



## Joint Select Committee on Northern Australia Inquiry into Opportunities for Expanding the Aquaculture Industry in Northern Australia Seafarms Group Ltd Submission

### Key messages

To be successful Australian aquaculture needs to:

1. 'Industrialise' known processes and technology
2. Pursue and capture significant science upside using clear adoption pathways
3. Understand that size matters and projects that occupy a global production cost profile in the bottom quartile of lowest cost producers will succeed
4. Deploy an operational approach more akin to food manufacturing than farming
5. Embrace its clean sustainable biosecure credentials.

### Seafarms Group

Seafarms Group Ltd is an ASX listed company (ASX:SFG) and is Australia's largest producer of farmed prawns producing 1,100 tonnes in 2015, forecast to increase to 1500 tonnes in 2015.

The company is a vertically integrated grower, processor and wholesaler with its own hatchery & breeding centre, 160 ha of grow-out ponds at Cardwell and Ingham with on-site processing at Cardwell.

The company grows both black tiger prawns (*Peneaus monodon*) and banana prawns (*Fenneropenaeus merguensis*).

In retail outlets and supermarkets our product is the well-known Crystal Bay® Prawns brand. These are Australia's only branded prawns.

Seafarms strategy is to develop for Australia a world-scale prawn export industry.

### Strategic Context for Australia's Northern Aquaculture

Global population is expected to increase from 7 billion today to 9 billion by 2050. Over that time the world's total food requirement is expected to increase by 70% in value due to increased aggregate food consumption and an increased share of animal protein due to the expansion of the middle class, particularly in Asia (Figure 1). The middle class is forecast to increase to 4.5 billion people by 2030.

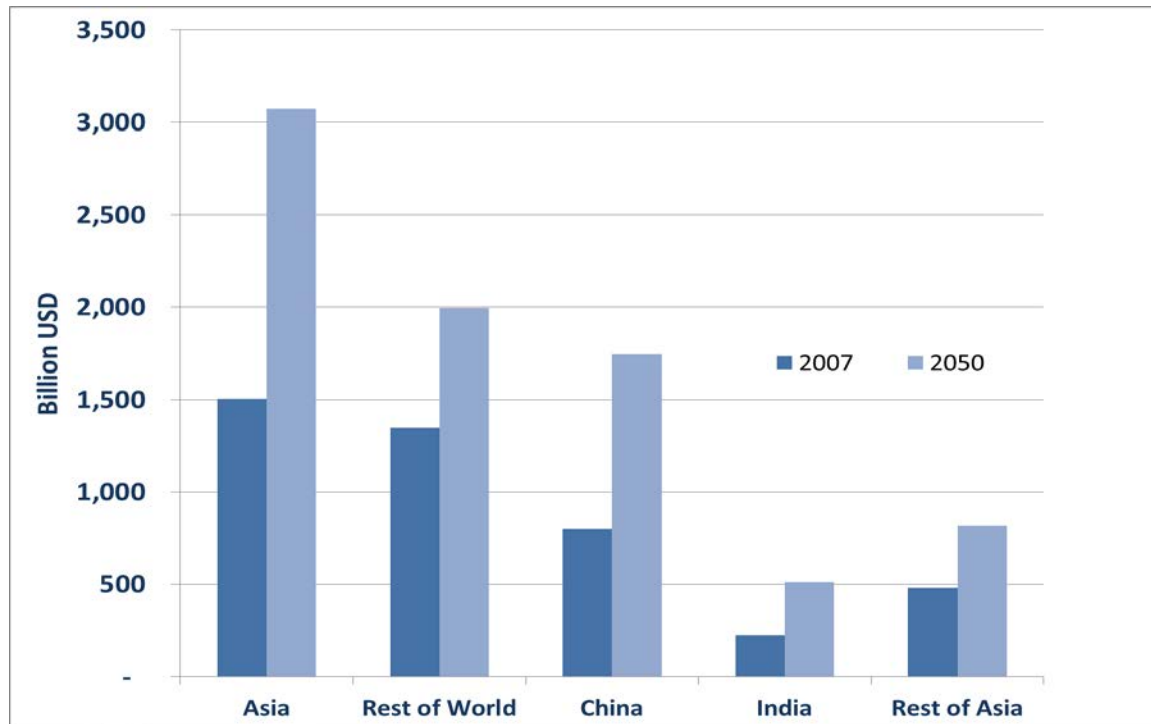
Fish supply from wild fisheries has reached its peak and many fisheries are already over-fished (Figure 2). This and the cost competitiveness of aquaculture compared to producing other sources of animal protein means large scale aquaculture will play an increasingly important role in meeting the rising demand for animal protein.

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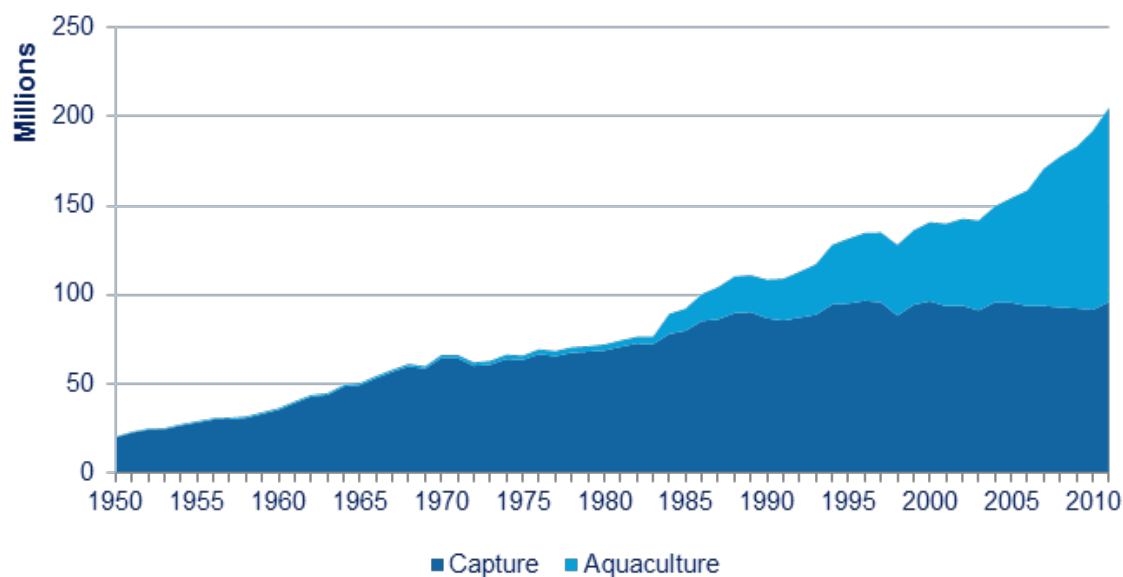
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The growing consumption of seafood in China and the rise in aquaculture production is a leading indicator of the significant role that aquaculture will play in global food production over the next 40 years. China currently accounts for two-thirds of world aquaculture production but has recently switched from being a net seafood exporter to a net importer.



**Figure 1** Between 2007 and 20150 forecast demand for agri-food products is expected to be driven by Asia, in particular China and India (Source ABARES)

### Global Aquaculture and Capture Fisheries Production 1950 - 2011 (million tonnes) (Source: FAO)

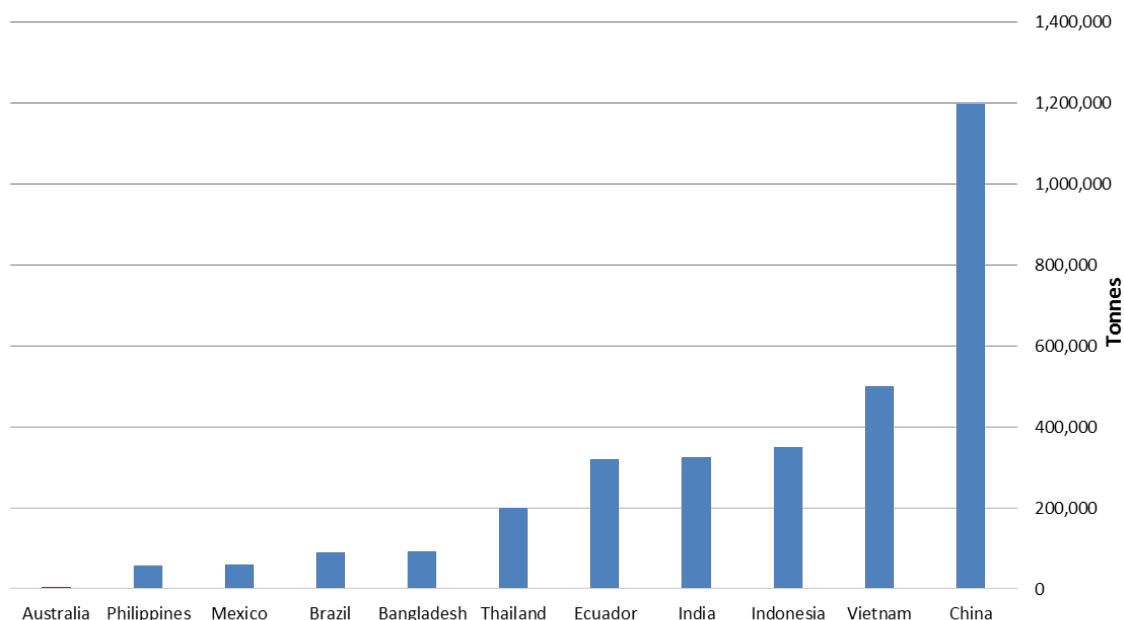


**Figure 2** Global aquaculture recently exceeded wild caught fisheries. wild-caught fisheries have reached their supply limits.

### Status of Australia as an Aquaculture Producer

Given these broad scale global demographic and development trends there is a strategic opportunity for aquaculture located in northern Australia. However, compared to the rest of the tropical world Australia's production is every small (Figure 3).

Aquaculture is already a globally significant industry. One segment, shrimp (called prawns in Australia) consists of 7 million tonnes of production each year, of which 3.9 million tonnes are produced through aquaculture. Shrimp is the most important internationally traded fishery commodity (in value) with farmed shrimp accounting for 15% of total value of internationally traded fishery products. It is the top-selling seafood item in many countries consisting of 33% of all supermarket seafood sales and is the top seafood consumed on a per-capita basis. Of this global activity Australia produces 4,000 tonnes of farmed prawns each year.



**Figure 3** Size of Australia's aquaculture prawn production in 2014 compared with major prawn producing countries as estimated from various sources including the Global Aquaculture Alliance and the United Nations Food and Agriculture Organisation

Another indicator is the 'productivity' of coastline for aquaculture. Although only an indicative measure it is clear that considering the length of Australia's coastline – the longest sovereign coastline in the world and which abuts 6 048 681 km<sup>2</sup> of our Exclusive Economic Zone – Australia has surprisingly little aquaculture production (Table 1). Considering that Tasmania's salmonid industry and South Australia's aquaculture industry constitute the bulk of Australian aquaculture production the productivity of northern Australia's coast is very small.

**Table 1** Inter-country comparison of the amount of seafood produced per kilometre of coast

| Country     | Aquaculture product per kilometre of coast (tonnes) |
|-------------|---|
| Thailand    | 383.31  |
| Chile       | 167.14  |
| Ecuador     | 143.88  |
| Norway      | 52.53   |
| New Zealand | 6.62  |
| Australia   | 3.11  |

From this snapshot it appears that Australia has adopted an ‘artisanal farming model’ to aquaculture whereas a global pattern is emerging of a large-scale food manufacturing industry deploying known, repeatable controlled systems and processes.

### Commercialising new innovation – capturing the science upside

Aquaculture is globally competitive therefore in addition to adopting and adapting known processes continued development is achievable through capturing the science upside.

On the production side the **areas of significant science upside** are:

- Improved genetics of farmed animals – as with other livestock such traits such as growth rate, better feed conversion ratios, general robustness
- Improved feed formulations –from three perspectives
  - Cost
  - Environmental performance – reduced reliance on components of feed sourced from wild-stock
  - Efficiency – largely captured through food conversion ratios
- Grow-out technologies (‘Precision Aquaculture’)
  - Automated feed regimes
  - In-pond monitoring and decision support systems.

Clear adoption pathways can be developed through collaborations with industry provided researchers are also focussed on the twin goals of a lowering the cost of production and improving productivity.

Improved productivity and improved environmental performance are tightly linked.

There is significant scope for innovation right across the food manufacturing chain to produce food products that are more attractive to consumers

There is room to better connect innovation on the supply-side (through to farm-gate) to market innovations (product packaging, presentation, prepared product).

## Barriers and Challenges

Seafarms Group undertook a strategic assessment of the opportunities for aquaculture in Australia. Key observations are:

- In order to be globally competitive Australian aquaculture producers need to be in the lowest quartile of lowest cost producers.
- To meet this competition challenge Australian aquaculture needs to be at scale. Small-scale production is unlikely to be internationally cost-competitive for a number of reasons including:
  - Relatively high labour costs
  - Small local market
  - Logistics (see below).
- There is a logistical challenge in servicing global markets from Northern Australia. This challenge can be partly over-come through scale in which the task cost of freighting reduces with scale. Publicly-shared infrastructure including roading is also important.
- The approvals pathway for new projects is long and complex, requiring significant up-front investment. The nature of the approvals processes means:
  - Small developments are disadvantaged since the required expenditure in obtaining approvals has the potential to outweigh the economic value of the proposed development
  - Australia does place itself at a competitive disadvantage due to the time required to navigate complex approvals. This disadvantage can potentially be off-set through security of and long-term tenure and licencing.
- Within Australia aquaculture is poorly understood. It is unlikely that Australian consumers are aware or recognise that they consume significant amounts of seafood whether this be basa (pangasius), prawns produced through aquaculture.
- Aquaculture has the potential to be the most sustainable form of food protein production. Aquaculture developments can be sited away from sensitive areas (mangroves, intertidal zones and in already cleared locations); increasing efficiency in feeds and decreasing requirement for fishmeal as a constituent in feeds is a trajectory the global industry is pursuing; and nutrient management continues to improve.

## Developing new aquaculture projects

Australia has often attempted to bring novel products (species) to market and has confronted the difficult challenges of domestication, closing the life-cycle of species to be grown, discovering the required husbandry practices and then marketing an unfamiliar product to conservative markets. Given that the vast majority of aquaculture occurs outside Australia there is merit in learning from the rest of the world, adopting known technologies and industrialising or otherwise improving them.

Embodying this approach Seafarms Group is the proponent of Project Sea Dragon a large-scale, integrated, land-based aquaculture project in northern Australia. The project will produce world scale volumes of Black Tiger Prawns – a high quality and high value seafood commodity – for export markets.

Stage 1 will consist of 1,080 ha of grow-out ponds supported by a breeding centre, broodstock centre and commercial hatchery.

Ultimately the project is scaled to consist of 10,000 hectares of grow-out farm supported by: a feed mill; broodstock and hatchery facilities; a power station; processing plant; and storage and export facilities.

At full scale the project will produce more than 100,000 tonnes of prawns, generating \$800 million in export revenues. Thus the project has the potential to generate more export revenue out of northern Australia from a footprint of less than 50,000 hectares than the entire northern beef cattle industry.

In contrast to other initiatives in the north in which most employment occurs through the construction phase and then diminishes during the operational phase, this project offers the prospect of up to 1600 long term sustainable jobs, with more jobs generated during operations than construction.

Seafarms Group has this year embarked on a detailed feasibility study for the project, having completed a pre-feasibility study in 2013 and is seeking approvals for Stage 1.

Project Sea Dragon is a concrete embodiment of the principles outlined in this submission and brings to life the vision of the northern foodbowl.

### Seeking out new markets

Structural reforms such as the Australian Government's work secure Free Trade Agreements are both welcome and critical.

Australia also needs to welcome Foreign Direct Investment in aquaculture especially where such investment can be linked or tied to supply contracts or off-take agreements. There is much to learn from the development of other industries in Australia which secured corner-stone investments in order to provide a firm foundation for major industry development.

Much of the world's tropical aquaculture is situated in compromised environments and uses intensive processes requiring significant inputs of a variety of chemicals. By contrast Northern Australia has the opportunity to develop an industry that meets both low-cost of production and can differentiate its products through the quality of the environment in which the product is grown.

Thus Northern Australia can embrace its clean sustainable biosecure credentials in seeking out new markets and developing new projects.