

2 April 2020

Committee Secretary  
Foreign Affairs, Defence and Trade References Committee  
Department of the Senate  
PO Box 6100  
Parliament House  
Canberra ACT 2600

Dear Committee Secretary

**AIMS submission - Inquiry into the opportunities for strengthening Australia's relations with the Republic of France**

The Australian Institute of Marine Science (AIMS) is pleased to make a submission to the Foreign Affairs, Defence and Trade References Committee inquiry into *Opportunities for strengthening Australia's relations with the Republic of France*.

AIMS – Australia's tropical marine research agency – has a close and longstanding history of research cooperation with French research institutes, both bilaterally and under international marine initiatives. In particular, AIMS collaborates with the *Centre de Recherches Insulaires et Observatoire de l'Environnement* (CRIOBE), one of France's pre-eminent laboratories for the study of coral reef ecosystems. CRIOBE's principal location in French Polynesia, combined with AIMS' research focus on the health and resilience of coral reef ecosystems, has meant much of our collaboration has centred on coral reef resilience, adaptation and restoration in the Pacific. This work is becoming increasingly important as we see more and more stark evidence of the impacts of climate change on the world's oceans. Also of concern is the real potential for these impacts to fall disproportionately on the Indo-Pacific region, which is home to 75 per cent of the world's coral reefs.

In recognition of this challenge, former Prime Minister of Australia the Hon Malcolm Turnbull and President of the French Republic, His Excellency Emmanuel Macron, announced on 2 May 2018 a commitment to a jointly-funded study of up to three years to maintain the resilience of coral reefs in the Pacific. The development of measures to achieve this will be informed by work already underway by AIMS on potential solutions to protect the long-term health of Australia's coral reefs. AIMS is pleased to be working alongside the Australian Government Department of Foreign Affairs and Trade (DFAT), and in partnership with CRIOBE and the Embassy of France in Australia, in progressing this important work to help preserve and restore threatened reef ecosystems.

**The Australian Institute of Marine Science (AIMS)**

AIMS is based in Townsville, North Queensland, with significant research facilities also located in Darwin and Perth. These facilities, which include a world-class research aquarium (the National Sea Simulator) and two ocean-going coastal research vessels, allow AIMS to conduct innovative, world-leading scientific and technological research to support sustainable growth in the use and effective environmental management and protection of Australia's tropical marine estate. AIMS leads the country in peer-reviewed publications in the field of marine and freshwater biology, and has for many

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years retained its position in this field of work as one of the world's top three marine science institutions.

Our success rests on not only our efforts as an individual organisation, but also as a collaborator with others in the research, government and community sectors across Australia and the world. AIMS is pleased to count French research institutes among our research partners, and welcomes the opportunity to further our collaboration with CRIOBE through the Australia-France study announced by former Prime Minister Turnbull and President Macron. Australian and French partners, together with the Secretariat of the Pacific Regional Environment Program (SPREP) had planned a workshop in mid-March in Apia, Samoa, to co-develop a detailed project proposal that would draw on Australian and French expertise to build capability among Pacific island countries for resilience-based spatial management of coral reefs. Unfortunately, this workshop had to be cancelled due to the ongoing COVID-19 pandemic. Despite this short-term setback, AIMS is continuing to work with French organisations and SPREP on the development of a final project proposal for this program of work, noting its potential to enable local reef managers to maintain the condition and productivity of their coral reefs.

AIMS also works closely with French organisations under international marine initiatives to help provide research and knowledge to support the health and resilience of coral reefs around the world. This includes the International Coral Reef Initiative (ICRI), which aims to promote best practice in the sustainable management of coral reefs and systems by building capability, capacity and awareness. Australia, Monaco and Indonesia are currently co-Chairs of the ICRI Secretariat until the end of 2020, and have focused on continuing the work championed under the previous French Chairmanship of the ICRI on protecting and conserving coral reefs. These efforts are complemented by the Global Coral Reef Monitoring Network (GCRMN), which is in the process of developing the next *Status of Coral Reefs of the World* report, due for release later in 2020. The GCRMN is a global network of scientists, institutes and organisations that monitor the condition of coral reefs throughout the world. AIMS is the global coordinator of the GCRMN, and is working closely with international partners, including CRIOBE, which coordinates the Pacific node of the GCRMN and is providing valuable input and expertise to the 2020 *Status of Coral Reefs of the World* report.

### **Opportunities for cooperation the Indo-Pacific**

AIMS and our French partners deeply understand the critical importance of coral reef ecosystems to Pacific island countries. Many Pacific island countries rely on coral reefs to not only provide food security through an ongoing supply of fish and other edible marine species, but also to support tourism industries – a key driver of economic growth in the region. Reefs are also deeply tied to Pacific islanders' cultural identity. Noting the cumulative stresses currently facing these ecosystems, ensuring healthy and resilient coastal and marine environments – of which coral reefs are a constituent part – should be considered central to the security, stability and prosperity of the Pacific region in the context of the Pacific Step-up. The presence of the French territories in the Indo-Pacific provides an opportunity to partner with France to learn more about local marine environments and needs, and engage meaningfully with local communities in developing, trialling and implementing accurate, efficient, scalable and culturally-appropriate reef monitoring and management solutions.

Australia and France are therefore uniquely placed to help lead a global effort to safeguard coral reef ecosystems, particularly within the Indo-Pacific region. With almost 50 per cent of reefs in the Pacific currently considered threatened, ecological monitoring is critical to inform and guide the most efficient management interventions. AIMS, in partnership with French research institutes contributing to the GCRMN, is leading a project that seeks to utilise artificial intelligence (AI) and machine learning to assist with mapping and understanding the condition of the Pacific's coral reefs.

This recently commenced project (ReefCloud), supported with funding from DFAT and technical input from the Queensland University of Technology, will apply big data science to fast-track measurements of coral reef condition across large areas. ReefCloud will provide an end-to-end solution for integrating, synthesising, reporting and communicating coral reef monitoring data using AIMS-developed technology. It aims to demonstrate that the amalgamation of machine learning technologies for automated image analysis can help monitoring and management by: 1) alleviating resource and capability limitations; 2) increasing efficiency; 3) preventing inconsistencies; 4) producing timely reports; and 5) integrating monitoring efforts. A three-year pilot implementation will initially be undertaken in Palau and Fiji to ensure project outcomes align with in-country needs and requirements. This will set the pathway to scale up implementation through the broader Pacific region, with the aim of empowering local communities and governments to build advanced capabilities in the resilience-based management of their reefs.

In a time of profound change in the marine environment, technologies like ReefCloud, which provide the information needed for decision-making and timely implementation of appropriate reef management actions, will be critical in ensuring the long-term health and sustainability of the Indo-Pacific's environmentally, economically and culturally critical coral reef ecosystems. Funding sources under the Pacific Step-up which could support projects focusing on the resilience of coral reef ecosystems should be considered – particularly where there are opportunities to partner with France, given its shared geostrategic interests in the Pacific, scientific expertise in coral reef ecosystems and local knowledge.

## Summary

In summary, AIMS recommends the Committee consider that:

- healthy and resilient coastal and marine environments, particularly coral reefs, are central to the security, stability and prosperity of the Pacific region, and that this is reflected in the implementation of Australia's Pacific Step-up;
- there is a strategic opportunity for Australia and France, given our scientific expertise and world-class research infrastructure, to work together in leading the global effort to safeguard the coral reef ecosystems of the Pacific region; and
- additional opportunities, including financial assistance, to support research cooperation between Australia and France on coral reef resilience be considered within the context of the Pacific Step-up, noting the increasing impacts of a warming ocean on the health and resilience of reef ecosystems are being disproportionately felt in the Pacific region.

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

Yours sincerely

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Chief Executive Officer