



**SUBMISSION:**  
**Inquiry into opportunities for expanding the  
Aquaculture Industry in Northern Australia**

**11 May 2015**

## BACKGROUND

### 1. Background

#### 1.1 The Pearl Producers Association

The Pearl Producers Association (PPA) is the peak industry representative body for the *Pinctada maxima* pearling industry licensees regulated under the Western Australian Pearling Act (1990). PPA membership includes 100% of all pearl licensees, covering all licenses issued under the legislation that operate within the North-west Bioregion.

Over the past 25 years, since its establishment, the PPA has been promoting the economic, social and environmental importance of the Australian pearling industry to key decision makers and the wider community; formulating responses to issues that affect its members, and assisting with the provision of strategic direction in support of Australian South Sea Pearl Producers.

The PPA is dedicated to ensuring the sustainable future and the conservation of the eco-system based industries like commercial pearling industry that provides important social and economic benefits for all Australians, and has continually demonstrated its innovation, adaptability and its environmental credentials.

#### 1.2 The *Pinctada maxima* Fishery

The *P. maxima* resource primarily located within the Eighty Mile Beach marine reserve is the backbone of the Australian pearling industry and contains the principal fishing grounds for the iconic (wild stock) silver lipped (*P. maxima*) pearl oyster that produces the Australian South Sea pearl (see Fig 1 below). The region is the last remaining sustainable, commercially viable wild stock of pearl oysters in the world (the Western Australian Pearl Oyster Fishery).

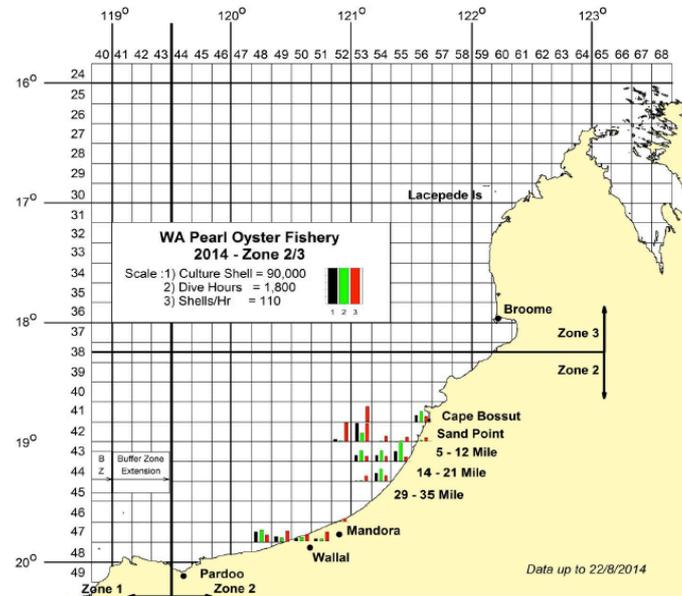


Figure 1. Spatial distribution of catch, effort and catch rates in 2014 fishery for *Pinctada maxima* in Zone 2 and Zone 3.

Today the *P. maxima* fishing grounds provide the most efficient and cost effective supply of wildstock *P. maxima* pearl oysters anywhere around the world.

It is important to note however that the wild fishable stock is sustainably managed and as such subject to a Total Allowable Catch (TAC), which is set and applied by the Department of Fisheries Western Australian (DoFWA).

These harvested shells are also supplemented by a sophisticated hatchery program, which was developed to increase grow-out competence within the Western Australian pearling industry. This hatchery/aquacultural program is subject to the WA Pearl Oyster Hatchery Policy (MPG 17), which administers production to reflect market demand.

### 1.3 Pearl Production in Australia

The Australian pearling industry has a global reputation for producing, from sustainably managed wild caught oysters and through an environmentally benign culturing process, Australian South Sea pearls that are of the highest quality and rarity in the world. Not only does the pearl oyster that is reared in Australia (*P. maxima*) secrete higher quantities of pearl making pallial fluid (the natural substance which contains the constituent components of nacre), the pearl is grown in nutrient rich tropical waters of NW Australia, for at least two years, under reliable husbandry systems, from wild oysters that are hand harvested from the world's last commercial *Pinctada maxima* oyster fishery, which is located at pristine Eighty Mile Beach, just to the South of the Kimberley region of Western Australia. Cultured pearls that are grown in other parts of the world are not able to combine all these variables to produce pearls of comparable quality or rarity.

At the outset it is important to highlight that the Australian pearling industry:

- Requires pristine environmental conditions for the successful production of pearls;
- Is proven to be an industry with benign impacts on the environment<sup>1</sup>;
- Has a long history of responsible and beneficial environmental practices and
- Requires close integration between fishing activities and preliminary culture activities at various stages of the process of producing pearls.

Although pearl culturing techniques are practiced outside Australia in Indonesia, Philippines, Malaysia and Thailand, those countries (unlike Australia) are only able to rely on hatchery-bred oysters and so the same pearl quality as Australia is not readily achievable. The quality, limited availability and rarity of the Australian South Sea pearl, results in Australian pearls being of the highest quality and commanding the highest prices in the world.

However the production of superior pearls is becoming increasingly difficult, in a global market context where low cost competitors, through consistent increase in hatchery production and aquaculture are producing through sheer numbers more and more pearls of a quality that are able to compete with Australian South Sea Pearls.

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<sup>1</sup> J.E. Jelbart, *et al.*, (2011) An investigation of benthic sediments and macrofauna within pearl farms of Western Australia. *Aquaculture*. Vol 319: 466-478 (October 2011) <http://dx.doi.org/10.1016/j.aquaculture.2011.07.011>

## **PPA SUBMISSIONS**

### **2. Introduction**

#### **2.1 Aquaculture Inquiry Terms of Reference**

The PPA acknowledges that the Joint Select Committee on Northern Australia's terms of reference for the inquiry into opportunities for expanding the Aquaculture Industry in Northern Australia are limited the following broad topics:

- the ability to commercialise new innovation;
- develop[ping] new aquaculture projects and products; and
- seek[ing] out new markets.

#### **2.2 PPA Submissions**

The PPA appreciates the opportunity be consulted and to have had the opportunity to be heard by the Joint Select Committee.

The PPA submission will incorporate the above terms of reference into discussion rather than deal with each line of inquiry separately and will cover two main issues:

- The development of Australia's seafood credentials to become a global player & North Australia's place in this vision
- Maintaining Australia's extant aquaculture industries which includes its position as the home of the World's superior pearls

### **3. Australia: A Quality Seafood Production Powerhouse**

#### **3.1 Developing Australia's seafood production and seafood credentials**

Seafood is the World's most traded product. Unlike many other extractive industries, Aquaculture, when well managed, will keep providing and providing.

Australia is 'girt by sea' and arguably having one of the longest coastlines in the world, coupled with a small urban based population and pristine variable marine environmental conditions, Australia has 'untold' capacity to develop marine areas in order to produce more high quality seafood, and indeed become an Aquaculture powerhouse.

Of these areas that may be developed for Aquaculture, Northern Australia (particularly the Kimberley and the NT) is an area with plenty of development potential:

- The area is lightly populated and characterised by little marine development (minimal conflict issues)
- Many of the northern Australian waterways are sheltered and punctuated with islands and inlets suitable for aquaculture operations
- Years of pearling in the area indicate that the waters of North-Western Australia have high productivity. The waters are also characterized by mega-tidal fluctuations mean that carrying capacity is high and likelihood of reduction of ecosystem structure and function is low.
- There are a large number of native/endemic species that have the capacity to be developed in an aquacultural context

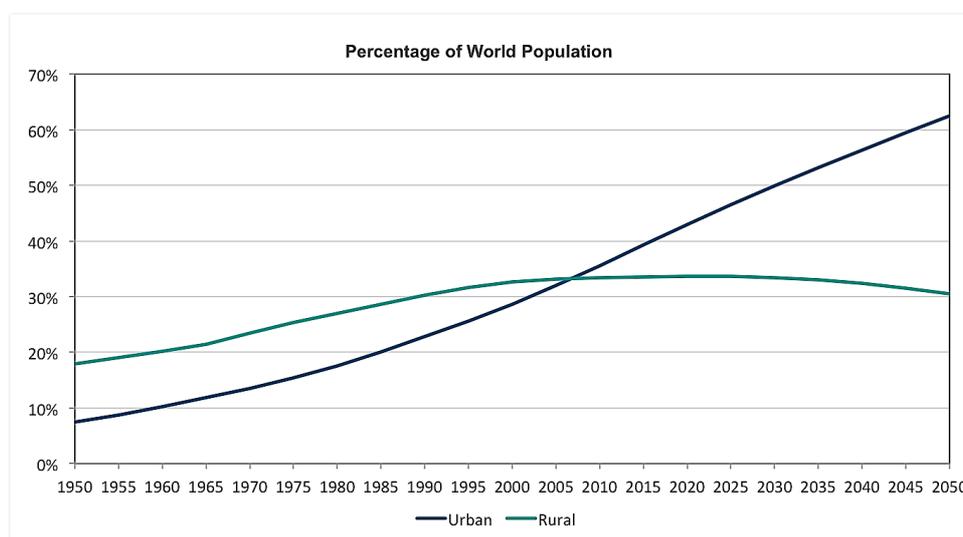
In addition to the potential of Northern Australia as an area capable of increasing its aquacultural capacity, the global demand for high quality seafood continues to grow,

especially in Asia. Northern Australia is a gateway to Asia providing local products with proximity to markets.

A 'back of an envelope' impact assessment, based on rising global populations and raising demand for protein and associated increased aquaculture production would suggest increased environmental pressure

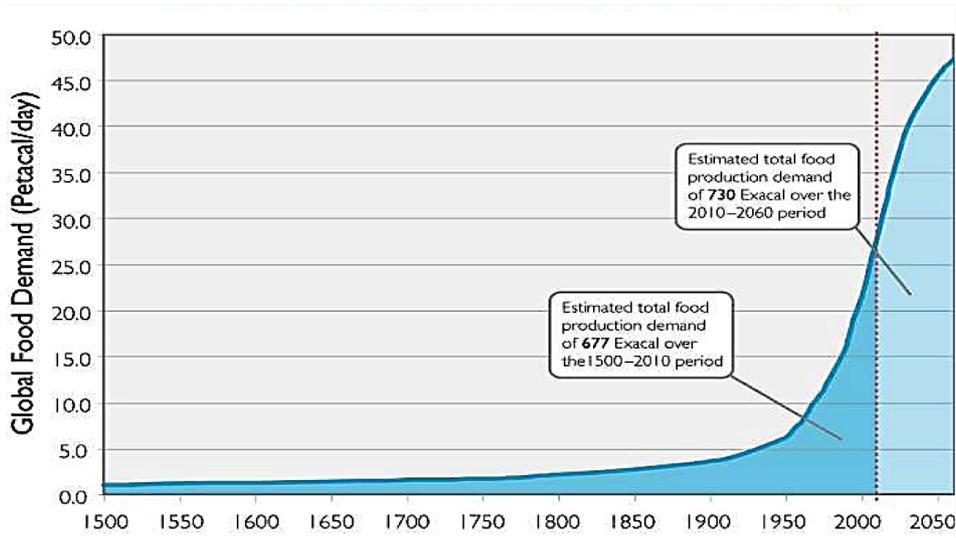
Yet the same assessment might also note that Australia is in a unique position in that it has an environmental management framework that is driven by principles of sustainability, environmental responsibility and good governance. What is more this understanding that Australia has of the interface between the environment that has the capacity to produce and the sustainable production that embraces and retains this capacity is a point of difference that Australian aquaculture may leverage in a global market context.

According to the World Bank's *Fish to 2030: Prospects for Fisheries and Aquaculture*<sup>2</sup> Report, this growing demand represents a "major opportunity for [developing] countries that are prepared to invest in better fisheries management and environmentally sustainable aquaculture."



And this increasingly urbanised population is hungry:

<sup>2</sup> World Bank. 2013. *Fish to 2030 : prospects for fisheries and aquaculture*. Agriculture and environmental services discussion paper ; no. 3. Washington DC ; World Bank Group. <http://documents.worldbank.org/curated/en/2013/12/18882045/fish-2030-prospects-fisheries-aquaculture>.



The *Fish to 2030* report also predicts that as sources from wild capture fisheries approach their maximum take, aquaculture will increasingly satisfy the growing global appetite for fish and seafood.

What is more this hungry growing urban population (which is wealthier and more outward looking than ever before) is increasingly Asian.

According to the *Fish to 2030* report it is estimated that by 2030:

- 62% of the seafood we eat will be farm-raised to meet growing demand from regions such as Asia, where roughly 70% of fish will be consumed. [China will produce 37% of the world’s fish, while consuming 38% of world’s food fish].
- The increased production of aquacultural seafood that is affordable and rich in nutrition will help improve food security and livelihoods for the world’s poorest.
- The rise in seafood demand gives countries the opportunity to expand and improve responsible fish and shellfish farming practices.

But moreover from an Austral-centric point of view the increasing urban demographic and the increasing affluence of Asia, coupled with Asia’s proximity to North Australia and trade ties makes Aquaculture an exciting prospect for Australia’s economic future.

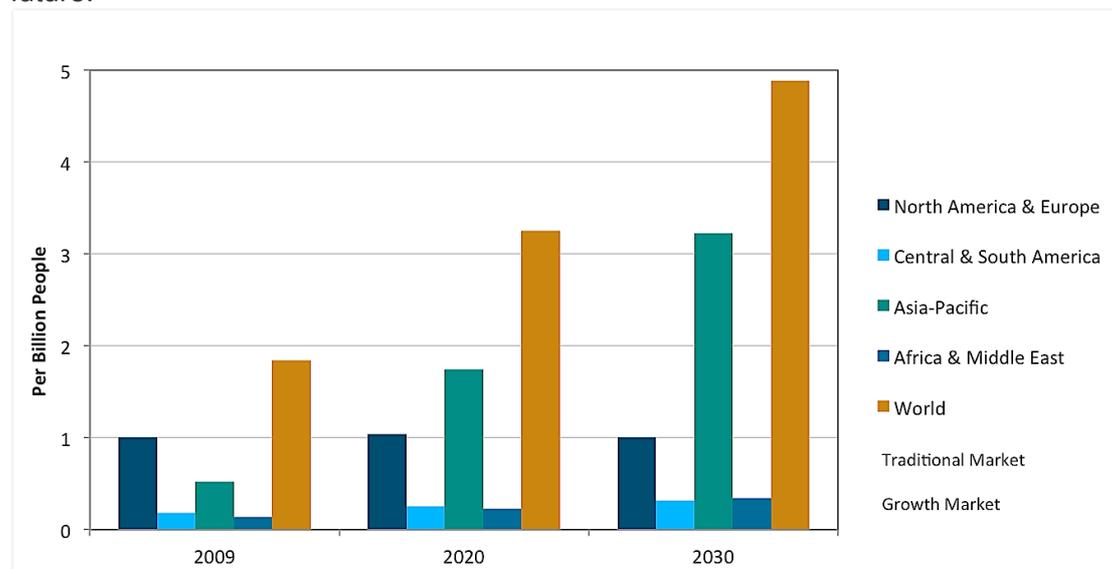


Figure 3: depicting market growth by global region, which illustrates and indicative flattening of traditional markets and by contrast, pronounced estimated growth coming from the Asia-Pacific region driving global demand.

According to Jim Anderson, Bank Advisor on Fisheries, Aquaculture and Oceans and co-author of the *Fish to 2030* report:

*“Aquaculture will be an essential part of the solution to global food security. We expect the aquaculture industry to improve its practices in line with expectations from the market for sustainable and responsibly produced seafood.”*

As noted above Australia is in a unique position in that it has proximity to markets, responsible environmental practice and other structures in place to develop an industry that is predicted to grow exponentially. It is also true that while some areas of Australia (nominally Tasmania and South Australia) are demonstrably developing their aquacultural potential, other areas are not. Northern Australia for the most part is one of these areas.

The PPA supports the submissions from Clipper Pearls and ACWA which demonstrate the need for the development of infrastructure and logistics to foster and support aquacultural development. It would seem that without it, any development of an area’s aquaculture potential will not take root.

### 3.2 North Australia’s place in a vision of an Australian Seafood Powerhouse: Infrastructure, logistics and institutions

In order to realise the potential of Northern Australian aquaculture and undertake developmental initiatives like support for the ‘commercialisation of aquacultural innovation’, support for the ‘development of new aquaculture products’ and ‘aquaculture industry expansion’ it is necessary to facilitate the development of other ancillary activities that are concomitant and ancillary to aquaculture. In a North Australian context this includes the provision for and the development of infrastructure that supports aquaculture, support for extant enabling institutions like the National Aquaculture Council (NAC) and local institutions and the development of a suite of enabling (rather than disabling) statutory, regulatory and policy tools that work as incentives rather than disincentives.

Currently the Northern Australian Area (particularly the Kimberley) lacks significant infrastructure, institutions and policy frameworks that support or incentivise Aquaculture:

- A lack of roads and paved roads (e.g. The Dampier Peninsula has one road that heads northward [to Cape Leveque]. Most of this is not sealed, and is limited to 4WD vehicles) which presents logistical challenges.
- Logistical and supply chain challenges all but preclude any expansion and increased production; notwithstanding the lack of roads and sealed roads, warehousing, cool-stores and other logistical facilities for storage and cartage are almost non-existent. Transport by sea (which is not a favourable cost effective option given the size of the Greater Kimberley region) is an almost insurmountable logistical challenge given requisite steaming distances and the lack of space at varying ports (including Broome).
- Extant aquaculture facilities are underutilised and not supported (e.g. the Bardi Jawi Aquaculture facility at One Arm Point). Independent scientific and technical facilities such as the Kimberley Marine Research Station are underutilised). Aquaculture facilities in built up areas where one would expect a higher rate of use, such as those in Broome are decrepit and unused (e.g. Kimberley Training Institute is yet to attract real industry interest in their Broome Aquaculture Centre (BAC) facility located at the Broome Aquaculture Development Zone).
- A lack of electricity and energy infrastructure and fresh water infrastructure presents significant challenges in remote areas.
- Cost of operating in remote areas in terms of IT development and communications is high due to a lack of communications infrastructure.

- Restrictions on access to marine space that provides for aquaculture is a challenge with many aquaculture potential areas zoned as marine reserves (where the rules and policy around the establishment of new leases is somewhat unclear) or are of interest by oil and gas, and mining groups.
- A lack of infrastructure and incentives presents significant obstacles when it comes to attracting a competent and consistent labour force that includes skilled labour, technical labour and trainees.
- A lack of incentives for workers to become skilled in aquaculture (there are a lack of incentives to undertake aquaculture training, this includes a lack of training opportunities for local Indigenous). As such there is heavy reliance on overseas workers, to meet skills shortages.

The list of the “there are nots” is substantial, and these shortcomings even include extant commonwealth institutions like the National Aquaculture Council (NAC) that already provides aquaculture with the provision of necessary services like holding licences for minor use (agvet) chemicals for aquaculture, and the representation of aquaculture at Commonwealth fora, are unsupported by the Commonwealth Government and are on the brink of folding.

#### 4. Australian South Sea Pearls

##### 4.1 Maintaining Australia’s position as the home of the World’s superior pearls

The North Western region of Australia has been home to aquaculture for over half a century, with the culturing of *Pinctada maxima* oysters for the production of Australian South Sea Pearls.

While initially this culturing was restricted to ‘growing out’ wild harvested oysters, innovative husbandry techniques coupled with hatchery technology and innovation saw aquaculture programs that could optimise pearl production.

These aquacultural innovations coupled with the unique conditions of the Kimberley enabled Australian pearl producers to produce pearls that were superior in size, shape and quality to pearls produced by Australia’s competitors in the Asia-Pacific region.

Traditionally Australian Pearls have enjoyed a significant competitive advantage vis-à-vis Pearls produced from Australia’s Asia-Pacific low-cost competitors due primarily to:

- Superior South Sea Pearls due to innovative husbandry and aquaculture in addition to natural Australian environmental attributes,
- Consistent and sustainable production from wild harvestable *P. maxima* stocks, and environmental conditions that prompt healthy growth,
- The combination of the above two points that have resulted in pearls retaining an Australia “appellation.”

Unfortunately over the last few years the Australian Pearling Industry has been beset with a number of external challenges that cumulatively have adversely impacted Australian pearl production, these include the global financial crisis (GFC), marine pest issues, high fuel prices and other different factors. With Seismic activity from Oil and Gas companies providing future risks. With Seismic survey proposals impinging on the last wild *P. maxima* fishery in the world.

**Table 1: Estimated Australian Pearl Export Figures**

Year	Estimated Value (USD)
2007	\$90 million

2008	\$71 million
2009	\$67.5 million
2010	\$78 million
2011	\$73 million
2012	\$62 million
2013	\$48 million

*\* estimates are based on voluntary fisher returns  
Source: DoFWA State of the Fisheries*

Precise estimates of the value of Australian cultured pearls and by-products are difficult to achieve, owing to the variable time lags that occur between harvesting and sale. However the Western Australian Department of Fisheries have noted a downturn in the annual estimated values of pearls. It is worth noting that prior to the GFC the Australian Pearling Industry turned over in excess of \$200 million per annum.

As established above Australia produces the world's superior quality pearls, also established above is that while Australia still retains this superior status, Australia's low cost competitors who are not hindered high labour costs, green/red tape and high operating costs, are able to produce lots and lots of pearls.

In order for Australia to continue to be the home of the world's superior pearls Australia's competitive advantages have to be embraced and invested in. In addition to the factors and proposals listed above, it is important that any inquiry into the North Australian aquacultural expansion looks into existing industries such as pearling, in addition to looking into the development of new ones.

It is important to keep in mind that what is written above about the lack of requisite infrastructure and the development of conditions to promote growth like enabling management frameworks, public private partnerships and investment are equally applicable to extant industries like pearling.

The Western Australian Government has shown considerable initiative, with an updated Aquatic Resources Management statute currently before the WA Legislature that will streamline management process, promote a culture of collaboration and provide provision for resources to be aligned with a tailored strategy and management plan. They have also invested in the demonstration of sustainability credentials of aquatic resource industries with independent third party certification programs like the Marine Stewardship Council (MSC) for fisheries and Aquaculture Stewardship Council (ASC) for aquaculture.

The PPA looks also to the Commonwealth Government to contribute to the streamlining of regulatory process; investment in the development of new markets; investment in science and research; the development of public/private partnerships that drive agreed strategic outcomes in order to deliver to market common and collaborative messaging; and investment in the people of Northern Australia who had they the opportunity could contribute to the development and the expansion of the Northern Australian aquaculture sector.

## **5. Summary and Proposals**

The PPA appreciates the opportunity to make a submission to the Joint Select Committee on Northern Australia on expanding the Aquaculture Industry in Northern

Australia; and asks that our following submissions be provided with due consideration.

For the North-Western region of Australia to receive the full benefit of any expansion of the Aquaculture Industry, the PPA asks that some of the following be considered as possible solutions:

- That due recognition is given to the unique placement of Northern Australia as a gateway to Asia, and its potential to deliver high quality aquacultural products that the world, (and in particular Asia) increasingly needs.
- That recognition and consideration is given to the fact that in spite of this unique placement and potential, much of Northern Australia is remote, and as such lacks basic infrastructure that includes, roads, energy and fresh water.
- The remoteness of much of Northern Australia presents considerable logistical challenges; these challenges include inaccessibility by road, significant steaming distances by sea, as well as a lack of warehousing, cool stores and port facilities. We ask that strategies and investment drive solutions to these logistical challenges that take into account local 'know-how' and 'can-do'.
- We ask that strategies are laid down that optimize the use and productivity of extant aquaculture facilities, research institutions and education centres. It is important to understand what they do well and what they need to do better, so that they can be supported and succeed.
- In addition to any consideration of new and developing aquacultural industries, the Inquiry must also turn its mind to established industries such as pearling, who have provided considerable infrastructure, 'know-how' and 'can-do'; but who as a result of a number of factors such as the GFC are currently demonstrating receding production and export figures (when compared to Australia's low-cost global competitors).
- That due recognition and support is given to extant institutions and organisations like the NAC, which already provide valuable services to aquaculture in a national context.
- That areas and regions of aquaculture potential are identified (in consultation with local communities and local Government) and that access to this 'marine space' is expressly provided for. The PPA notes that currently many potential areas are zoned as marine reserves (where the rules and policy around the establishment of new leases is somewhat unclear) or are of interest by oil and gas, and mining groups.
- In addition to the provision of marine 'space', identify any concomitant and ancillary activities and the infrastructure these activities require, so that they may be provided for in order to facilitate aquaculture development.
- Harness the power of local 'know-how', local 'can-do', local innovations and local facilities through public/private partnerships (e.g. these could include the support of local institutions for research on threats to local habitats and ecosystems from marine pests and diseases or support local organisations with marketing assistance in locating new markets and maintaining current ones [an example of this is Western Australia's Marine Stewardship Council Certification program]).
- Recognise that although Public/Private partnerships and direct investment could be effective vehicles that deliver '*big picture*' initiatives, these same institutions and funding mechanisms could just as readily assist in driving those *small but strategic* initiatives that are just as important in the long run.
- That in addition to Australia's advantages being taken into account in the policy building process, ensure due consideration and resource is given to the advantages enjoyed Australia's competitors. Understanding what our competitors do could be instrumental in the development of a Northern Australian Aquaculture strategy and can only benefit Australia.
- In addition to the provision of funding initiatives and incentives that provide for investment in aquaculture in the Northern Region, develop and promote an

'enabling' management framework that provides the requisite 'go forward', rather than more lethargic statutory and regulatory approval processes.

- Most of all ensure that any aquacultural expansion is people driven. That local and regional know-how and can-do is pro-actively embraced and supported. Reflection on the rich history of pearl producers in Northern Australia, places the Pearl Producers Association in a unique position to see what a few driven people can accomplish.

The PPA is happy to appear before the committee to speak to this submission.

Yours sincerely,

Aaron Irving  
*Executive Officer*