Centre for Sustainable Tropical Fisheries & Aquaculture

JAMES COOK UNIVERSITY AUSTRALIA

10 May 2021

To whom it may concern,

I am writing to you with regard to the Parliamentary Inquiry into The Australian Aquaculture Sector.

The Centre for Sustainable Tropical Fisheries and Aquaculture (CSTFA) at James Cook University specializes in the sustainable exploitation of tropical aquatic species and is Australia's leading university in Tropical Fisheries Science including Aquaculture.

Aquaculture is fast becoming the major source of seafood for the world population, providing 86.1 million tonnes or 46% of global seafood supply (FAO 2018). With wild-capture fisheries stagnating since the 1990's and an increasing global demand for seafood, aquaculture fills the gap in providing healthy and quality seafood to a growing population with an increased per capita demand for seafood consumption. Australia produces a small proportion of global aquaculture production, with under 100 thousand tonnes produced in 2017-2018 (ABARES 2018) presenting a large potential to expand the Australian aquaculture industry.

A situational analysis of Northern Australia aquaculture was published in May 2020 (funded by the CRC for Developing Northern Australia) (Project A.1.1718119) (Cobcroft *et al*. 2020a see Appendices) and led by Aquaculture researchers at JCU. The analysis sought to identify key opportunities and challenges for the northern Australia aquaculture sector, to identify solutions and also the most strategic research projects for future investment. The scope of the analysis included infrastructure, policy, environmental, production, knowledge, training and human capital gaps.

We base our submission on the findings of that analysis (and direct the reader to the relevant report for further information) and also from our experience as being a leading provider of tropical Aquaculture research and education.

Yours sincerely,

[redacted]

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a) the nature and current status of Australia's aquaculture sector;

With regard to northern Australian aquaculture industry specifically (see Cobcroft *et al.* 2020a):

- The annual Gross Value Product (FY17) was ~ $223 million, comprised of barramundi (33%), prawns (32%) and pearls (non-edible) (31%). Other species comprising the remaining 3% of value include redclaw, tropical rock oysters and other finfish.
- it is highly diverse, multi-sectoral, fragmented and dispersed.
- it has been more slow to grow than that in the south of Australia.
- It is managed primarily by highly-educated middle aged men.
- Aboriginal and Torres Strait Islander people are poorly represented in its management.

b) opportunities and barriers to the expansion of the aquaculture sector:

i) including ability to access capital and investment;

Opportunities for aquaculture industry development in northern Australia were found to be substantial (Cobcroft *et al*. 2020a). A scenario analysis conducted as part of the Situational Analysis of Northern Australia found that by capturing the opportunities and strengths and addressing the barriers and weaknesses, the Northern Australia aquaculture industry could reasonably expand by 2030 to five times its current production and achieve an annual Gross Value Product in excess of $1.3 billion. This would create an additional 1,400-2,300 jobs.

Key challenges to aquaculture development in northern Australia identified by producers were:

- Regulatory burden and environmental risks (for barramundi).
- Absence of breeding programs and broodstock supply and quality (for prawns).
- Environmental risks and disease (pearl oysters).

Specific barriers that were identified by producers as inhibiting factors for operations include:

- Biosecurity risks
- Lack of development areas
- High environmental and regulatory hurdles
- Harsh weather conditions, particularly variability in the wet season
- Remoteness
- Lack of local or regional infrastructure
- High and increasing costs for insurance
- High costs of key inputs (feed, power, labour, parts and services, supply chain components)

- Skills shortage
- Limited available capital
- Inability to access key markets
- Market competition
- Lack of co-ordinated policy development

The Northern Australia Aquaculture Industry Situational Analysis provided strategic recommendations (Cobcroft *et al.* 2020a, Table 1, page 11) based on a comprehensive literature review (Cobcroft *et al.* 2020b) and extensive industry feedback (online survey, focus groups, workshops, PESTEL, SWOT, P5F analyses, scenario analysis, videoconference engagement). The Key priority actions for sector development and the intended industry impacts are included in the Table at the end of this document.

c) opportunities to streamline and increase the effectiveness of the current regulatory frameworks that govern aquaculture activities in Australia; and

Disease outbreaks represent a significant risk to open and semi-open aquaculture systems. By regulation, aquaculture operators must submit samples for disease diagnosis to government laboratories. Aquaculture industries in Northern Australia, in particular, are located considerable distance from the government laboratories that conduct aquatic animal diagnostic and surveillance tasks. Under the restrictions of the Biosecurity Act, regional facilities are not permitted to provide an accurate, rapid turnaround result to support rapid industry response to disease events on farm, despite possessing the same level of quality certification as government laboratories. The time taken for samples to be received by the laboratories can lead to a delay in diagnosis of many days/weeks. Because the ability to control, contain and eradicate any aquatic pathogen is hampered by delays in diagnosis, the regulatory framework should be altered to allow suitably certified providers to conduct analysis across the range of applications to support a rapid biosecurity response in regional aquaculture facilities. Particularly considering COVID-linked disruption preventing access to laboratories located in capital cities, accessing regionally located laboratories provides a means to increase resilence to disruption in aquatic diagnostic services. Regional laboratories could be presented with conditions following detection of nationaly significant diseases rather than the current system that prevents a rapid detection of a nationally significant disease. An adjustment to the current Biosecurity Act would improve access to regional facilities; support the decentralisation of technical expertise into regional northern Australia and improve the ability of the Northern Australian aquaculture sector to prevent and manage disease outbreaks.

d) the ability for businesses to access and commercialise new innovations to expand aquaculture.

Aquaculture researchers have been working on-partnered projects with industry for many years and significant new products and innovations have been developed. However, as with a lot of university-industry linked innovation once the funding stops translation into an industrial use becomes difficult due to lack of experience in taking the innovation to a commercial reality. Australia needs an innovation/accelerator program for start-up companies specific to the sector to help draw out the innovations and move the innovative science from the lab to the industry.

Key priority actions for sector development	Intended industry impacts
1. Bolster Biosecurity **The recommendation is to bolster aquaculture biosecurity through:** • review of policy and meeting the requirements for improved risk assessments and R&D programs to better understand biosecurity risk and management at the border • increased pathogen understanding, documented risks, transmission pathways, and practical surveillance implemented for the aquaculture industry in northern Australia • establishment of the most effective structures to develop high health lines for key production species.	▪ Protection of ~$223 million industry from a species sector or regional sector collapse, underpinning expansion to $1.3 billion GVP by 2030, and protecting between 1,950 and 2,860 jobs ▪ Research to support appropriate science-based policy responses to manage the risk conservatively ▪ Increased productivity per ha of an estimated 10%, of all aquaculture sectors in northern Australia with a value of at least $100 million p.a. by 2030 ▪ High health lines as a foundation to selective breeding programs ▪ Reduced risk of disease outbreak, with results available in time to give farm managers time to respond to identified pathogens
2. Build skills to meet industry growth needs **The recommendation is to build skills to meet industry growth needs in the northern Australia aquaculture industry.** **Meet the gap in skilled personnel to fill at least 1,400 new jobs in aquaculture in northern Australia by 2030. Retain skilled staff in northern Australia.**	▪ At least 1,400 additional skilled personnel available for the northern Australia aquaculture industry to enable achievement of projected production of $1.3 billion GVP by 2030 ▪ Skilled staff who value the aquaculture industry and community in northern Australia ▪ Revised curricula endorsed by industry
3. Market development and access **The recommendation is to support the northern Australia aquaculture industry in market development and access (domestic and international).**	▪ Secure consumer demand for NA aquaculture products ▪ Established and expanded domestic market to match the increased product supply ▪ Established international export market(s) for at least one species ▪ Profitable and growing aquaculture sector, achieving expansion to $1.3 billion GVP by 2030
4. Match and target RD&E to key industry needs and outcomes **The recommendation is that RD&E is focussed on industry outcomes, and is aligned with the National Aquaculture Strategy 2017, the FRDC RD&E Plan 2015-20, the FRDC RD&E Plan 2020-25 Plan (when complete), and jurisdiction and industry association plans.**	▪ Research aligned to industry needs and delivering value for investment ▪ Limiting bottlenecks to new investment and expansion, to support a 5-fold increase in production by 2030, providing an additional value of $1.1 billion GVP, 1,400 jobs, and associated economic indirect benefits for regional Australia ▪ Rapid adoption of innovative technologies, estimated at 10% improved productivity
5. Facilitate infrastructure development for key Aquaculture Development Hubs **The recommendation is to facilitate infrastructure development for key Aquaculture Development Hubs in northern Australia.**	▪ Meet industry infrastructure requirements by co-development of sites/hubs for maximum benefit and investment leverage ▪ Improved supply chain logistics (electricity, air/road/sea freight, feeds) ▪ Aquaculture industry engaged in prosperous and diverse regional and Indigenous communities
6. Build the northern Australia aquaculture industry as a means for Indigenous economic development and independence **The recommendation is to build the northern Australia aquaculture industry as a means for Indigenous economic development and independence.**	▪ Successful deadly businesses established, supported to grow and enabled to employ more people ▪ Aboriginal and Torres Strait Islander engaged in and positive about aquaculture in northern Australia
7. Stronger and adaptive governance of the northern Australian aquaculture industry **The recommendation is that additional planning is required to determine an appropriate mechanism/structure for strengthened governance.**	▪ Oversight of expansion of aquaculture in northern Australia to $1.3 billion GVP by 2030, providing 1,400 jobs, and associated economic and social benefits to regions and communities in NA ▪ Stronger governance of the NAAI and coordination of infrastructure development in NA