

19 September 2019

Committee Secretary  
Department of the Senate  
PO Box 6100  
Parliament House  
CANBERRA ACT 2600

Dear Committee Secretary

The Australian Institute of Marine Science (AIMS) is pleased to make a submission to the Select Committee on the effectiveness of the Australian Government's Northern Australia agenda.

AIMS is based in Townsville, North Queensland, with significant research facilities also located in Darwin and Perth. These facilities, our world-class research aquarium (SeaSim) and our two ocean-going coastal research vessels, allow AIMS to conduct innovative, world-class scientific and technological research to support sustainable growth in the use and effective environmental management and protection of Australia's tropical marine estate.

AIMS has a strong foundation from which to provide insights into the Northern Australia development agenda – a foundation which is based on our 48 years of research in Australia's tropical north; our current research programs in support of government, industry and community decision-makers; and our strategic aspiration to contribute \$100 million per annum in environmental, social and economic benefit for tropical Australia by 2025.

AIMS strongly encourages a continued focus by the Australian Government on supporting and enabling the growth of Australia's northern economy. There are three areas where AIMS encourages further consideration by the Australian Government in moving forward with the development of Northern Australia: coasts and oceans; Traditional Owner engagement; and coral reefs.

### Coasts and oceans

Australia is a marine nation – our marine estate is the third-largest in the world, with Northern Australia's marine estate in particular home to some of the most diverse and iconic ecosystems and species on the planet.<sup>1</sup>

In 2015-16, Australia's marine industry contributed \$71.4 billion in value-add to Australia's economy, and employed approximately 393,000 full-time equivalent workers.<sup>2</sup>

On current projections, the marine industry could be adding as much as \$100 billion dollars per year to Australia's economic wealth by the year 2025.<sup>3</sup> This is a sector that's growing currently at twice the rate of overall GDP. To enable growth, robust and well-informed scientific knowledge is required.

<sup>1</sup> *Australian Institute of Marine Science (AIMS) Strategy 2025.*

<sup>2</sup> *AIMS Index of Marine Industry*, December 2018.

<sup>3</sup> *AIMS Strategy 2025.*

Two simple examples involving AIMS' research illustrate the economic value of science-based decision making as an enabler of industry growth in the marine or marine-impacting sectors.

- Australia is one of the world's largest producers of aluminium, earning approx. \$14 billion each year from exports of ore (bauxite), refined oxide (alumina), and metal.<sup>4</sup> AIMS researchers, in partnership with Rio Tinto Aluminium, determined evidence-based guidelines on safe levels of aluminium and certain related metals in marine environments. The guideline values for safe concentrations of the metals have been accepted by environmental regulators in the Northern Territory and Queensland. This means that alumina refineries can operate with confidence, knowing that complying with the guideline values will safeguard the health of local marine ecosystems.
- Marine ecosystems can be affected by harbour dredging through the release of fine sediment, which increases turbidity and reduces natural light availability for organisms living on the ocean floor. AIMS' science and monitoring showed that maintenance dredging at Fort Hill Wharf in Darwin could proceed and not pose an unacceptable risk to marine life. That research led to the harbour authority being able to permit safe access at all tides for vessels into Darwin's Cruise Ship Terminal.

However, these are geographically isolated examples. Much of Northern Australia's coastline and oceans remain poorly mapped, researched and understood. This knowledge deficit represents a particular challenge and risk for government, regulators and industry, who are called upon to make policy, regulatory, strategic and operational decisions regarding human use of, and impacts on, the northern marine environment. At present, management actions and development decisions are unlikely to be adequately informed by marine science knowledge, and as such pose an impediment to the sustainable management and use of the North's natural and cultural resources. The lack of knowledge is also a barrier to unlocking the economic potential of Northern Australia's marine estate, as investors, industry and regulators are unable to assess the economic viability of ventures.

To help address this problem in the Northern Territory, AIMS and Charles Darwin University commissioned a significant report entitled the [NT Marine Science End User Needs Analysis](#) (NTMSEUNA) to provide a strong foundation from which to plan for the marine research needed to support policy, regulatory, strategic and operational decisions by government, industry and communities with respect to their interaction with the Northern Territory marine and coastal environment. The NTMSEUNA identifies the marine science imperatives of all key stakeholders, including industry, in the Northern Territory marine environment, and includes what is among the most comprehensive engagement with Indigenous communities to date regarding their aspirations and concerns for the marine environment.

Further consideration of Northern Australia's agenda would benefit from explicitly referencing the need to improve our knowledge of the marine estate, to the benefit of all key stakeholders, as outlined in our comprehensive marine science user needs assessment (NTMSEUNA).

### **Traditional Owner engagement**

Indigenous people have inalienable freehold title to around 85 per cent of the Northern Territory's coastline, including the intertidal zone (to the mean low tide mark), and native title interests in other parts of the marine environment. Pressing needs include a better understanding of the opportunities and constraints on Aboriginal participation in the use and management of sea country for economic benefit to their communities, and roles in shaping the wider social and economic life of the Territory, drawing on rights and obligations to sea country and its resources.

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<sup>4</sup> *Resources and Energy Quarterly*, June 2019.

AIMS, through its collaboration with Traditional Owners over many years, has come to recognise that greater research impact and value can be created – and new insights gained – if AIMS' science can be joined with Indigenous knowledge, interests, capacity and capability. These projects also support the aspirations of Traditional Owners for greater capacity and empowerment in sea country monitoring, research and decision-making, and science partnering. AIMS has further developed our approach to engagement, leading to science partnerships that deliver mutual benefit in our AIMS Indigenous Partnerships Plan.

The key purpose of our Plan is to facilitate meaningful partnerships with Traditional Owners of sea country in Northern Australia, in order to deliver impactful research for both Indigenous and non-Indigenous Australians. Three examples illustrate how marine science is helping to enable Traditional Owners to best manage their sea country.

- AIMS is collaborating with Anindilyakwa rangers and Traditional Owners on the *Mapping the Makarda* (sea country) project at Groote Eylandt. Anindilyakwa rangers operated from the AIMS research vessel to collect data from deeper offshore areas, while small ranger vessels were used to access shallower areas. Rangers deployed AIMS technology after training from AIMS staff, and rangers and elders added their Traditional Knowledge via a participatory mapping process. Together we mapped the fish communities, seafloor features and habitats, and cultural values across 3200km<sup>2</sup> of sea country. Results were delivered back to the community in culturally appropriate communication products, including videos and posters completely in language. The Anindilyakwa Land Council (ALC) will use this increased understanding of the marine environment to plan management of, and future potential for, economic development, including through tourism and aquaculture. ALC and AIMS have agreed to continue their collaboration through ongoing monitoring of the *Makarda*.
- AIMS and Bardi Jawi rangers from the Kimberly area in Western Australia are collaborating on a marine baseline data and monitoring project, which has involved the training of rangers in the use of AIMS technology and data analysis, and delivery of results via culturally appropriate reporting. The results deliver to objectives of their Indigenous Protected Area management plan. The dirt road to Bardi Jawi's land and sea country is being sealed and the rangers anticipate that easier access will increase tourist visitation and recreational fishing pressures. The data from this project are informing their development of possible management interventions and potential economic opportunity.
- AIMS has worked with Traditional Owners in the Torres Strait on various projects for over 15 years. We currently work with the Torres Strait Regional Authority, Traditional Owners and rangers in an ocean observing project, which has established a network of logger and automatic weather stations across Torres Strait. Near-real-time data streams are made available to rangers and the wider community via a data dashboard, which allows rangers to plan their sea country patrols and work plans, and also informs the community about local conditions to enable safe planning of boating and fishing activities.

AIMS' work with Traditional Owners illustrates what can be achieved with a modest investment and an attention to delivering meaningful outcomes for both AIMS and Indigenous partners. AIMS is a leader in terms of both its traditional owner engagement objectives, as well as its planning and delivery of meaningful partnerships, and would be pleased to share these experiences with other government agencies. Incorporating a more comprehensive Traditional Owner engagement and development aspect, focused on Sea Country, would be a powerful dimension to add to the Northern Australia agenda.

## **Global issues (and coral reefs)**

The global economy presents both significant opportunities and potential risks for Northern Australia's future growth and development, some of which are captured in the current Northern Australia White Paper and have subsequently informed the agenda's policy approach. For example, the White Paper emphasises the significant opportunities that will be presented by Northern Australia's proximity to growing Asian markets, particularly in the agricultural and tourism sectors.

However, AIMS believes the Northern Australia agenda needs updating to reflect the increasing likelihood of climate change-induced coral reef degradation, which has come to the greater attention of the public and policymakers in recent years. This has the potential to detrimentally impact Australia's tourism industry (particularly on the Great Barrier Reef), our world heritage values and Traditional Owners' connection to sea country.

AIMS, as part of the Reef Restoration and Adaptation Program (RRAP) consortium, is now finalising an Investment Case to government which maps out the research and development pathway for a detailed reef restoration and adaptation science and engineering program. This program is designed to help coral reefs recover from and adapt to the effects of warming oceans. It has support from the Australian Government, in recognition of the huge importance of a healthy reef ecosystem for the northern economy. The Great Barrier Reef alone directly supports over 64,000 jobs and delivers over \$6.4 billion a year to the economy.<sup>5</sup> AIMS believes it would be useful to reflect this as a key matter in the broader Northern Australia narrative, noting that Australia also has iconic reefs off the north-west coast of Western Australia which are under threat from climate change.

## **Summary**

In summary, AIMS suggests that the following be considered as elements of the comprehensive Northern Australia agenda, to acknowledge a strong marine component:

- The need to support fundamental research into the nation's northern marine estate, to help unlock its huge economic potential, and preserve its unique and fragile ecosystems, as identified by the NTMSEUNA.
- Recognition of the power of working with Traditional Owners on their own sea country, to unlock economic opportunities for coastal and island communities, and the value of co-developed marine science in achieving this.
- Consideration of the significant negative impacts that climate change is having, and will continue to have, on sensitive tropical marine ecosystems across the north, including on coral reefs, and support for measures to help maintain the resilience of those ecosystems that deliver such huge value to Australians.

## **Concluding remark**

AIMS welcomes the Select Committee's review of this submission and would be pleased to elaborate on any aspect if requested.

Yours sincerely

Dr Paul Hardisty  
Chief Executive Officer

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<sup>5</sup> *At what price? The economic, social and icon value of the Great Barrier Reef*, Deloitte Access Economics, 2017.