent a minor change in seagrass community. There is also the possibility that seagrass growth may be encouraged by the nutrient content in the discharge. The impacts on dugong and turtle grazing of seagrasses is considered to be minor.

An ongoing monitoring program developed between the proponent and the regulatory agencies is required to assess impacts on the receiving environment in Abbot Bay.

No negative impacts on fishery stocks are envisaged from this development.

Under the Environment Protection and Biodiversity Conservation Act, matters of national environmental significance have been addressed.

These include World Heritage properties, listed threatened species and communities, migratory species protected under international agreements, the commonwealth marine environment.

The impacts on the World Heritage Values of the Great Barrier Reef are considered to be acceptable based upon the studies undertaken and outcomes derived.