



## SUBMISSION TO THE JOINT SELECT COMMITTEE INQUIRY INTO EXPANDING THE AQUACULTURE INDUSTRY IN NORTHERN AUSTRALIA

### INTRODUCTION

The Aquaculture Council of Western Australia (ACWA) is the state's peak industry body for commercial aquaculture in WA, having the principal function to support and promote the **responsible** and **sustainable** growth of the industry for the benefit of the people of Western Australia. It has a broad member base from within the industry comprising individuals, educational institutions and small to large commercial operators. ACWA respects the views of all stakeholders in the aquaculture industry and welcomes the opportunity to work closely and constructively together with each towards agreement and mutual benefit for all.

ACWA welcomes and aims to participate in initiatives which assist in carrying out its function and fully supports this new and promising initiative from the Commonwealth Government. ACWA is pleased to present this submission in response to the invitation from the Joint Select Committee's Inquiry having the terms of reference to "examine opportunities for expanding the aquaculture industry in Northern Australia" including

- the ability to commercialise new innovation;
- the development of new aquaculture projects and products; and
- the seeking out of new markets.

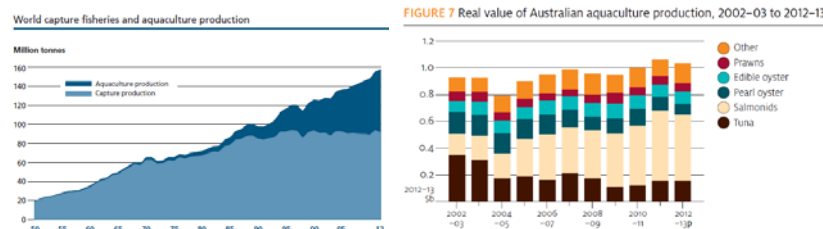
In presenting where ACWA believes the greatest opportunities exist to expand aquaculture in the North of Australia, the structure of this submission is focussed on the following key subjects:

1. The broader industry context and challenges to expansion at industry level.
2. Impediments to growth currently faced by existing commercial operations in the region.
3. Specific opportunities for expansion of the industry responding directly to the terms of reference for the inquiry.
4. Suggestions on what Government can do to help.

Specific comments made by ACWA in direct response to this inquiry are tendered in the context of both land and sea based aquaculture within the north of Western Australia, being the limit of representation by ACWA. However, ACWA understands through its collaboration with other states, that much of what is discussed applies similarly but in varying degrees in the Northern Territory and Queensland.

### INDUSTRY CONTEXT

Aquaculture and particularly first world aquaculture is an emerging global industry, currently estimated to be worth US\$144B<sup>1</sup> and forecast to grow to \$202B by 2020<sup>2</sup>. Currently, just under 50%<sup>3</sup> of the world's seafood now comes from aquaculture and this proportion is steadily rising. In Australia, industry revenues from aquaculture currently stand at AU\$1.2B currently forecast to grow to AU\$1.3B by 2019. However, due to limited supply, Australia continues to import about 70% of its seafood to meet the rising local demand. The following figures illustrate comparative growth of the aquaculture industry both globally and for Australia.



**Fig 1 : Global vs Australian growth of aquaculture (Source : FAO (2014) and ABARES (2013))**

<sup>1</sup> The State of World Fisheries and Aquaculture, FAO, 2014

<sup>2</sup> Grand View Research (2014)

<sup>3</sup> The State of World Fisheries and Aquaculture, FAO, 2014



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Indications are that the global aquaculture industry is here to stay and will continue to grow in future. ACWA is firmly of the view Australia cannot afford to be left behind, especially given the prevailing economic conditions in the country at present. Australia is looking for new industry to create opportunity, wealth and employment and it is the view of ACWA that aquaculture can play a large role in contributing to the growth of the National economy now and increasingly in future. This will be achieved through the sale of aquaculture produce though, more importantly, through the development of industry knowledge, intellectual capital and new technologies which can be sold into a global market. However, if Australia does not act to take advantage of this opportunity much of this wealth and intellectual capital will be lost offshore as is increasingly being seen to be the case in the current industry.

ACWA believes there is much opportunity for significant growth of the aquaculture industry, particularly in the north of Western Australia, given the right conditions and operating environment. Key components required for aquaculture (both onshore and offshore) are available land, water and ocean all of which are found in abundance in our north. With this comes the need to use these resources sustainably for the benefit of all Australians. This will require capital, intellectual property, environmental awareness and management capability together with the ability to develop and apply new technologies, all of which can be demonstrated that Australia possesses in comparable abundance on a global level.

However, ACWA is also strongly of the view that there remains a significant amount of work to be done to be able to achieve the right conditions and operating environment for the aquaculture industry in Western Australia to be able to capitalise on these opportunities. To provide context, it is worth considering the general conditions needed to promote the development and growth of this emerging industry to achieve economies of scale and how this might apply specifically to aquaculture in the North of WA, extending more broadly to the North of Australia. These are outlined briefly below

### **Political**

The political environment in which aquaculture in WA operates must be conducive to the growth of the industry. The industry must have political will behind it to succeed on a large scale confirmed by a clear statement of direction and support from State and Commonwealth Governments backed up by clear policies providing a firm foundation from which the industry can expand. ACWA would welcome more clarity from the State Government in this regard and believes this would stimulate more interest and investment in the industry. Notwithstanding this, ACWA applauds and welcomes current State Government initiatives to develop the aquaculture industry such as the establishment of the Kimberley Aquaculture Development Zone which lies within the geographical study area of this inquiry (in which there is already an established operator) and the Mid-West Aquaculture Development Zone which is still undergoing investigation.

### **Environmental**

Similarly to a favourable operating environment politically, the same would apply to the environmental approvals and regulatory operating environment. Many proposed aquaculture projects large and small have been stifled in the past through lengthy environmental approvals processes and uncertainty over the length and scope of the environmental assessment process. ACWA would welcome more clarity, openness and transparency in environmental assessment and approvals processes for aquaculture projects. It is worth restating, however, that ACWA is very respectful and supportive of the role of the environmental regulators and believes they can add significant value to the industry towards ensuring environmental sustainability. However, more certainty is sought by industry from its dealings with them.

### **Social**

ACWA recognises the importance of there being a level of social acceptance of aquaculture in the community for the industry to be successful and sustainable. ACWA believes this can be achieved through education of the public to provide a better awareness and understanding of the industry, as well as working through any issues whilst highlighting the many benefits to the community such as opportunity for employment and economic stimulus. This takes time with new industry and can be an impediment to growth if not approached strategically and in such a way as to gain this acceptance. Key in this is acknowledging and respecting the views of all stakeholders, particularly the public, and



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engaging with them, which is something ACWA recognises as very important to enable a larger scale industry to become established and sustainable.

### **Technological**

Technology has to exist and continue to develop to drive an industry and support it in the way of funding from Government and collaboration between government, industry, education and research institutions is critical to make this happen. ACWA acknowledges the value to the industry of the State and Commonwealth Government funding that has been made available in the past through such bodies as CSIRO, RIRDC and FRDC. This funding has played a major role in the development of some world-first leading technologies, such as the development of the Novacq<sup>4</sup> product by CSIRO, an exciting world first technological development in the global aquaculture feed industry. This government support with contributions from industry and other stakeholders is critical for ongoing technological growth and sustainability of the industry. The end product of this funding support is intellectual property which can be sold to the world and used by Australian industry to grow global market share in the industry. ACWA would like to see this funding continue and grow to assist in industry development through technological development.

### **Economic**

Economic viability of an industry and competitiveness with other investment is essential for growth and a key factor in this is market demand. It can be argued that the market for aquaculture produce and associated intellectual property will be insatiable in the future (on a local and global scale) with a growing world population and declining supply of natural resources. Key to economic viability is meeting this market demand economically and important in doing this is reducing initial capital and ongoing operating costs within the industry. These are currently two major impediments to entry into and profitability of the industry for prospective and existing industry participants and addressing the other four factors identified in this section would go a long way to overcoming these hurdles.

### **Legislative**

Having appropriate industry legislation in place is imperative to enable the aquaculture industry in WA to stand alone, become established and develop to realise economies of scale. Without this legislation and the certainty it provides, the industry will continue to struggle to succeed in an environment which is not conducive to attracting the outside funding investment critical for the growth of the industry to a significant scale. A classic example of how an aquaculture industry can grow supported by its own industry legislation is the case of Tasmania and South Australia which now have progressive and vibrant aquaculture industries creating wealth and employment in these States.

ACWA believes these five overarching factors described above are fundamental to realising potential opportunities from a strategic expansion of the aquaculture industry in the North of Australia and in Australia more broadly. A detailed discussion of where improvements could be made within these areas to better promote the growth of the industry is beyond the scope of this submission and possibly this inquiry, however ACWA would welcome the opportunity to discuss this further with the committee as it relates to the focus and desired outcomes of the inquiry.

The situation assessment above is presented in very general terms for the purpose of this submission. A more detailed and critical analysis is considered by ACWA as an important outcome from further work for this inquiry, as identifying and addressing the shortfalls in each of these areas is considered a key first step towards realising opportunities for expanding the aquaculture industry in Northern Australia.

## **SPECIFIC IMPEDIMENTS TO THE GROWTH OF THE AQUACULTURE INDUSTRY IN WA'S NORTH**

ACWA is of the view that many of the challenges and impediments faced by existing and prospective aquaculture operators in Northern WA stem from not having the fundamentals in place to stimulate industry growth, as identified above. However, ACWA also acknowledges that many of these industry-level challenges will not be readily resolved until

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<sup>4</sup> Novacq is an additive to fish feeds which can facilitate the complete replacement of fishmeal and fish oil from prawn feed making the industry more sustainable. It has been proven in full scale trials and is in a commercialisation phase now. There are many such other examples of similar technological advancements made in Australia.



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a critical mass within the industry is achieved. Significant gains can still be made by directly addressing the more prevalent issues faced by the industry, some of which are presented briefly below, in no suggested order of importance.

Land and seabed tenure combined with native title and cultural heritage

Securing tenure over suitable sites for aquaculture, both sea and land based, has been a continual impediment to development of the industry due to the associated uncertainty which is not conducive to investment in the industry. This is made more challenging in the north due not only to having to gain tenure on State or Commonwealth owned land, a challenge in itself in other areas of the country, but also to gain tenure over native title land and other lands having aboriginal cultural heritage.

### **Lack of infrastructure**

Lack of available infrastructure such as hatcheries and nurseries, processing facilities, feed production facilities all of which would normally be found where economies of scale allow, is another issue posed by geographic location and the remoteness of the north. This again is a significant impediment to establishment of new ventures and growth of the industry and links back to point (vi) above in that incentives in the way of government run, or subsidised facilities, would significantly alleviate the burden placed on business operators in the region.

### **Supply chain logistics**

This is one of a number of issues posed by geographic location and remoteness of most parts of the north of WA and Australia. Cost and time associated with the movement of equipment, goods and personnel is a significant impediment to profitability and hence growth of the industry.

### **Unconfirmed Government support and lack of industry prioritisation**

The industry must have political will behind it to succeed on a large scale confirmed by a clear statement of direction and support from State and Commonwealth Governments backed up by clear policies providing a firm foundation from which the industry can expand. With this goes a need for Government prioritisation of the industry which is favourable to progressing industry development, for example, reconsidering the industry request for development of legislation more supportive of the industry.

### **Inconsistency between States**

There is inconsistency between the States (the subject of this study) in terms of the way in which each State Government's approvals processes are run and more generally, each Government's approach to aquaculture development. This is not conducive to providing a level playing field which would promote economies of scale to develop in the region.

### **Labour costs**

Labour costs are high and further exacerbated by the need to attract skilled personnel to work in remote and sometimes inhospitable parts of Australia.

### **Skill shortages**

This is linked to item (iii) above, however, notwithstanding this it is still difficult to find employees suitably trained and educated with the right skill sets suitable for the industry. Again, this is exacerbated by the geographic location in remote sites where, typically, people have to be multi-skilled to cover for a lack of availability of a temporary work force which fulfils short-term roles in more populated regions.

### **Governmental approvals processes (i.e. Green and red tape)**

Having the correct conditions in place for industry as previously described (specifically political, environmental and legislative) is important for industry development. Without it, uncertainty over the timing and outcomes of government



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approval processes is created which is again not conducive to investment and industry growth. More surety on timeframes for approval of proposals is often cited as the principle issue here.

### **Lack of industry incentives**

It is the view expressed by some ACWA members that there has historically been and continues to be a lack of incentive provided by government, to assist industry to overcome disadvantages experienced operating in the typically challenging remote north of WA. Incentives for new industry are very important and without them the burden falls fully onto the operators, who are already having to deal with significant risk and uncertainty inherent in an aquaculture operation.

### **Conflicting land and ocean uses**

Conflicting use issues arise from the economic pressures for aquaculture ventures to establish as close as possible to centres of population, creating potential for conflict with other users of land and ocean space. This becomes more prevalent in the more populated sections of coastline in other parts of Australia but is still an issue which needs to be addressed for aquaculture in the north.

### **Need for economical and sustainable feeds**

Sustainable feed is an ongoing challenge for the industry at large and much work is currently underway to address this. Advances are being made with sustainability in terms of reliance on wild-caught fish, however there is still work to be done to find a lasting solution. In terms of supply and distribution of feed, the North of WA and Australia is disadvantaged by distance and transport costs for feed delivered to remote locations where feed mills do not exist. This too is a significant impediment to profitability of aquaculture ventures in the North of Australia.

These are some of the issues, each of which contribute in varying degrees to impede the establishment and growth of aquaculture in Northern WA. A more thorough industry survey followed by a prioritisation process would be the next logical step to identify where the 'early wins' would come from in spending resources dealing with the issues. Advances made on each of these issues will positively contribute to enhancing the attractiveness of the industry in the North. ACWA is of the view that these impediments to growth and development are certainly not insurmountable, however it will take significant ongoing active and committed involvement from both industry and government (State and Commonwealth) working collaboratively, to overcome. Exactly how this could be done and how each of the specific issues might be addressed is beyond the scope of this submission, however, ACWA would welcome the opportunity to elaborate further on this later in an appropriate forum.

It is worth noting the WA State Government have done extensive work in the past (early 2000's) on studies considering the development of aquaculture in the North of the State which has addressed many of these issues. There is significant documentation which exists as a result of this work, the findings of which have not yet been fully applied without the necessary operating conditions being in place. ACWA suggest that, as part of any further work arising from this inquiry, a review of this existing information could provide some 'early wins' to create opportunity, given more support from Government to create a more conducive operating environment in the region.

## **OPPORTUNITIES**

The message ACWA is receiving from its members and a key theme of this submission is that the industry would like to see a better operating environment above all else. A first step to creating opportunity for aquaculture in the North of WA would be for government to contribute more to providing this. ACWA recognises that achieving this is not a simple matter and needs time, resources but above all, a shared vision which perhaps this inquiry can ultimately help develop and promote.

Conversely, ACWA believes there are some issues which may be addressed more readily with government intervention and closer collaboration with industry for some 'early wins'. ACWA would welcome the opportunity to participate in further work prioritising existing industry needs and working with all stakeholders to develop a specific action plan for aquaculture in the North, which is primarily concerned with the quick, effective and responsible resolution of current issues.



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The three points identified for the focus of this inquiry on opportunities for expanding the industry are directly addressed below but all are influenced heavily by the broader context of the industry described.

### **The ability to commercialise innovation**

Innovation has to be applied to realise its commercial potential which can't be done without the projects to employ it. It follows that creating the right environment and operating conditions to promote these new projects, the importance of which has already been discussed, is first and foremost in providing the ability to commercialise new innovation.

Innovation may be employed and commercialised in Northern Australia through the establishment of an aquaculture hatchery / hub in the region, possibly centred within an aquaculture development zone(s). The WA aquaculture industry has extensive experience in the establishment and running of hatcheries supported by the Australian Centre for Applied Aquaculture Research (ACAAR) facility in Fremantle and the Kimberley Training Institute (KTI) in Broome. Similar facilities to these established in Northern WA / Australia with the aid of government funding, would provide a tremendous boost to establishing and growing the industry. Alternatively, a future study of these existing facilities may identify opportunity for these facilities to expand or be duplicated to support a growing aquaculture industry in the North. Species such as Barramundi, Yellowtail Kingfish, Redclaw freshwater crayfish, tiger prawns, cherabin, mulloway, cobia and others could be bred out in the region on a commercial scale, significantly reducing the cost of seed stock and mortalities due to long distance transport from existing hatcheries in other parts of Australia. A side benefit of the establishment of a new hatchery is the education and training opportunities which would be created and which are needed to develop the necessary skills required by industry in the region. A good example of this is the KTI facility in Broome which established the Broome Aquaculture Centre<sup>5</sup> to provide capability for hands on training, Research and Development and production capabilities to support aquaculture in the North of the State

With a new hatchery established, further innovation in the way of development of new aquaculture species and improvement of existing ones could take place, which is recognised by ACWA as another key driver to grow the industry. An example of successful innovation through the development of a new commercial fish species is Yellow Tail Kingfish, which has been pioneered by ACAAR in recent years and is now considered project ready; however new projects are needed to capitalise on this world class innovation. Barramundi is an example of an existing commercial aquaculture species which could be further improved through selective breeding programs, with the aid of a new hatchery. Again new projects are needed to capitalise on future innovation to come from development of this species.

Aquaculture does not stand alone as an industry. There is a supply chain which has to support it, so growing the aquaculture industry means growing the supply chain, providing opportunity to commercialise new innovation within these supporting industries. Take for example, the development in South Australia by the local company Infratech who are currently commercialising their floating solar panel technology, giving greatly improved efficiency of solar power generating capacity through the water cooling of solar panels<sup>6</sup>. The aquaculture industry is potentially a big user of power and this an example where aquaculture could benefit from innovation in the solar industry if it can be successfully commercialised. There are other cases of these associations where the development of an aquaculture industry can lead to the commercialisation of innovation in other supporting industries.

The feed industry is another supplier to the aquaculture industry. The importance of having cost effective, high performing and sustainable feed for an emerging aquaculture industry in the north is very important. There has recently been a significant development by CSIRO in Queensland which has developed a world first for aquaculture feed sustainability for tiger prawns in their Novacq<sup>™</sup> product. This has recently been licensed for use by one of the major feed manufacturers in Australia. There is application for this product in Northern Australia and a larger industry in the region would make commercialisation of this novel feed product more attractive. Further innovation in the feed industry will be driven by a larger aquaculture industry.

### **Develop new aquaculture projects and products**

<sup>5</sup> <http://kti.wa.edu.au/campuses-facilities/specialty-centres/broome-aquaculture-centre>

<sup>6</sup> <http://mobile.abc.net.au/news/2015-03-05/australian-first-floating-solar-farm-for-sa/6281374>





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New aquaculture projects could be developed by:

1. Providing an operating environment conducive to investment.
2. Providing incentives to international aquaculture companies to operate in Australia and to actively engage them possibly through Expressions of Interest to establish operations here. This would help the industry to reach a size where economies of scale in operation can be realised. It would also contribute to building an appropriately skilled workforce in the short term which is currently lacking.
3. Promoting collaboration between the states to initially develop a shared vision for the growth of aquaculture in the region, followed by the states working together to provide a consistent approach to managing development of the industry in the region, thereby making the most efficient use of existing resources.

New projects will come with new investment which in turn will come with resolution of some of the specific issues already covered. Subsequently, new aquaculture products will emerge following the commercialisation of innovation.

### **Seek out new markets**

Development of new aquaculture species and expansion of production capability of existing species has to be market driven. This is arguably the single most important factor in the success of the aquaculture industry as many ventures have failed in the past due to poor market research or a total lack thereof, tarnishing the reputation of the industry. ACWA is of the view there could be tremendous benefit from doing a broad market study for all commercial aquaculture species that exist now or could be developed in future in Northern Australia. This study could measure existing market demand and determine where future demand will come from, acting to drive the direction of the industry, having a widespread benefit to all existing and future industry participants.

It is not possible to enter new markets without consistency and volume of supply, which is another factor that has impeded growth of the industry in the past given its relatively small size on a global scale. With consistency and volume of supply, achieved through removal of the impediments to growth, existing markets would become more accessible and new markets developed. An important outcome of a market study, as previously suggested, would be identifying existing and potential future niche markets in the industry which are more accessible to a small industry initially lacking volume and consistency of supply. A good example of this would be the market for abalone which is currently proving to be a successful aquaculture species, albeit a species for the southern regions of Australia.

ACWA is of the view that there is value to be gained by better understanding existing markets and expanding into these before undertaking the costly exercise of seeking out and moving into new markets.

### **WHAT GOVERNMENT CAN DO TO HELP**

Some initial suggestions as to what government could do to address many of the challenges and issues mentioned in this submission include the following:

- (i) Provide a clear statement of direction for the development of aquaculture in Northern Australia.
- (ii) Provide funding for production of a strategic development plan for the aquaculture industry in the north of Australia extending to include necessary supporting studies including :
  - o a broad market study, assessing markets for existing and new aquaculture species suitable for northern Australia;
  - o a study to determine the best regions for an aquaculture hub in Northern Australia with key infrastructure (i.e. hatcheries and nurseries) and associated aquaculture development zones;
- (iii) Streamline approvals processes and provide some degree of certainty for existing and prospective aquaculture ventures.
- (iv) Provide additional and ongoing incentives / funding for research, development and commercialisation of new aquaculture species for Northern Australia.
- (v) Provide incentives / funding for education and training for the industry in the North of Australia.
- (vi) Provide incentive / funding for establishment of a feed mill to supply the industry with suitable feeds, when it reaches a large enough scale to support a mill.



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- (vii) Undertake negotiations with traditional owners on behalf of or in collaboration with industry.
- (viii) Establish a consistent approach to working with the industry across the North of Australia (aided by the development of a strategic development plan).
- (ix) Establish aquaculture nodes / zones similar to the Kimberley Aquaculture Development Zone and undertake pre-approvals to reduce barriers to entry into the industry.
- (x) Provide incentives / funding for successful international aquaculture organisations to establish operations in the North to help develop economies of scale for the industry.
- (xi) Continued financial and other support from Government for the peak industry bodies of the WA Fishing Industry Council and the Aquaculture Council of WA.

These are some suggestions which may be added to or modified as a result of further discussions between government and industry. ACWA recognises that industry also has a part to play in collaboration with government to achieve the best outcomes for the development of the industry in Northern Australia and welcomes the opportunity to discuss these suggestions in more detail in future for this inquiry.

### **CLOSURE**

Aquaculture is a huge emerging global industry and Australia and particular Northern Australia (being the subject of this inquiry) is well placed to be able to capitalise on the opportunities offered bringing broader benefits to the nation. The North of Australia has the land, the water and the marine area in which to operate and Australia has the technological and environmental skills to do this sustainably. However, the industry continues to be held back by not having a clear and consistent vision and an operating environment conducive to promoting and expanding the industry. These are two of the main challenges to the growth of the industry which it is hoped this inquiry will address.

ACWA looks forward to participating further in this inquiry and working collaboratively with Government, Industry and all other stakeholders on a shared vision and strategy to create opportunity for the aquaculture industry in the North of Australia. We welcome this initiative from the Commonwealth Government and hope that outcomes from this inquiry (from subsequent work) can be achieved leading to Northern Australia and eventually the rest of Australia, becoming more 'Open for Business' for prospective and existing industry participants.

Thank you for your consideration of our submission and we look forward to offering whatever further input and assistance which may be required from ACWA to progress this inquiry.

