



Australian Government



AUSTRALIAN INSTITUTE  
OF MARINE SCIENCE

# ANNUAL REPORT

## 2018-19







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## **DISCLAIMER**

The research reported herein is based on early analyses of complex datasets and should not be considered definitive in all cases. Institutions or individuals interested in all consequences or applications of the Australian Institute of Marine Science's research are invited to contact the Chief Executive Officer at the Townsville address below.

For additional copies of this report, please phone AIMS on (07) 4753 4444, write to us at the Townsville address or email [media@aims.gov.au](mailto:media@aims.gov.au).

This report, along with a range of other information about AIMS, is available online at [www.aims.gov.au](http://www.aims.gov.au).

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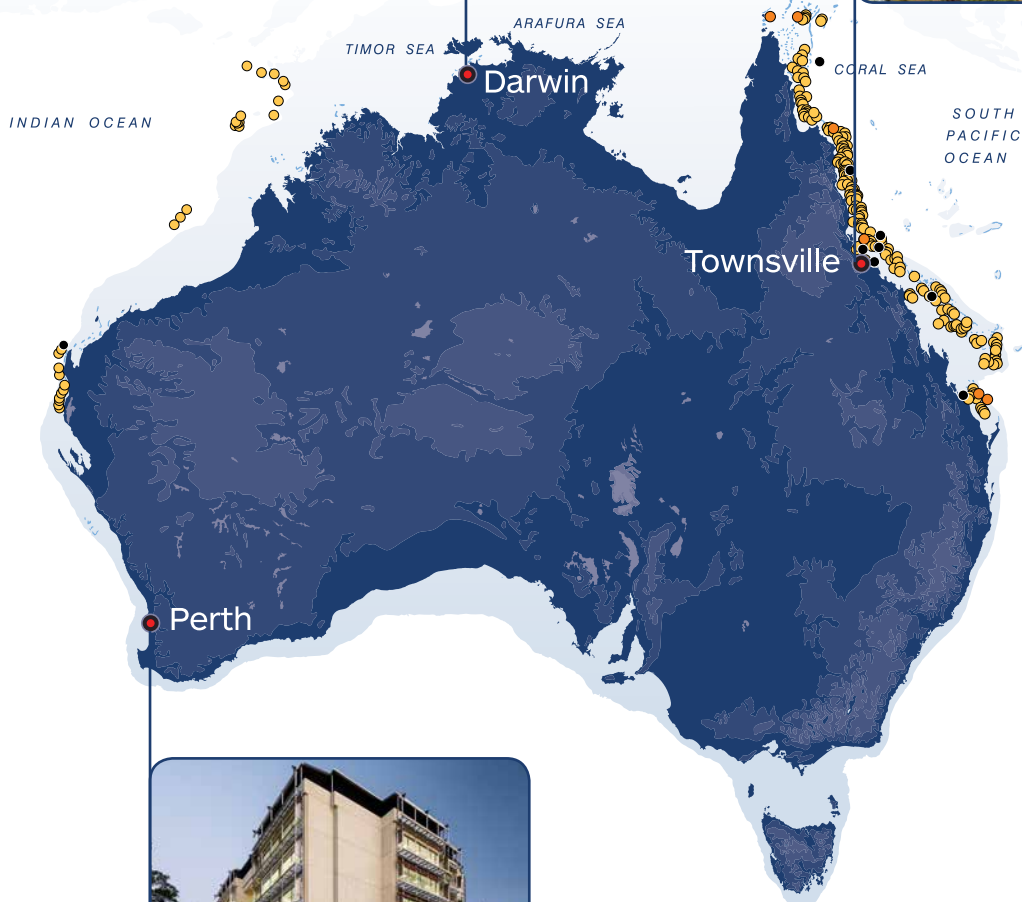
The Australian Institute of Marine Science acknowledges the Traditional Owners of the land and sea on which we work. We recognise the unique relationships and enduring cultural and spiritual connection that Aboriginal and Torres Strait Islander people have to land and sea, and pay our respects to Elders past, present and future.

We particularly recognise the Traditional Owners of the land on which our main laboratory and office bases are located: the Bindal and Wulgurukaba peoples in Townsville, the Larrakia people in Darwin, and the Noongar people in Perth. We also recognise and pay our respects to Aboriginal and Torres Strait Islanders who are Traditional Owners of the areas of our marine science operations across tropical northern Australia.

**Warning:** Aboriginal and Torres Strait Islander persons should be aware that this document might contain images of people who have passed away since publication.



# AIMS FACILITIES



- Sensor networks
- AIMS monitoring sites
- Weather stations
- Location of laboratory facilities

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# LETTER OF TRANSMITTAL



TOWNSVILLE | DARWIN | PERTH

16 September 2019

The Hon. Karen Andrews MP  
Minister for Industry, Science and Technology  
Parliament House  
CANBERRA ACT 2600

Dear Minister

On behalf of the Council (as the accountable authority of the Australian Institute of Marine Science—AIMS), we have pleasure in presenting our 47th annual report, for the year ended 30 June 2019. The report is forwarded to you in accordance with section 46 of the *Public Governance, Performance and Accountability Act 2013*.

This report provides information so that you, the Parliament of Australia, and users of AIMS' research outputs can make an informed judgement about AIMS' performance during the 2018–19 financial year.

This report has been prepared in accordance with the requirements of the *Australian Institute of Marine Science Act 1972* and in accordance with section 46 of the *Public Governance, Performance and Accountability Act 2013* and with the requirements of the Public Governance, Performance and Accountability Amendment (Corporate Commonwealth Entity Annual Reporting) Rule 2016.

On behalf of the AIMS Council, the Chairman endorsed the content of the *AIMS Annual Report 2018–19* on 13 September 2019.

Yours sincerely

The Hon. Penelope Wensley AC  
Chairman  
Australian Institute of Marine Science

Dr Paul Hardisty  
Chief Executive Officer  
Australian Institute of Marine Science

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## THE YEAR IN REVIEW: REPORT FROM THE CHAIRMAN

As Chairman of the Council of the Australian Institute of Marine Science, I am pleased to introduce the Institute's annual report, reviewing AIMS' activities and achievements for the period from 1 July 2018 to 30 June 2019.

It has been an especially busy and demanding year for everyone at AIMS, with Council, Management and staff working to maintain the regular marine research activities that are central to AIMS' purpose, and deliver the high quality science outputs the nation requires of the Institute, while dealing with a number of major additional tasks and challenges.

For Council, a major preoccupation over several months was the conduct of an audit into the effectiveness of its governance by the Australian National Audit Office. The Council has led, governed and set the strategic direction for the Institute since its establishment in 1972. Although annual audits of AIMS' financial processes are a routine aspect of AIMS' operations, this formal audit of its Council- as part of an ANAO examination

of board governance in selected small entities- was a 'first' for AIMS. The process was demanding, involving the provision of a substantial volume of information, interviews with current and former Council members and observation of several Council meetings by ANAO staff. However, it was also very educative and valuable, at a time when the subject of corporate governance is drawing much attention from government and the community and when expectations and standards of board governance responsibilities are changing.

Having welcomed the opportunity to test its effectiveness, the AIMS Council was pleased by the audit's conclusion that the governance and oversight arrangements it has in place are effective. The report, tabled in Federal Parliament by the Auditor-General on 30 April 2019, found that the Council's governance and administrative arrangements are consistent with relevant legislative requirements, that the Council has structured its own operations in a manner that supports effective governance and that the Council has established fit-for-purpose arrangements to oversight compliance with key legislative and other requirements.

Another area of major preoccupation and pleasing performance for the Institute this year was the progress made with work on the Reef Restoration and Adaptation Program (RRAP), enabling completion in June 2019 of the \$6 million design phase of the program, launched in January 2018. The RRAP is a bold and complex endeavour, aimed at developing new technologies to assist reef recovery, repair and adaptation, and to build the resilience of the Great Barrier Reef in the face of multiple pressures.

Protection of our precious Great Barrier Reef is a national priority for Australia, but with coral reefs world-wide similarly in decline and at risk, the RRAP effort is attracting considerable international attention and interest.

AIMS has played a leadership role from the outset, working in close collaboration with CSIRO and other partners. The expectation is that we will continue to do so, as the RRAP moves into its next stages, consolidating AIMS' reputation for innovation and the conduct of cutting-edge research and its position as one of the world's leading marine science agencies.

While AIMS' expertise in reef science and its work on the RRAP has understandably attracted much of the limelight during the year, other areas of research and business activity have continued apace, delivering good results across the board. Key achievements, described in detail in this annual report, included the delivery of all research outcomes set out in the AIMS Corporate Plan, and the securing of a number of strategic long-term industry projects. A special highlight in the area of AIMS' work with industry and the oil and gas sector was the celebration of 25 years of collaboration with Woodside, to explore and conserve the biodiversity of Western Australia's marine environment. At an event in December 2018 to mark this special collaboration, Woodside's Chief Operating Officer said the partnership with AIMS had delivered a long-term knowledge base that underpinned the company's environmental understanding and informed its approvals and impact assessments. It also underlined the benefits that AIMS can deliver for business and the economy.

The latest AIMS Index of Marine Industry—released in March 2019—also underlined the relevance and value of AIMS' work for advancing Australia's economic interests, confirming the significant and growing contribution that Australia's marine industries (our 'blue economy') make to the national economy.

Internally, the management reform program launched last year by the CEO to strengthen AIMS' safety culture and performance, review

and upgrade technology systems and set in place a new organisation-wide leadership development program has moved forward, with more advances expected during the coming year. Good progress was also made with the further development and implementation of AIMS' revised strategic plan, AIMS Strategy 2025, which was released in 2018, notably through the completion of a new communications plan and of a new Indigenous Partnerships Plan.

Finally, no review of key features of the last twelve months at AIMS would be complete without mention of the natural disaster that devastated the Townsville region—home to AIMS' headquarters at Cape Cleveland—in February 2019. Sadly, the homes, property and possessions of many of AIMS' staff were destroyed or damaged by the unprecedented rains and floods and some people are still in a process of recovery, supported by their colleagues. AIMS' research facilities were cut off, but marine science continued throughout, thanks to a dedicated team of staff who remained onsite, keeping the National Sea Simulator operational and ensuring that vital experiments were not disrupted.

The response of AIMS Management and the entire AIMS community to the situation was exceptional. The emergency was handled with assurance, compassion and resolve. This impressive demonstration of AIMS' capacity to respond to challenges gives confidence that, as Australia's marine environment faces its own challenges and our marine industries continue to grow in importance, that Australia's national marine research agency will continue to deliver good outputs for government, business and the community.

Penelope Wensley AC





## THE YEAR IN REVIEW: REPORT FROM THE CEO

I am proud to present this year's annual report on behalf of Australia's national tropical marine research agency.

This year, we released the AIMS Strategy 2025. It updates AIMS' previous strategic plan to reflect recent events that have affected the health of the Great Barrier Reef and reefs in Australia's North West. The strategy sets out our direction and values, reaffirms our mission, identifies the key impacts we will deliver for the nation and signals our ongoing commitment to delivering the highest quality tropical marine science.

Each element of the strategy is accompanied by clear, measurable targets. These will be reported as annual key performance indicators (KPIs) in our Corporate Plans, allowing AIMS and the nation to track our progress.

Strategy 2025 seeks to further strengthen our position as a global leader in reef restoration and adaptation science. AIMS has been developing groundbreaking approaches to reef restoration and adaptation for some time. In 2018–19, we led a national consortium of

organisations in the most complete evaluation of reef restoration and adaptation feasibility undertaken anywhere in the world. This study included an investment case for a major R&D initiative (known as the Reef Restoration and Adaptation Program or RRAP) designed to give real hope for the renewal of the Great Barrier Reef and other Australian reefs. The R&D phase of the program will provide Government with a series of intervention options that can be applied at scale to help reefs better recover from and adapt to the effect of warming oceans caused by climate change. These options will be based on the best science available and will be rigorously assessed and tested to ensure policymakers can deploy them with certainty.

In February, we welcomed the Minister for Industry, Science and Technology, the Hon. Karen Andrews MP, to our headquarters near Townsville to launch the AIMS Index of Marine Industry 2018.

This index demonstrates the value of the blue economy to Australia's future prosperity, underpinned by sound marine science and delivered by world class research agencies such as AIMS.

As an organisation, we have a long track record of delivering high-profile projects. This year, we deployed our largest ship, the RV *Solander*, from Western Australia to the northern Great Barrier Reef for an expedition supporting our Long-Term Monitoring Program. The expedition was part of our commitment to surveying the health of the Great Barrier Reef as we have done for the past 35 years.

We are now halfway through the three-year, \$20 million North West Shoals to Shore (NWSS) Research Program in Western Australia. As part of this program, AIMS conducted the first real world seismic experiment to determine the effects of marine noise on fish and pearl oysters.

As part of the NWSS project, we are also studying the movements of turtles and pygmy blue whales along the north-west coast. Using the latest in acoustic technology, the study will identify risks to these key species from industrial activity and assist in developing improved management practices.

AIMS also has a strong track record of building meaningful partnerships with Traditional Owners of sea country in northern Australia to deliver impactful research for all Australians.

Using our expertise in long-term, large-scale monitoring of coastal and offshore tropical ecosystems, we are working closely with Traditional Owners to build marine monitoring capacity in some of the most remote and inaccessible regions of northern Australia.

This field of focus for AIMS brings together Indigenous knowledge with other areas of science to create new insights into our marine systems.

To reach our Strategy 2025 goals and to prepare AIMS for future challenges, we are embracing innovation and grassroots change. For example, we continued to improve the efficiency of our enterprise management systems and to fully digitise our processes through the implementation of our new TechnologyOne and Microsoft Project Online platforms.

In 2018–19, we introduced a comprehensive leadership development program that is open to all staff. It is designed to build the capabilities of current and future leaders and is an ongoing multi-year commitment that will evolve to suit individual, team and organisational needs.

AIMS takes an organisation-wide approach to risk and has a relentless focus on the safety of our people. Over the past two financial years, our overall safety performance has improved year on year, and we benchmark well compared to a range of other Australian organisations from all sectors when using lost time injury rates as a metric. We will continue to strive for improvement.

This safety focus was demonstrated during the Townsville floods, an unprecedented event that affected the Townsville community and all our staff living there. Despite the disruption, we maintained our key functions, but more importantly all our people were safe.

It is a privilege to lead an organisation that contributes to the betterment of science to achieve positive impact for the nation and the world. I look forward to what I am sure will be another important year for marine science in Australia in 2019–20.

**Paul Hardisty**

# 2018-19 SNAPSHOT

## DELIVERING FIELD SCIENCE



**11,213**  
RESEARCHER FIELD DAYS



**2431** DIVES



**36,500**  
NAUTICAL MILES STEAMED

## SCIENCE EXCELLENCE




**over 200**  
PEER-REVIEWED  
PUBLICATIONS

## SCIENCE LEADERSHIP

### RRAP REEF RESTORATION & ADAPTATION PROGRAM

\$6 MILLION, 18-MONTH CONCEPT  
FEASIBILITY PROGRAM



**150** EXPERTS  
**20+** ORGANISATIONS

INTERVENTIONS  
INVESTIGATED


**160**

**43**  
INTERVENTIONS  
RECOMMENDED

### WAMSI COMPLETION OF 5 YEAR RESEARCH PROGRAMS

#### KIMBERLEY MARINE RESEARCH PROGRAM

\$30 MILLION




**200** SCIENTISTS  
**25** ORGANISATIONS

**23** MARINE SCIENCE  
PROJECTS

#### DREDGING SCIENCE NODE

\$19 MILLION



**114** SCIENTISTS  
**26** ORGANISATIONS

**9** RESEARCH THEMES

## ENVIRONMENTAL PERFORMANCE



**3733**  
TOTAL SOLAR PANELS

**OVER 1000KW**  
GENERATING CAPACITY

**1,500 TONNES A YEAR**  
CARBON FOOTPRINT REDUCTION

## TRADITIONAL OWNER ENGAGEMENT



## SAFETY PERFORMANCE



**12.5% DECREASE**  
IN INJURIES

## ABOUT AIMS

The Australian Institute of Marine Science is a corporate Commonwealth entity established under the *Australian Institute of Marine Science Act 1972* (AIMS Act). As Australia's tropical marine research agency, it is our mission to provide the research and knowledge of Australia's tropical marine estate required to support growth in its sustainable use, effective environmental management and protection of its unique ecosystems.

To accomplish our mission, AIMS delivers independent science to help realise three key long-term impacts for the nation:

- improve the health and resilience of marine and coastal ecosystems across northern Australia
- create economic, social and environmental net benefits for marine industries and coastal communities
- protect coral reefs and other tropical marine environments from the effects of climate change.

Our research is focused on the priorities of our stakeholders, including Commonwealth, state and territory governments, industry and Traditional Owners. During the year, our research continued to:

- underpin Australia's environmental management of the Great Barrier Reef (GBR) to ensure that this World Heritage Area remains healthy and resilient
- support the sustainable development of coastal industries and ports across northern Australia, from Gladstone in Queensland to the Pilbara in Western Australia
- provide the environmental baselines and condition and risk assessments required for current and future offshore oil and gas developments in north-west Australia.



AIMS' headquarters was established on Cape Ferguson near Townsville in recognition of the importance of the GBR to Australia. Today, we also operate from bases in Perth and Darwin, which allows us to conduct research across northern Australia, spanning two oceans and three regional seas (see Figure 1).

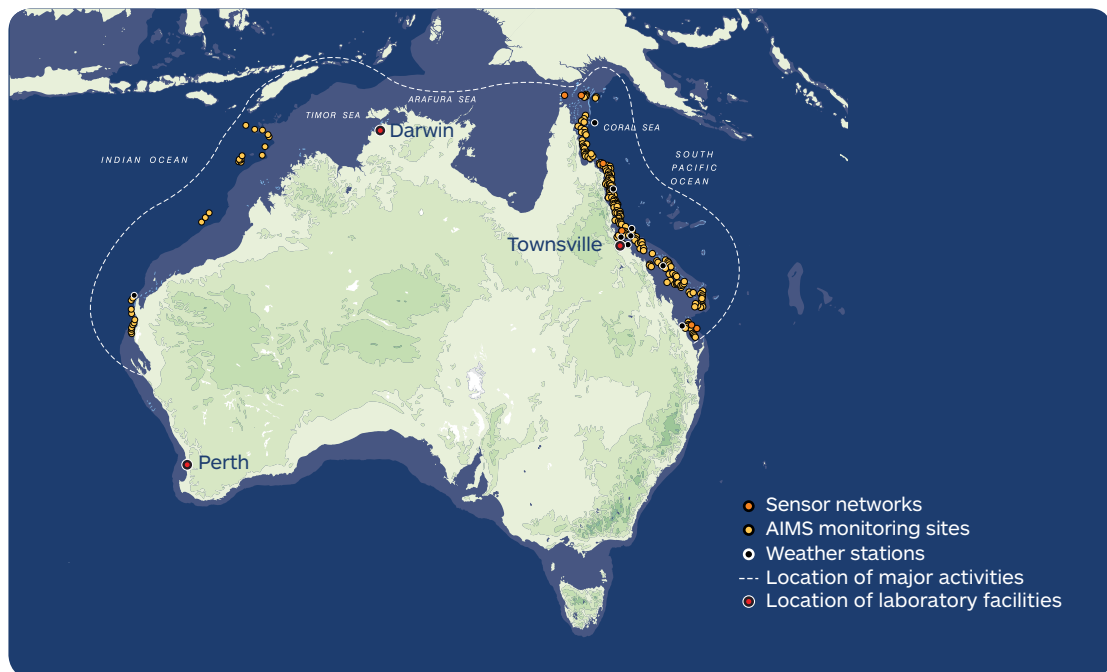


Figure 1: Location of AIMS' facilities and major activities

AIMS recognises that Indigenous peoples are the Traditional Owners of much of the sea country within which AIMS works. We therefore acknowledge their significant interest in the research that we conduct. In 2018–19, AIMS developed an Indigenous Partnerships Plan in consultation with a number of Indigenous groups and individuals with an interest in the monitoring, research, management and governance of sea country. The plan builds on the strong historical relationships that AIMS has developed with Indigenous groups in northern Australia. It also presents a roadmap to achieve meaningful marine science partnerships to help deliver key targets in AIMS Strategy 2025. Importantly, the plan focuses on areas of shared and mutual interest to AIMS and Traditional Owners.

Our new Indigenous Partnerships Plan focuses on three key areas:

- preparing AIMS for Indigenous partnerships by building cultural competency within AIMS and the tools for effective engagement with Traditional Owners
- strengthening existing relationships with Traditional Owners and establishing new ones based on mutual trust, understanding, respect and two-way learning
- establishing AIMS as a leader in working with Traditional Owners by responding to Traditional Owner needs and raising the profile of the value of partnerships between leading science organisations and Indigenous groups.





## Part 2: **PERFORMANCE**

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# PERFORMANCE STATEMENT



TOWNSVILLE | DARWIN | PERTH

## STATEMENT OF PREPARATION

As the accountable authority of the Australian Institute of Marine Science, I present the 2018–19 annual performance statements of the Australian Institute of Marine Science, as required under paragraph 39(1)(a) of the *Public Governance, Performance and Accountability Act 2013* (PGPA Act) and other applicable legislation. In my opinion, these annual performance statements are based on properly maintained records, accurately reflect the performance of the entity, and comply with subsection 39(2) of the PGPA Act.

Council endorsed the content of the performance statements by a resolution on 10 September 2019.

A handwritten signature in grey ink that reads "Penelope Wensley".

The Hon. Penelope Wensley AC  
Chairman  
Australian Institute of Marine Science

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## AIMS leads most extensive report of Western Australia's coral reefs



Western Australia's coral reefs make a significant contribution to the nation's economy and identity through associated fisheries, tourism and recreation. Although they have largely escaped the chronic pressures affecting other reefs around the world, the coral reefs off the WA coast are regularly affected by seasonal storms and cyclones, and increasingly by heat stress and coral bleaching.

Following the recent global marine heat events, there was never a more important time to understand the condition and trends of this economically and ecologically valuable area.

To address this, AIMS led research into the most extensive report on WA's coral reefs. The study involved a collaboration of 26 researchers from 19 institutions, and included important marine observations from regional managers, tourist operators and Bardi Jawi Indigenous Rangers in the Kimberley.

Covering eight reef systems—including 401 survey sites—the study was the first of its kind to establish a long-term history of changes in coral cover across the vast area.

To assess the changing regime of disturbance to reef systems across WA, researchers linked their site-specific exposure to damaging waves and heat stress since 1990 with mean changes in coral cover.

The findings, published in *Coral Reefs*, showed that reef systems north of 18°S have been

impacted by heat stress and coral bleaching during strong El Niño phases and those further south during strong La Niña phases. Since 2010, over half the reef systems have been severely impacted by coral bleaching, which was further compounded by cyclones at some reefs.

### Since 2010, over half the reef systems have been severely impacted by coral bleaching

Cumulative heat stress and the extent of bleaching throughout the northern reefs in 2016 were higher than at any other time on record.

Overall, for 75 per cent of reef systems with long-term data available (five to 26 years), mean coral cover is currently at, or close to, the lowest on record and full recovery is unlikely if disturbances continue to intensify with climate change.

However, some reefs have not yet experienced severe bleaching and their coral cover has remained relatively stable or increased in recent years. Additionally, within all reef systems the condition of coral communities and their exposure to disturbances varied spatially.

Identifying the communities least susceptible to future disturbances and linking them through networks of protected areas, based on patterns of larval connectivity, are important research and management priorities in coming years while the causes of climate change are addressed.

## ***Solander* helps address critical monitoring gaps in the remote far northern Great Barrier Reef**

### Long-term record of reef health continues

With over 30 years of monitoring data, the Great Barrier Reef is one of the most well-studied reefs in the world. However, less monitoring information is available from the far northern areas of the GBR when compared to its southern counterparts, due to the difficulty and cost of accessing this remote area. After widespread bleaching of the region in 2015–16 and 2016–17, addressing the information gaps on the condition and trend of this ecologically important area was considered vital for management.

In January 2019, with funding from the Great Barrier Reef Foundation's Reef Trust Partnership, AIMS transferred its largest research vessel, RV *Solander*, from its home base in Darwin to the east coast to assist with collecting monitoring data in the remote region. The 34.9 metre purpose-built vessel — with its specialised laboratories, flow-through aquariums and high-tech computing and diving facilities — enabled 18 AIMS scientists and crew to conduct broad-scale surveys of 18 reefs from Cooktown to Cape York and detailed surveys of seven reefs in the far north. Critical information was gathered on coral cover as well as baseline data on coral community composition, juvenile coral density and fish communities.

Sixteen of the 18 reefs surveyed had moderate to high coral cover, which suggests they escaped the worst of the bleaching-induced mortality from the 2015–16 and 2016–17 back-to-back bleaching events. Although researchers found that severely impacted reefs were still in poor condition, reef degradation was less widespread than previously understood. Furthermore, surveys recorded many juvenile corals at densities that are expected to promote future recovery. However, this study only surveyed a small number of reefs on the mid and outer shelf, due to safety concerns, which limits

the inferences that can be drawn for an estimate of regional coral reef condition.

There was little evidence of crown-of-thorns starfish activity and very little coral disease. However, there was evidence of continued pressure on these reefs—for example, storm impacts and low-level coral bleaching.

AIMS researchers predict that for full recovery these reefs will require decades without recurrent disturbances. Despite high variability between survey reefs, fish and shark populations were healthy with abundances and diversity slightly higher than in southern areas of the GBR. Several groups of fishes, including the commercially important coral trout, were more abundant on reefs closed to fishing compared to reefs that were open to fishing. This indicates that management zones, such as marine reserves, are also effective in remote localities such as the far northern GBR. However, this difference was only detected from data collected by fixed site surveys of fishes using underwater visual census, and not from sampling by baited remote underwater video stations (BRUVS). This highlights the complementary value of these two standard monitoring methods.

The project also served as a proof of concept for the integration of GBR monitoring programs. The extensive field campaign showed that collecting multiple data streams at the same time is logistically feasible if properly planned and resourced—for example, by using a sufficiently large vessel.

**AIMS researchers predict that for full recovery these reefs will require decades without recurrent disturbances**

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## ENTITY PURPOSE

AIMS was established by the Australian Government in 1972 to conduct research and development relating to, and to promote, the application and use of marine science and marine technology.

The Institute's mission is to provide research and knowledge of Australia's tropical marine estate required to support growth in its sustainable use, effective environmental management and protection of its unique ecosystems. The functions and powers of the Institute are fully described in Appendix C: Legislative Foundation and Ministerial Powers on page 152

## INTENDED OUTCOMES

AIMS' annual Portfolio Budget Statement provides the Parliament of Australia with information on how AIMS will use its allocated resources to achieve the government-mandated outcome over the current budget and forward years. AIMS is funded to deliver *Outcome 1: Growth of knowledge to support protection and sustainable development of Australia's marine resources through innovative marine science and technology.*

Government funding for AIMS is delivered through Program 1: *Marine Research*. This program provides research services focused on supporting the sustainable development of Australia's marine estate by industry while ensuring the protection of high-value marine and coastal ecosystems through effective environmental management.

Through engagement with stakeholders, including Commonwealth and state governments, industry, Traditional Owners and science agencies, AIMS has developed a comprehensive research program that continues to deliver world-leading science while ensuring that its multidisciplinary science capability, infrastructure and research investment remain focused on addressing national needs and aspirations.

The 2018–19 Portfolio Budget Statement Table 2.1.3 identifies how AIMS is working to deliver research outcomes by:

- developing and contributing to integrated observing systems and conducting robust long-term monitoring of key components of Australia's tropical coastal and marine ecosystems
- conducting strategic and applied research investigating major gaps in our understanding of the impacts of natural and human pressures on Australia's tropical coastal and marine ecosystems
- providing advice, data and knowledge products that enable effective environmental risk assessment and the development of evidence-based regulatory regimes by government and marine industry
- contributing to a growing body of publicly available data and information
- engaging in national and international research collaborations to leverage investment, harness capability, ensure uptake of knowledge and promote outcomes enhancing Australia's role in supporting regional blue economies
- engaging meaningfully with Traditional Owners to integrate western and traditional knowledge systems for the sustainable use and effective management of Australia's tropical marine ecosystems

- optimising the use of world class research infrastructure (vessels, aquaria, ocean monitoring equipment and laboratories) to support research conducted by AIMS and research collaborators
- developing, deploying (and potentially marketing) innovative data and underwater sensing technologies.

The success of AIMS' marine research program is assessed against a set of five high level performance criteria designed to:

- maintain or increase scientific excellence, innovation and impact
- successfully deliver strategic and applied research and monitoring that is aligned with national research priorities and stakeholder needs (the Australian and state and territory governments, marine industries (oil and gas, ports sectors, coastal industries and tourism), Traditional Owners and coastal communities)
- ensure research advice and data and knowledge products are used by stakeholders to assess the impacts of natural and human pressures on sensitive marine ecosystems
- increase research capability, capacity, impact and science diplomacy through participation in formal national and international collaborations, joint ventures, partnerships and strategic alliances
- make optimal use of research infrastructure assets.

## **RESULTS AND COMMENTARY ON PERFORMANCE**

AIMS successfully achieved all high-priority research outcomes detailed in the AIMS Corporate Plan 2018–19.

At the start of each annual reporting cycle, only a proportion of external revenue (40–60%) is contracted. This creates two risks that AIMS manages within the cycle:







- Annual external revenue earnings, and hence the capability that AIMS can retain and the associated research outputs it should target, is subject to forecasting error. Note that the market sectors in which AIMS operates are dominated by short-term bespoke research projects; there are few routine or regulated external revenue sources.
- Customers contract AIMS to undertake specific research projects (i.e. the research scope is contractually linked to the funding). While AIMS undertakes extensive stakeholder consultations when setting plans, it is still not feasible to predict exactly which areas of research will be externally funded.

In response, AIMS operates an adaptive research planning process that continually reviews and adjusts research portfolio so that the highest priority research is completed.

In 2017-18, AIMS set a new external revenue record. The 2018–19 external revenue budget was also set at a high level, reflecting more optimism in the market, particularly in the offshore oil and gas sector and the government sector. While external revenue was contracted, weather delays and work not completed meant external earnings were below budget (refer page 66 – revenue).

Table 1 provides a summary of our performance against the Corporate Plan 2018-19 Key Performance Indicators.

*Table 1: Overall performance summary*

<div> <b>Table legend</b>  All expectations met          Most expectations met       </div>				
Performance Criteria	Portfolio Budget Statement (PBS) performance targets	KPIs (Corporate Plan)	Result	Expectations Met
Scientific excellence innovation and impact is maintained or increased	Maintain acknowledged domestic and global high standing in relevant fields of research and confidence of key stakeholders in research outputs	<ul style="list-style-type: none"> <li>Maintain ranking within the top three institutes in the world in relevant research disciplines measured using traditional academic metrics</li> </ul>	Recent benchmarking of AIMS' Citation Impact (CI) demonstrated that in the field of marine and freshwater biology, AIMS was the top-ranked research institution in Australia and second in the world over the period 2013–18 (see Figures 3 and 4 on page 31)	
		<ul style="list-style-type: none"> <li>Maintain high stakeholder confidence in AIMS' scientific outputs gauged using a net promoter score</li> </ul>	Formal surveys of stakeholder confidence have been delayed to avoid oversurveying. However, reports from informal interactions with stakeholders indicate high confidence in AIMS science.	
Successful delivery of strategic and applied research and monitoring that addresses national research priorities and stakeholder needs	Maintain or increase the amount of stakeholder commissioned research	<ul style="list-style-type: none"> <li>Calculate and articulate at least \$10 million in environmental, social and economic net benefits attributable to AIMS research.</li> </ul>	Benefits have been identified from AIMS research contributing to economic growth in Darwin Harbour without compromising environmental performance, as well as improved stakeholder capability and better and faster decision-making in north-west Australia and the Great Barrier Reef. Valuations are not yet complete or validated but preliminary estimates exceed \$10 million/annum.	
		<ul style="list-style-type: none"> <li>Increase net external revenue generated through stakeholder commissioned research by 2.5%</li> </ul>	Net external revenue for 2018-19 is \$12.88 million compared with an actual of \$13.75 million in 2017-18, a decrease of 9%.  Note that the strategic target of 25% increase by 2025 was compared with the 2016-17 baseline of \$10.47 million. The 2018-19 actual represents an increase of 23% over this baseline.	

Performance Criteria	Portfolio Budget Statement (PBS) performance targets	KPIs (Corporate Plan)	Result	Expectations Met
Research advice and data/ knowledge products are critical for stakeholders to assess the impacts of natural and human pressures on sensitive marine ecosystems	Maintain or increase the number of peer reviewed publications, datasets and derived knowledge products that are used by stakeholders and are publicly available	<ul style="list-style-type: none"> <li>Maintain annual journal publication rates in excess of 200 papers per year</li> </ul>	This measure is reported on a calendar year basis. AIMS has exceeded 200 publications each year since 2015. 219 journal articles were published during 2018. The current trajectory for 2019 suggests that in excess of 200 papers will be published for the fifth consecutive year.	✓
		<ul style="list-style-type: none"> <li>100% of journal articles published are made open access</li> </ul>	All research manuscripts are advertised on the AIMS website and copies of all papers can be obtained on request from the author.	—
		<ul style="list-style-type: none"> <li>100% of datasets collected using public monies are made publicly available within one year of collection</li> </ul>	The outputs of research funded by specific government programs are available on the appropriate (government) website or on request, at the completion of the project.	✓
Increased research capability, capacity, impact and science diplomacy through participation in formal national and international collaborations, joint ventures, partnerships and strategic alliances	Maintain or increase the number and scale of domestic and international research partnerships, collaborations, joint ventures and strategic alliances.  Maintain or increase participation by AIMS on advisory panels and committees	<ul style="list-style-type: none"> <li>Maintain the proportion of collaborative research projects that involve AIMS scientists above 70%</li> </ul>	During the 2018-19 FY, AIMS maintained its strong record of collaboration with >85% of its projects involving external collaborators (see page 51).	✓
		<ul style="list-style-type: none"> <li>Maintain the proportion of published papers and reports that include collaborators above 80%</li> </ul>	During 2018, AIMS maintained its strong collaborative publication record. Fifty per cent of papers authored or co-authored by AIMS scientists involved collaborators from other Australian research organisations, and 46% of papers involved international collaborators.	✓
		<ul style="list-style-type: none"> <li>Contribute to 100% of advisory panels and committees that are relevant to AIMS business</li> </ul>	AIMS continues to play a significant advisory and leadership role on relevant panels and committees. Most notable are the National Marine Science Committee, the Reef 2050 Plan Reef Advisory Committee, Independent Expert Panel and RIMReP Steering Committee, Secretariat for the International Coral Reef Initiative and the Global Coral Reef Monitoring Network Steering Committee. In addition, AIMS has contributed advice to several government reviews and Senate inquiries (e.g. DIIS Women in STEM Strategy Consultation Paper, Senate Inquiry into Australia's Faunal Extinction Crisis). See Appendix B	✓



Performance Criteria	Portfolio Budget Statement (PBS) performance targets	KPIs (Corporate Plan)	Result	Expectations Met
Optimal use of research infrastructure assets	Maintain or increase usage of research infrastructure – specifically the RV <i>Solander</i> , the RV <i>Cape Ferguson</i> and the National Sea Simulator	<ul style="list-style-type: none"><li>90% utilisation of major research assets</li></ul>	National Sea Simulator utilisation is 90%; Research vessel utilisation is 88%.	<div></div>



Image: N Thake



# STATEMENT OF (MINISTERIAL) EXPECTATIONS

In 2015, the then Minister for Industry and Science, the Hon. Ian Macfarlane MP, provided the AIMS Council with a Statement of Expectations<sup>1</sup>, outlining the Minister’s expectations regarding the quality and focus of AIMS’ research, its contribution to Australian Government priorities and initiatives, and AIMS’ governance and communication responsibilities.

The Chairman of the AIMS Council, the Hon. Penelope Wensley AC, responded with the AIMS Statement of Intent<sup>2</sup> identifying our commitment to the Australian Government’s policy agenda and the strong connections between this policy agenda and our Strategic Plan 2015–25.

In 2018–19, AIMS continued to achieve outcomes that directly support the Ministerial Statement of Expectations, as identified in Table 2.

Table 2: AIMS delivery against Minister's expectations.

Minister's expectation	AIMS delivery against expectation
AIMS to actively engage in the specifications and overall spirit of the Boosting Commercial Returns from Research agenda, ensuring the Commonwealth's \$9.2 billion per year investment in research furthers the interests of the Australian community and maximises our commercial return.	AIMS continues to take an active role in Australian Government science and research policy development and participates in initiatives such as the National Collaborative Research Infrastructure Strategy.
The Government is finalising its first set of Science and Research Priorities developed by the Chief Scientist and considered by the Commonwealth Science Council (CSC), and I expect AIMS to give consideration as to how it can best contribute to these research areas of national priority.	AIMS' research program is aligned with Australia's Science and Research Priorities – in particular the soil and water, and environmental changes priorities. During 2018–19, AIMS delivered the Reef Restoration and Adaptation Program which is contributing to one of the Government's most recent priorities—science for the restoration and (climate) adaptation of the GBR.
Consistent with its legislative functions, AIMS to contribute to the Government's science, technology, engineering and mathematics (STEM) agenda to increase Australia's STEM performance.	AIMS delivers on its commitment to support the growth of STEMM capabilities in marine science by co-supervising postgraduate students and providing postdoctoral and early career pathways and employment opportunities. Further, AIMS is a primary sponsor of the ATSIMS program (Aboriginals and Torres Strait Islanders in Marine Science), which encourages the uptake of marine science by Indigenous high school students.

1 The statement is available at: <https://www.aims.gov.au/docs/about/corporate/corporate-profile-governance/statement-of-expectations>

2 [www.aims.gov.au/docs/about/corporate/corporate-profile-governance/statement-of-intent](https://www.aims.gov.au/docs/about/corporate/corporate-profile-governance/statement-of-intent)

Minister's expectation	AIMS delivery against expectation
The Government will respond to the Research Infrastructure Review. AIMS to provide input, through the Department of Industry, Innovation and Science to this process of policy development including on matters such as depreciation, governance, access management, long-term planning and prioritisation, and sources of funding.	AIMS contributed to the Research Infrastructure Review, the development of the 2016 National Research Infrastructure Roadmap, and the National Research Infrastructure Investment Plan 2020 review.
AIMS to continue to deliver world class research and development in relation to marine science and marine technology that underpins the sustainable long-term management of Australian marine environments, including the GBR, as well as associated impartial and accurate advice. In doing so, it should focus its scientific research on areas where it has or can establish a competitive edge in terms of excellence and scale, and encourage the application and adoption of this research, especially where it can drive improvements in Australia's economic competitiveness.	This is a core function of AIMS. A recent analysis of AIMS' citation impact in the field of marine and freshwater biology—our core area of expertise—determined that between 2013 and 2018, AIMS was the top-ranked research institution in Australia and second in the world – see page 31.
AIMS to support the Minister for Industry in her role as Deputy Chair to the Prime Minister of the Commonwealth Science Council (CSC).	AIMS provides support to the membership of the CSC at all appropriate levels.
AIMS to engage with the Chief Scientist of Australia, including when a member of the National Science, Technology and Research Committee.	AIMS takes appropriate opportunities to engage the Chief Scientist. AIMS Council Chairman and CEO have met the Chief Scientist several times.
In advancing the Government's agenda, AIMS to collaborate with universities, other publicly funded research agencies, and industry to achieve common objectives. In particular, AIMS should not rely entirely on its own resources but should also use national and international collaboration to increase the capacity and responsiveness of the nation's ability to translate marine science research into outcomes.	A significant proportion of our research involves collaborations with other parties. During 2018–19, more than 85% of AIMS' projects involved external collaborators, including universities, other publicly funded research agencies and industry partners.
AIMS to work in partnership with business to identify and develop the science to address industry problems and to underpin Australia's aim of increased competitiveness. The knowledge and ideas of its researchers can substantially improve the productivity of industry and businesses. AIMS and business should therefore work together to continue growth in the knowledge-based sectors. Further, AIMS to engage with those industries where AIMS' capability can help them to become globally competitive.	AIMS delivered an extensive portfolio of research related to industry, particularly the offshore oil and gas sector in WA. We also provide research-based support to other Australian industries, including ports, tourism and agriculture.

Minister's expectation	AIMS delivery against expectation
AIMS should maximise use of its national scientific facilities and collections by Australian and international researchers, including by encouraging industry access to relevant facilities. In encouraging such access, AIMS has a role to play in communicating and educating business on the benefits such infrastructure can provide.	AIMS' national research infrastructure, the SeaSim, and AIMS' research vessels continue to be used frequently by industry partners and other researchers, including international researchers, as part of collaborative research projects.
AIMS to raise community awareness of its activities and communicate its research and technical knowledge through the publication of peer reviewed scientific papers and the provision of marine science and technology goods and services.	AIMS delivers its science to the broader community through a variety of communication mechanisms including through the AIMS website and by publishing numerous high-quality scientific papers in peer reviewed journals.
Research publications produced by AIMS that arise from public funding should be openly available at no charge within 12 months of original publication, excepting where contractual arrangements preclude this or are at significant cost, noting that such arrangements are to be minimised. This could be done by making publications accessible via the agency website; by depositing the output to an organisation, institution or discipline electronic archive that provides open access; by publishing in open-access journals; or by ensuring publications are available on a journal or publisher website.	AIMS regularly publishes research papers in open-access journals and also advertises published outputs on the AIMS' website, noting that copies of research papers can be obtained from the author. In addition, the outputs of research funded by specific government programs are made publicly available on the appropriate (government) website on completion.
Consistent with its legislative functions, AIMS to invest in industry-relevant research training. AIMS to encourage engagement between researchers and business, including by facilitating mobility between AIMS and other research organisations and industry. AIMS to encourage its researchers to be entrepreneurial and support realisation of commercialisation outcomes for industry. AIMS to support risk taking, as part of a resilient strategic approach to solving the big problems facing Australia, within the context of maintaining good governance and learning from failure.	AIMS supports the training of postgraduate scientists in industry-supported fields of research, collaborating with other national and international research organisations, and partnering with major industry sectors to develop innovative solutions that yield beneficial economic and environmental outcomes. During 2018-19, AIMS joined with industry partners to jointly fund several early career research positions within the Institute.

Minister's expectation	AIMS delivery against expectation
AIMS to identify and take, where practicable, opportunities to support new companies to commercialise AIMS' discoveries and expertise.	AIMS monitors and assesses potential commercial development opportunities arising from our research. We have a record of supporting companies in their efforts to realise commercial benefits of AIMS' discoveries and expertise. AIMS undertakes a range of technology development projects aimed at further leveraging its research investment.
AIMS to keep the Minister and the Department informed, in a timely and accurate way, of significant issues relating to the health and work of the organisation. AIMS to provide input and information to the Department as required ensuring that advice to the Minister's office and the Government canvasses relevant issues and sensitivities and reflects a portfolio response. AIMS to provide copies of ministerial briefings and correspondence to the relevant areas of the Minister's office and the Department, in parallel. AIMS to provide prior notice to the Minister's office and the Department of significant announcements and events that are likely to attract media attention.	AIMS continues to provide a range of timely and informative briefings to Australian Government ministers and departments on relevant marine science issues.
In accordance with the <i>Public Governance, Performance and Accountability Act 2013</i> (PGPA Act), AIMS to develop an annual corporate plan and to provide that plan to the responsible portfolio minister and the Minister for Finance. In developing the corporate plan, AIMS to consult with the Minister and the Department, and to take into account the priorities and policies of the Government, especially as articulated in the Statement of Expectations.	Consistent with the requirements of the PGPA Act, AIMS released its 2018–19 Corporate Plan update in August 2018.
AIMS to provide Parliamentary Secretary Andrews and her office with the same level of communication, and timely, accurate advice and information, as to the Minister and the Department.	All official AIMS Ministerial briefs are lodged with, and available to, the executive of the Department of Industry, Innovation and Science.

# RESEARCH PERFORMANCE

## PUBLICATIONS

AIMS has a strong publications record within our fields of expertise, particularly climate change and ocean acidification, marine biodiversity, ecosystem processes, ecosystem status and trends, water quality and marine microbiology.

The main type of publications produced by our research staff are peer reviewed journal articles and reviews, followed by client reports (see Figure 2). For the full citation, please see Appendix A: Science publications.

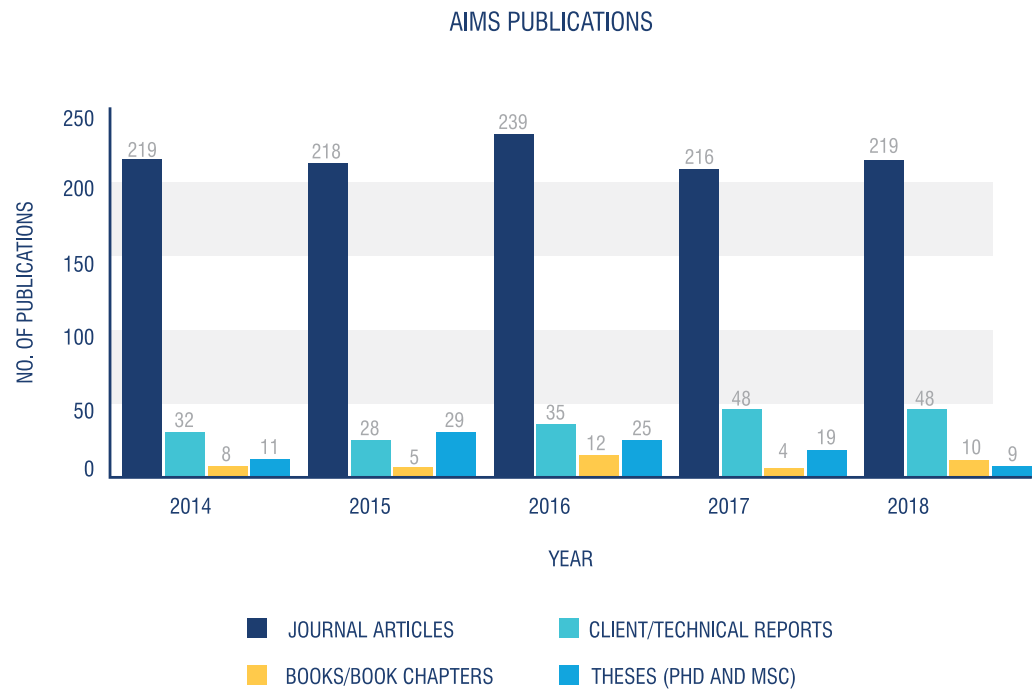


Figure 2: Number of AIMS publications by type, 2014–18

Recent benchmarking of AIMS’ citation impact (CI) demonstrated that in the field of marine and freshwater biology, AIMS was the top-ranked research institution in Australia (Figure 3) and second in the world (Figure 4) over the period 2013–18.<sup>3</sup>

<sup>3</sup> Benchmarking was conducted using Clarivate Analytics InCites research analytical tool, which queries more than 12,000 journals comprising the Web of Science. The analysis assessed the citation impact (CI) of articles and reviews Australian and international research institutions that had published more than 200 peer-reviewed publications in the field of marine and freshwater biology between 2013 and 2018. The citation impact of an organisation is calculated by dividing the total number of citations by the total number of publications produced by the organisation within a period of time.

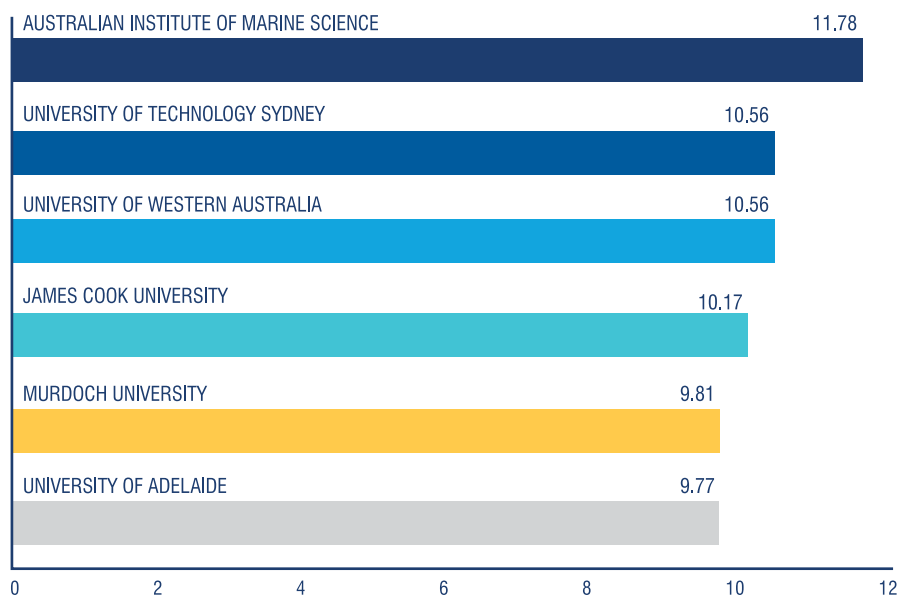


Figure 3: Top six organisations in the field of marine and freshwater biology ranked by citation impact, 2013 to 2018 in Australia (InCites May 2019)

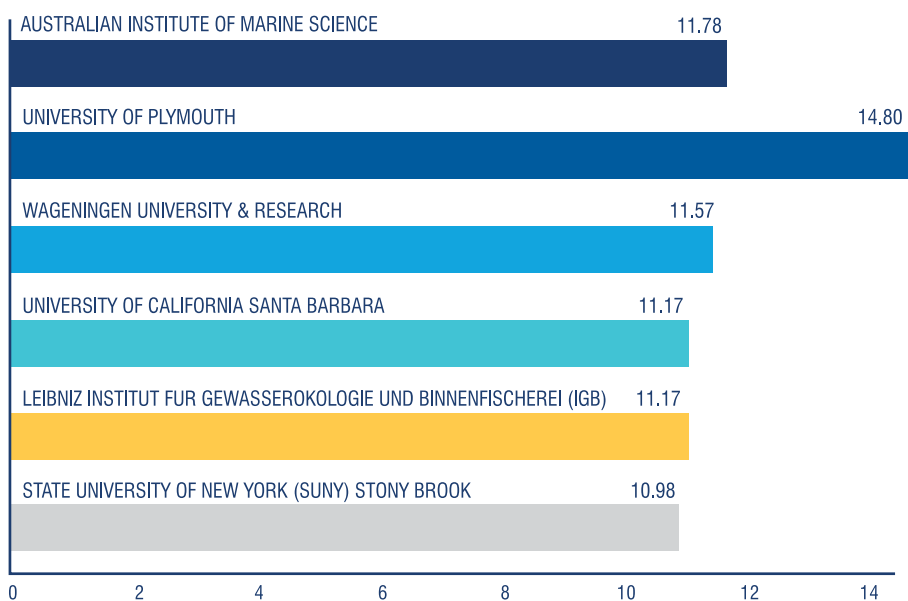


Figure 4: Top six organisations globally in the field of marine and freshwater biology ranked by citation impact, 2013 to 2018 (InCites May 2019)

James Cook University remains AIMS' most frequent collaborator on publications (Figure 5); in part due to the strong strategic partnership between the two organisations for research student training (AIMS@JCU). Similarly, the numerous co-authorships with CSIRO (second) and the University of Western Australia (third) are facilitated in part by the co-location of all three organisations in the Indian Ocean Marine Research Centre, Perth. External collaborations with the University of Queensland and the University of Tasmania have steadily increased over the past 10 years.

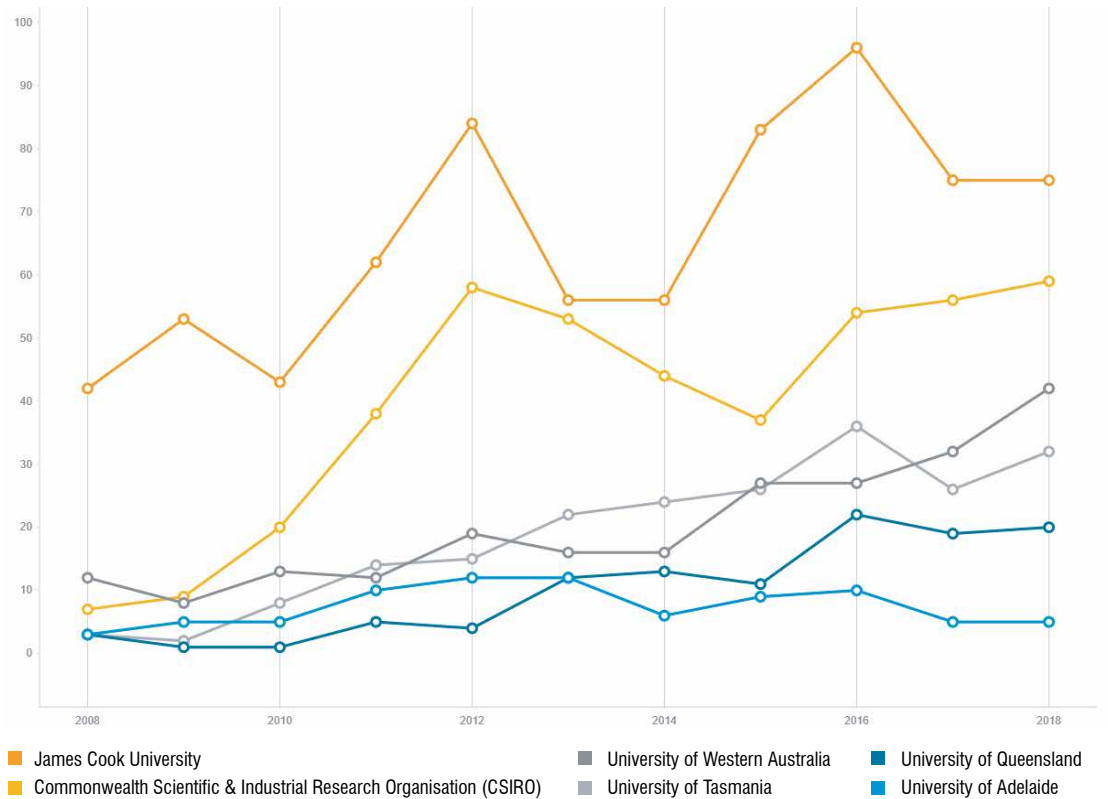


Figure 5: Trends in collaborative publications (all research) illustrating the top six research institutions, 2008–18 (InCites May 2019)



# Giving coral reefs a future

## A compelling investment case

Over the past three decades, total coral cover in the Great Barrier Reef Marine Park has declined to a level well below that seen when we started broad-scale monitoring in 1985. The major causes of this decline have been large-scale disturbances: crown-of-thorns starfish outbreaks, tropical cyclones and mass coral bleaching. The severity of tropical cyclones and mass coral bleaching events is determined by summer ocean temperatures, which have been slowly rising throughout the 20th century. In 2016 and 2017, high sea temperatures caused mass coral bleaching across the northern GBR affecting a large portion of the reef that had, until that time, escaped large-scale disturbances.

These unprecedented disturbances led to the Great Barrier Reef Marine Park Authority (GBRMPA) developing the 2017 'Great Barrier Reef Blueprint for Resilience', which recommends "researching and developing large-scale restoration methods".

In January 2018, the Australian Government provided \$6 million for a feasibility study of the Reef Restoration and Adaptation Program (RRAP) led by AIMS and involving a multi-institutional partnership including CSIRO, Great Barrier Reef Foundation, University of Queensland, James Cook University, Queensland University of Technology, Great Barrier Reef Marine Park Authority, and a dozen other specialist research, private sector and international organisations. More than 150 scientists and engineers from four countries were directly involved with the RRAP Concept Feasibility Program in 2018–19.

The partnership conducted a rigorous review of current global restoration practices and other more innovative possibilities. It convened international workshops to determine how we want to restore reefs, possible actions to achieve the desired effects, and the feasibility of these actions at different scales. Eventually, a multitude of possibilities was reduced to 43 interventions deemed worthy of further evaluation through a staged R&D program.

The feasibility study showed that while there was no 'magic bullet' solution, an integrated package of RRAP interventions could help protect and retain the environmental, social and economic values of the GBR indefinitely under best-case emissions scenarios (RCP 2.6). Under an unchecked emissions scenario and continued climate change (RCP 8.5)<sup>4</sup>, such interventions could help protect and retain the core environmental, social and economic values of the reef for another 20 to 30 years, creating a window of opportunity to tackle the global emissions crisis.

### **In January 2018, the Australian Government provided \$6 million for a feasibility study of the Reef Restoration and Adaptation Program (RRAP) led by AIMS**

The investment case concludes that interventions at scale could help the reef provided that long-term, best-practice reef management continued and that global greenhouse gas emissions were reduced. The proposed R&D program was supported by a cost-benefit analysis that estimated potential returns to the nation of interventions (economic activity, jobs, community development and capacity building) to be in the tens of billions of dollars.

The RRAP R&D program proposes one of the world's largest efforts to help a significant ecosystem survive climate change, and to make interventions at scale feasible, safe, acceptable and affordable. This program would position Australia as the global leader in coral reef adaptation and restoration, opening opportunities to partner internationally and to export Australian expertise to other countries where reefs face similar challenges.

<sup>4</sup> Representation Concentration Pathways (RCP) <https://www.environment.gov.au/system/files/resources/492978e6-d26b-4202-ae51-5eba10c0b51a/files/wa-rcp-fact-sheet.pdf>

## Future coral reefs and next generation corals



Image: C Miller

Mass coral bleaching and mortality caused by high sea temperatures in five separate years (1998, 2002, 2006, 2016 and 2017) has significantly reduced total coral cover on the GBR. Critically, the time between these events has been too short for full recovery of mature communities. Long-lived and vulnerable species will disappear if this trend continues. As ocean temperatures are predicted to increase over the foreseeable future, researchers at AIMS are exploring options for making corals more temperature tolerant.

### **At AIMS, the pilot work for future culture systems is being done in the National Sea Simulator (SeaSim)**

The RRAP Investment Case (see page 33) examines options for making corals more resilient. These range from selective breeding programs to genetically engineered corals and symbionts.

Underlying many of the options is the ability to harvest coral spawn in order to produce next generation juveniles. While this can be done in the field now, the techniques are not scalable. The mass culture of juveniles with known parentage can only be done in large aquaculture systems.

At AIMS, the pilot work for future culture systems is being done in the National Sea Simulator (SeaSim).

Just prior to the 2018 spawning season, our researchers joined a GBR Legacy 'Search for Solutions' expedition to the far northern Great Barrier Reef, which was impacted by consecutive marine heatwaves in 2016 and 2017. Healthy colonies of surviving *Acropora tenuis* were collected and flown to the SeaSim where they were spawned. In a collaboration with AIMS, scientists from the Taronga Conservation Society Australia and the US-based Smithsonian Conservation Biology Institute collected and froze coral sperm from these spawnings to be

banked in Taronga's GBR Coral Cryo-repository. The repository already had gametes from 16 different coral species cryopreserved at its two cryodiversity banks in Sydney and Dubbo. In a reciprocal exchange, cryopreserved sperm banked in 2012 were thawed and found capable of fertilising fresh eggs from the northern corals. This success demonstrates that cryopreserved gametes can be stored and used in experiments throughout the year, reducing a critical bottleneck on experiments that use fresh spawn, which is only available for one or two weeks per year.

In the 2018 coral spawning season, AIMS researchers spawned a record 26 species of coral in the SeaSim and produced coral spat from 23 species. Slightly more than half (14) were spawned for the first time in the SeaSim; for one species, it was the first spawning of this species observed anywhere. Larvae from 19 of the 23 species were maintained for three months and tested in assays to determine their settlement preferences, growth and survival after settlement. This allowed comparisons between locally designed settlement collectors and international versions through collaboration with a leading international reef restoration organisation, SECORE. Early survival of corals is a critical parameter to achieve 'scale at cost' for reef restoration, which is likely to require settling corals on optimised artificial

surfaces. These experiments were enabled by the first grant from the Reef Trust Partnership for Reef Restoration and Adaptation Science, which is managed by the Great Barrier Reef Foundation.

With a major grant from the charitable Paul G. Allen Philanthropies, eggs and sperm from different *Acropora* species, including the *A. tenuis* from the northern GBR, were exposed to each other in breeding trials. In seven of the eight trials, successful fertilisation produced viable hybrid juveniles. Early tests in the SeaSim showed that hybrids, including *A. tenuis* genes, were more tolerant of heat than purebred juveniles. In March 2019, with approval from the Great Barrier Reef Marine Park Authority, our researchers planted some of these hybrid juveniles in short-term deployments on the reef for the first time. They will be returned to the laboratory before reaching maturity. These field experiments are the culmination of several years' work investigating assisted evolution co-funded by Paul G. Allen Philanthropies and AIMS. They are designed to test whether the hardiness demonstrated in laboratory experiments is maintained after extended exposure to real world conditions. This is crucial information for any plan to seed reefs with next generation corals.



Image: C Brunner

## Sponges in the 21st century

Coral reefs across the world have changed in many places since the middle of the 20th century. The most common feature among these changes has been the declining abundance of reef building corals. In the short term, many seascapes once dominated by coral assemblages have been converted to algal reefs, especially where overfishing or disease has reduced the abundance of herbivorous fish and sea urchins. When abundant, chemical secretions from macroalgae can prevent coral larvae from recolonising the reef, adding another pressure to the global threat to corals from marine heatwaves. With global oceans continuing to warm, a question remains about the mix of species expected on reefs in a warmer future.

### **Recent work by AIMS researchers shows that sponges are more tolerant than corals of the climate conditions projected for 2100**

Along with algal-dominated reefs, some reefs in the Caribbean have recorded steady increases in sponges to the point where these filter feeders now represent the majority of biomass. While there is debate among ecologists about the extent to which the increase in sponges is a response to dissolved nutrients released from abundant algae

or a release from their historical predators like turtles, recent work by AIMS researchers shows that sponges are more tolerant than corals of the climate conditions projected for 2100.

Experiments in the SeaSim have shown that four different types of sponges were unaffected by a 1.5°C rise in temperature (enough to cause bleaching and death of most corals), and some species were tolerant of an extreme change of 4°C (enough to kill all corals). While extreme temperatures decreased the health and survival of some sponge species, no effect was observed in experiments examining the potential impact of ocean acidification. Observations by AIMS researchers at natural carbon dioxide vents in Papua New Guinea have confirmed that many sponge species are tolerant of chronic changes of pH. Further experiments in the SeaSim on the combined effects of ocean warming and ocean acidification showed that the two pressures interact in ways that differ among species. While acidification exacerbated the effect of warming in sponge species that feed on plankton, it mitigated the warming effect in species with photosynthetic symbionts. Thus, multiple lines of evidence suggest that marine sponges may be 'winners' from climate change and the next step is to model the impacts of increased sponge abundance upon reef community functions.



Testing marine sponges in the Seasim (Image: H Bennett)





Image: S Clarke

## SCIENCE LEADERSHIP

AIMS plays several important marine science leadership roles, including setting research agendas through strategic workshops on key issues, giving keynote talks at international symposia and contributing to issues of national importance through input to government committees and policy projects. Here we outline some key leadership roles that AIMS has played during the year.

### Contributing to issues of national importance

#### National Marine Science Committee (NMSC)

The National Marine Science Committee, which comprises 29 representatives of research institutions, universities, industries and government departments with a stake in marine science (including the Department of Industry, Innovation and Science; Geoscience Australia; and CSIRO) is responsible for implementing Australia's National Marine Science Plan 2015–2025, which was released in August 2015. The plan addresses the challenges identified in the Marine Nation 2025 position paper. It operates in tandem with the Science and Research Priorities set by the Commonwealth Science Council, and with a number of other national and international efforts to prioritise ocean, earth system and climate science. The plan highlights areas where national collaborations can strengthen both science and end-user communities and recommends investment in research infrastructure and high-priority science programs to maximise the marine sector's contribution to the growth of Australia's \$68 billion<sup>5</sup> blue economy.

AIMS provided strong leadership during the development of the National Marine Science Plan 2015–2025 and continues to make significant contributions to the NMSC and to the subsidiary working groups established to help implement the Plan.

#### Reef 2050 Long-Term Sustainability Plan

The Reef 2050 Plan is a 35-year plan developed jointly by the Australian and Queensland governments to assist management of the GBR and the GBR World Heritage Area. It aims to maintain and enhance the health and resilience of the reef while allowing ecologically sustainable development. The vision is to ensure that the outstanding universal values of the GBR continue to improve each decade between now and 2050, guaranteeing that the reef remains a natural wonder for successive generations. The Plan, which sets out objectives, outcomes, targets and actions, was developed in partnership with government, key industry organisations, Traditional Owners, environment groups, researchers and the community.



AIMS continued to provide strong leadership in the implementation of the Reef 2050 Plan through the direct involvement of the following personnel:

- The Hon. Penelope Wensley AC – Chairman of the AIMS Council and Chairman of the Reef Advisory Committee (RAC),
- Dr Paul Hardisty – AIMS CEO, member of the RAC and member of the RIMReP (Reef 2050 Integrated Monitoring and Reporting Program) Steering Committee
- Dr David Souter – member of the Program Delivery Working Group responsible for overseeing the delivery of the RIMReP
- Dr Britta Schaffelke, member of both the Commonwealth and state independent expert panels and led the RIMReP Coral Reef Expert Group
- Dr Richard Brinkman – led the RIMReP Marine Physico-chemical Expert Group
- Dr Eric Lawrey – member of the RIMReP Data Management and Integration working group
- numerous members of AIMS staff who contributed expertise to components of the design of RIMReP.

The most significant outcome for AIMS and the Reef 2050 Plan during 2018-19 was the delivery of the design recommendations for the Reef 2050 Integrated Monitoring and Reporting Program.

## **Contributing to issues of international importance**

### **AIMS leads global collaborations on Reef Restoration and Adaptation**

Climate change is the single biggest threat facing the world's coral reefs. We recognise that maintaining the health and resilience of coral reefs through the development and application of innovative interventions to restore and help coral reefs adapt is a truly global challenge. AIMS has built on the work undertaken during the concept feasibility phase of the RRAP to generate international support and collaborations, particularly with international scientists and management agencies such as the US National Oceanic and Atmospheric Administration (NOAA).

In partnership with the NESP's Tropical Water Quality Hub, the RRAP co-hosted the Great Barrier Reef Restoration Symposium in Cairns in July 2018. This three-day event drew more than 200 scientists, engineers, marine park managers, tourism operators, community leaders and youth from around the world, and explored some of the most promising options for strengthening the resilience of the GBR and reefs worldwide, as well as wider issues and different perspectives on reef restoration. The symposium generated national and international debate concerning potential innovations and the complex issue of intervening to help coral reefs.

AIMS researchers Ken Anthony and David Bourne were appointed members of a US National Academies of Sciences, Engineering and Medicine (NASEM) Committee on Interventions to Increase the Resilience of Coral Reefs. They joined nine other experts to "review the science and assess potential risks and benefits of ecological and genetic interventions that have potential to enhance the recovery and persistence of coral reefs threatened by rapidly deteriorating environmental conditions that are warmer, less favourable for calcification, have impaired water quality, and pose continuing disease threats". In addition, several AIMS staff were invited to give public presentations as part of the NASEM committee process. The committee's review, which recommended careful planning and monitoring of interventions, was released in June 2019.

### AIMS contributes to the International Coral Reef Initiative

Since July 2018, Australia has chaired the International Coral Reef Initiative (ICRI) Secretariat in partnership with Monaco and Indonesia. The ICRI is an informal partnership between nations and organisations that strives to preserve coral reefs and related ecosystems around the world. The actions of ICRI have been pivotal in continuing to highlight globally the importance of coral reefs and related ecosystems to environmental sustainability, food security and social and cultural wellbeing. In particular, ICRI encourages the adoption of best practice in sustainable management of coral reefs and associated ecosystems, builds capacity, and raises awareness at all levels of the plight of coral reefs around the world. The work of ICRI is regularly acknowledged by the United Nations, highlighting the Initiative's important cooperation, collaboration and advocacy role within the international arena.

AIMS has made significant contributions to Australia's co-chairmanship through the collaborative development of the ICRI Plan of Action, and as a member of Australia's internal ICRI Steering Committee. In addition, under the auspices of ICRI, we established and are leading the Ad Hoc Committee on Reef Restoration, which aims to assess and document global needs and priorities for current and future reef restoration, identify R&D priorities and improve coordination, and jointly plan and deliver R&D activities. Recommendations of the Ad Hoc Committee are due later in 2019.

### AIMS takes on global coordination of the Global Coral Reef Monitoring Network (GCRMN)

With the support of the Department of Foreign Affairs and Trade, AIMS has responded to UN Environment Assembly Resolution 2/12 on coral reefs which called on UN Environment to "support further development of coral reef indicators, regional coral reef assessments, and preparation of a global report through GCRMN", and the ICRI Resolution requesting the ICRI Secretariat and UN Environment to "develop and initiate implementation of a roadmap for strengthening GCRMN". The GCRMN is an operational network of the International Coral Reef Initiative (ICRI). The GCRMN supports ICRI by working through a global network of coral reef scientists and managers, institutions and organisations to provide the best available scientific information on, and communication of, the status and trends of coral reef ecosystems for their conservation and management. The GCRMN produces periodic Status of Coral Reefs of the World reports, which have had significant impact within the global scientific, NGO, government and United Nations communities, with the UN recognising that the GCRMN is the primary vehicle for monitoring progress toward coral reef-related Sustainable Development Goals (13 & 14) and Aichi Biodiversity Targets under the CBD (Target 10). Under AIMS leadership, and in conjunction with a global network of contributors, the GCRMN will produce the next *Status of Coral Reefs of the World* report by mid-2020.

### Coral Reef Innovation Project addressed global challenges associated with coral reef monitoring

In 2018–19, AIMS prepared to pilot a new generation of coral reef monitoring technology on reefs in the Pacific Islands. Working with the Department of Foreign Affairs and Trade, Queensland University of Technology and Pacific Island partners, the Coral Reef Innovation Project, otherwise known as *Reef Cloud*, will provide an end-to-end cloud-based solution that will use artificial intelligence and machine learning technologies to automatically generate reports for image-based coral reef monitoring programs describing changes in the condition of coral reefs. *Reef Cloud* will help reef managers to make more timely and accurate decisions to improve the long-term resilience of global coral reefs.

### Sea surface temperature workshop

The need to understand and improve sea surface temperature (SST) data products in complex shallow water coastal and coral reef regions has never been greater.

Continuous satellite monitoring of SST at global scales provides resource managers, scientific researchers, and other coral reef ecosystem stakeholders with tools to understand and better manage the complex interactions leading to coral bleaching. When bleaching conditions occur, these tools can be used to trigger bleaching response plans and support appropriate management decisions and communication with the public.

Following global bleaching events between 2016 and 2017, AIMS and NOAA Coral Reef Watch co-hosted a workshop in Townsville to identify gaps and potential improvements to current satellite SST products, specifically retrieval algorithms, to meet the needs of coral reef scientific and management communities.

The workshop, held in August 2018, was also endorsed by the Integrated Marine Observing System and the international science Group for High Resolution Sea Surface Temperature (GHRST).

### Addressing globally relevant challenges

Marine microplastic debris in the food chain has the potential to compromise human health. A key area of research by the Sino–Australian Centre for Healthy Coasts (SACHC) is understanding the vulnerability of coastal ecosystems and industries to contamination from microplastics, specifically on the marine species that underpin much of China’s burgeoning aquaculture industry.

This pioneering work by SACHC will quantify the uptake of microplastics in key aquaculture and fisheries species and determine the effects of contamination.

SACHC was established in July 2016 through a grant from Australia’s Department of Industry, Innovation and Science under the Australia–China Strategic Research Fund. This initiative recognises that Australia and China share similar challenges and require science-driven solutions for managing coastal areas, as industrialisation, tourism, agriculture and aquaculture compound pressures on the marine environment.

Another key outcome of research delivered through SACHC is a marine Environmental Health Report Card for Jiaozhou Bay, a shallow water body located in Qingdao, eastern China. The report card, released in 2019, was endorsed as a valuable tool to support coastal decision making by local, regional and central government managers with coastal management responsibilities. AIMS’ scientists continue to engage with colleagues in China to support adoption of the environmental report card approach to coastal management to improve water quality.

## Expert advice

In 2018–19, AIMS provided expert analysis and advice and contributed to the following reviews and papers:

- Department of Industry, Innovation and Science's Women in STEM Strategy Consultation Paper
- Senate Inquiry into Australia's Faunal Extinction Crisis
- National Climate Science Advisory Committee's Risk and Reward: Climate Science for Australia's Future
- Environmental Protection (Great Barrier Reef Protection Measures) and Other Legislation Amendment Bill 2019.

In addition, AIMS staff contributed in many committees and groups:

- Dr Paul Hardisty is a member of the National Marine Science Committee and the NESP Tropical Water Quality Hub Steering Committee.
- Dr Richard Brinkman is a member of the Gladstone Healthy Harbour Partnership (GHHP) Independent Science Panel.
- Dr David Souter is a member of the National Marine Science Committee, the steering committee for the Australian Secretariat for the International Coral Reef Initiative, the NESP Marine Biodiversity Hub Steering Committee, and Chair of the Hub Partners Committee.
- Dr Ken Anthony and Dr David Bourne contributed to the US National Academies of Sciences, Engineering and Medicine's review on interventions to increase coral reef resilience.
- Ms Traceylee Forester was a member of the Australian Delegation to the 24th Conference of the Parties to the United Nations Framework Convention on Climate Change held in Katowice, Poland in December 2018 and of the Australian Delegation to the Commonwealth Blue Charter All Champions meeting in London, June 2019.
- See also our Reef 2050 Long-term Sustainability Plan (see more detail on page 37).

## PARTNERSHIPS

AIMS has created and participated in multiple joint ventures, strategic alliances and significant collaborations that maximise our ability to deliver high quality science. These arrangements increase the critical mass and diversify the skills base that can be applied to answer complex questions about the sustainable use, management and protection of marine resources. During the year, most of our scientific tasks received external co-investment involving stakeholders and partners who actively participated in research design, implementation and dissemination of knowledge.

AIMS is, or has been, a member of the following partnerships:

- Australian Research Council (ARC) Centre of Excellence in Coral Reef Studies
- Reef 2050 Plan Marine Monitoring Program
- National Environmental Science Programme (NESP) – Tropical Water Quality Hub
- NESP – Marine Biodiversity Hub
- Integrated Marine Observing System (IMOS) and the National Marine Science Plan 2015–2025
- Western Australian Marine Science Institution (WAMSI)
- Indian Ocean Marine Research Centre
- AIMS@JCU
- ARC Centre of Excellence for Mathematical and Statistical Frontiers of Big Data, Big Models, New Insights.

A synopsis of each of these partnerships is given below.

The **ARC Centre of Excellence for Coral Reef Studies** (Coral CoE) was established in 2005. In 2013, the Coral CoE received an additional \$28 million of ARC funding to continue for a further seven years. The Coral CoE researches ecosystem goods and services of the world's coral reefs, building bridges between the natural and social sciences, strengthening capacity, and informing and supporting transformative changes in coral reef governance and management. The centre involves national and international partner institutions – AIMS, the Center for Ocean Solutions at Stanford University (COS, USA), Centre National de la Recherche Scientifique (CNRS, France), the Great Barrier Reef Marine Park Authority, the International Union for Conservation of Nature (IUCN, Switzerland) and WorldFish (Malaysia). In 2018, the Centre has collaborative links and co-authorships with 440 institutions in 79 countries. AIMS' Chief Research Officer Dr David Souter was a member of the Coral CoE's advisory board, and Dr Janice Lough is a partner investigator. AIMS and the Coral CoE have jointly supported several postdoctoral fellowships over the life of the centre.

Further details are available at [www.coralcoe.org.au](http://www.coralcoe.org.au)



The **Reef 2050 Plan Marine Monitoring Program** (MMP) was designed and developed by the Great Barrier Reef Marine Park Authority in collaboration with science agencies to monitor the inshore health of the reef. The program is funded under the Reef 2050 Plan. Managing water quality remains a strategic priority for the Authority, to ensure the long-term protection of the coastal and inshore ecosystems of the reef. A key management tool is the Reef 2050 Water Quality Improvement Plan, a joint commitment of the Australian and Queensland governments that seeks to improve the quality of water flowing from the catchments adjacent to the GBR. To evaluate the effectiveness of catchment management and report on progress in improving the quality of coastal marine waters, the marine monitoring program has assessed status and trends in reef water quality and ecosystem condition since 2005.

We have continued to contribute data from monitoring inshore water quality and the condition of inshore coral reefs to the MMP. In collaboration with James Cook University, AIMS has been monitoring water quality several times a year at 58 fixed sites along more than 700 km of coastline from Mackay to Lockhart River. In addition, we survey the condition of 32 coastal and inshore coral reefs from the Fitzroy Region to the Wet Tropics on a two-yearly schedule.

Further details are available at <http://www.gbrmpa.gov.au/our-work/our-programs-and-projects/reef-2050-marine-monitoring-program>

The **NESP Tropical Water Quality Hub** is a collaboration of researchers from AIMS, CSIRO and four Queensland universities (Central Queensland University, Griffith University, James Cook University and University of Queensland), administered by the Reef and Rainforest Research Centre in Cairns. The Hub is focused on improving the water quality of the Torres Strait and the GBR and its associated catchments, and funds research within three broad themes:

- improve the understanding of the impacts (including cumulative impacts) and pressures on high-priority freshwater, coastal and marine ecosystems and species
- maximise the resilience of vulnerable species to the impacts of climate change and climate variability by reducing other pressures, including poor water quality
- identify natural resource management improvements based on sound understanding of the status and long-term trends of high-priority species and systems.

In early 2019, the Hub distributed the final fifth round of funding.

Further details are available at <https://nesptropical.edu.au>

The \$23.88 million **NESP Marine Biodiversity Hub** is a partnership of AIMS, the University of Tasmania (UTAS), Charles Darwin University, CSIRO, Geoscience Australia, IMOS, Museum Victoria, the NSW Department of Primary Industries, the NSW Office of Environment and Heritage, and UWA. The Hub is supported by the Australian Government's NESP, which is administered by the Department of the Environment and Energy. The Hub focuses its research efforts on Australian oceans and marine environments, including temperate coastal water quality and marine species, and is administered through UTAS.

Research within the Hub targets four themes:

- improving the management of marine threatened and migratory species
- supporting management decision making

- improving our understanding of pressures on the marine environment
- improving our understanding of the marine environment, including biophysical, economic and social aspects.

Further details are available at <https://nespmarine.edu.au>

Australia's **Integrated Marine Observing System** (IMOS) is a national research infrastructure capability that delivers a comprehensive, integrated, national system of ocean observations covering physical, chemical, biological and ecological variables. IMOS is supported by the Australian Government's National Collaborative Research Infrastructure Strategy (NCRIS) and is operated by a consortium of institutions, led by the University of Tasmania. AIMS has been a foundation member of the IMOS partnership since it was established in 2006, and has continued to play a leadership role as the primary operator of IMOS infrastructure across northern Australia. We also contribute strategic guidance through memberships of the board and the IMOS Science and Technology Advisory Committee to provide advice on the scientific priorities, rationale and future direction of the observing system and operational implementation of a national marine observing vision.

The delivery of IMOS is distributed across partner organisations and operators that are responsible for capability-based facilities. AIMS has responsibility for the operation of ocean moorings, national reference stations, reef-based sensor networks, acoustic animal tracking, reception of satellite-derived observations and underway observation systems from our large research vessels across a geographic domain spanning tropical Western Australia, the Northern Territory and Queensland.

The National Marine Science Plan 2015–2025 highlights the value of sustained ocean observation to Australia's blue economy and has recommended sustaining and expanding marine observation and modelling capability. For more than a decade, AIMS and IMOS have made high quality ocean observations accessible to the marine and climate science community, international collaborators, users and other stakeholders to underpin our need for deeper understanding of the status and trends of our oceans and their ecosystems. IMOS investment is leveraged by marine industries to support growth in the blue economy across multiple sectors including offshore resource extraction, fisheries, aquaculture, tourism, ports and shipping. AIMS continues to play a key role in partnerships with marine industries, port operators and state governments to promote uptake of IMOS data and to deliver environmental and economic benefit.

Further details are available at [www.imos.org.au](http://www.imos.org.au)

The **Western Australian Marine Science Institution** (WAMSI) was established to facilitate WA's integrated and coordinated approach to complex research issues to inform management and industry. WAMSI is a partnership of four WA universities (UWA, Murdoch University, Edith Cowan University and Curtin University), a major resource company (Woodside Energy Ltd), two Commonwealth organisations (CSIRO and AIMS), four WA Government departments (Department of Biodiversity, Conservation and Attractions; Department of Jobs, Tourism, Science and Innovation; Department of Primary Industries and Regional Development; Department of Water and Environmental Regulation); the Western Australian Museum, the WA ChemCentre and a regional ocean observing network for the Indian Ocean (WA Global Ocean Observing System).

The Institution was launched in May 2007 with an initial investment from the WA Government of \$21 million over five years with \$71.85 million co-invested by the partners to deliver a research program that included Ningaloo and sustainable fisheries. In 2011–12, the state government invested \$12 million over six years, augmented with an additional \$18 million from the partners, for WAMSI to deliver the Kimberley Marine Research Program. The report on this comprehensive and collaborative research effort was released by the WA Minister for Science, the Hon. Dave Kelly MLA, in May 2019.

WAMSI's capacity to deliver programs, such as the \$30 million Kimberley Marine Research Program, stems from its ability to bring together 200 scientists from 25 organisations, including 11 partners. All projects collaborated with Traditional Owners and marine rangers to ensure the integration of science with traditional knowledge.

In each case, the government funds generated investments from WAMSI research partners, providing substantial leverage to target high priority marine science needs in WA.

In 2019, WAMSI finalised the results of an industry partnership program to deliver the \$18 million Dredging Science Node (DSN). The Node is an example of the strategic use of environmental offsets and is funded from requirements associated with Woodside's Pluto Project, Chevron's Wheatstone Project and BHP's Outer Harbour Project. It was established in 2011–12 to understand and mitigate the impacts of coastal dredging on the environment.

Groundbreaking insights from the program are now being translated into improved dredging guidelines. These will streamline monitoring by focusing on the relevant and most sensitive aspects and help to improve the effectiveness of management approaches to minimise hazards from dredging. The DSN has set a new industry standard, with impacts beyond WA. Early adoption of its key findings are being implemented in dredging programs in Queensland and the Northern Territory. Internationally, there is uptake of the findings in environmental impact assessment studies, dredging management plans and technical consultancy advice on dredging projects.

Further details are available at [www.wamsi.org.au](http://www.wamsi.org.au)

The **Indian Ocean Marine Research Centre** (IOMRC) is a joint venture that unites the four leading Australian research organisations working in and around the Indian Ocean—AIMS, CSIRO, UWA and the WA Department of Primary Industries and Regional Development. This collaboration has helped create new multidisciplinary research teams and a graduate training environment that will significantly advance WA's marine science capacity, capability and profile. In 2018, the IOMRC Partnership continued to support innovative and ambitious marine research. By investing more than \$2 million over three years, the partnership will reveal the least understood of the world's ocean basins. New sensing and modelling capability that covers genes through to ecosystems will allow better management of WA resources and provide early warning of future environmental risks.

**AIMS@JCU** is a strategic alliance that takes advantage of AIMS and James Cook University's co-location in Townsville and collective expertise and infrastructure. It currently supports collaborations through jointly supervised higher degree research candidates, and recently graduated its 108th PhD awardee. The partnership also facilitates AIMS-based internships and work-integrated learning for students of marine science enrolled at JCU.

By facilitating the link between JCU's higher degree research program and our own research program, AIMS@JCU delivers significant value beyond the dollar investment. This includes a higher PhD completion rate (compared to the JCU average in similar fields of research), more research outputs with higher impact, and cohorts of work-ready graduates with skills and expertise in national marine science and experience within a publicly funded research agency. Such industry exposure integrated with higher degree research training continues to address key recommendations of the Australian Council of Learned Academies review of Australia's research training scheme.

To help bridge the growing skills gap in quantitative marine science (as identified in the National Marine Science Plan), AIMS@JCU has restructured its scholarships to four years (instead of three), with the extra year available for professional development in quantitative methods customised for each student and their advisory team. AIMS@JCU members also benefit from being well positioned within the combined peer networks of AIMS and JCU, and they can access special competitive funding awards for project costs, travel and science communication, and professional development opportunities.

AIMS@JCU supports the pipeline of marine science HDR candidates through fostering work-integrated learning placements including internships, and links with science, technology, engineering, mathematics and medicine (STEMM) programs for high schools. The high school programs include those focused on Indigenous participation—Aboriginals and Torres Strait Islanders in Marine Science (ATSIMS) and the Aboriginal Summer School for Excellence in Technology and Science (ASSETS).

AIMS@JCU currently has 316 members, of which 45 are PhD candidates and 72 are other students (MSc, undergraduate or interns). Further details are available at [www.aims.jcu.edu.au](http://www.aims.jcu.edu.au)

The **ARC Centre of Excellence for Mathematical and Statistical Frontiers of Big Data, Big Models, New Insights** (ACEMS) successfully attracted seven years of funding from the Australian Government in December 2013 and commenced operation in 2016–17.

ACEMS concentrates on the massive amounts of data collected daily in a variety of forms and from many sources. Many of the resulting datasets have the potential to make vital contributions to society, business and government but are so large or complex that they are difficult to process and analyse using traditional tools.

The centre, led by the University of Melbourne, brings AIMS scientists together with world class collaborators and partner organisations, including Monash University, Queensland University of Technology, University of Adelaide, University of Technology Sydney, CSIRO, Australian Bureau of Statistics, University of New South Wales, University of Queensland, Mathematics of Information Technology and Complex Systems, Vic Roads, Sax Institute and AT&T Labs–Research.

ACEMS aims to create innovative mathematical and statistical models that can uncover the knowledge concealed by the size and complexity of these big datasets. From a marine science perspective, the collaboration will enable AIMS (and others) to add value to the data collected on the GBR to increase our knowledge of the reef and its processes, and to improve reef management.

Further details at [www.acems.org.au](http://www.acems.org.au)

## FOSTERING RESEARCH CAPABILITY

AIMS supported Dr Marji Puotinen, a Perth-based spatial/ecological data scientist with AIMS, to participate in the third Homeward Bound Program in 2018–19. Homeward Bound aims to build a network of 1000 women scientists (defined as science, technology, engineering, mathematics and medicine—STEMM) over 10 years, and train them to take leadership on climate issues. Marji joined 80 women from around the world, as well as diplomat Christiana Figueres (an architect of the Paris Climate Agreement), aboard a ship to Antarctica in January 2019.

As a publicly funded research agency, AIMS does not confer degrees upon students and postgraduates. Nevertheless, AIMS is committed to early career researcher training to help develop the research and innovation capacity needed to meet the opportunities and challenges facing the marine environment, and to keep Australia globally competitive. AIMS maximises its impact by providing opportunities to develop a research career including:

- postdoctoral studies
- postgraduate studies
- scholarship funding for postgraduates
- occupational trainees
- exposing Indigenous high school students to marine science.



Image: M Roman



## Postdoctoral research

As at 30 June 2019, AIMS co-funds or supports 21 postdoctoral fellows (see Table 3) under agreements with:

- ARC Centre of Excellence for Coral Reef Studies (1)
- AIMS–QUT Memorandum of Understanding (2)
- Santos (2)
- Charles Darwin University (2)
- Indian Ocean Marine Research Centre Partnership (4)
- Bertarelli Foundation (1)
- NESP Marine Biodiversity Hub (1)
- King Abdullah University of Science and Technology (Saudi Arabia) (1)
- Australia–China Strategic Research Fund (ACSRF) Program (1) – funded by the Department of Industry, Innovation and Science
- AIMS (6)

AIMS also supports an ARC Discovery Early Career Researcher Award Fellow based at The University of Western Australia.

### Awards to AIMS ECR and postgraduates

Postdoctoral Fellow Dr Amanda Dawson won the Jury Award at the 2019 Queensland Women in STEM Prizes for her video on the effects of marine pollution on seafood, *Fishing for plastics: from ocean to plate*.

## Postgraduate students and occupational trainees

During 2018–19, AIMS staff co-supervised 68 postgraduate students from 11 universities within Australia, of whom 38 are part of the AIMS@JCU program (see above), and six are international students. Of the total, 44 are primarily based at AIMS, and 24 are primarily located at partner universities.

AIMS' involvement in early career researcher training is reflected in 26 staff members holding adjunct academic appointments at Australian or international institutions, including:

- James Cook University, primarily within the Coral CoE, the College of Science and Engineering, and the Division of Research and Innovation (through the AIMS@JCU partnership)
- University of Queensland
- University of Western Australia
- Charles Darwin University
- Queensland University of Technology
- University of Auckland, New Zealand
- Victoria University of Wellington, New Zealand.

Many of these adjunct positions reflect a large personal contribution to postgraduate supervision.

Table 3: Number of postdoctoral fellows, postgraduates and occupational trainees, 2014–15 to 2018–19

	2014-15	2015-16	2016-17	2017-18	2018-19
Postdoctoral Fellows	16	13	14	24	21
Postgraduates working at AIMS supervised by AIMS staff	34	34	31	29	44
Postgraduates working externally supervised by AIMS staff	43	37	39	28	24
Occupational trainees and interns	18	10	10	7	17

## Exposing Indigenous high school students to marine science

The Aboriginals and Torres Strait Islanders in Marine Science (ATSIMS) Scholars' Initiative was established in 2013 by AIMS@JCU postgraduate student Joe Pollock. The initiative was designed to engage Indigenous high school students in field-based science programs to bolster the interest, experience and hands-on skills needed to initiate, and succeed in, tertiary studies in marine science.

Each year, Indigenous students from North Queensland engage in interactive workshops at AIMS under the guidance of marine researchers and Indigenous leaders. The program fosters links between western marine science and traditional ecological knowledge.

ATSIMS is part of the Indigenous Education & Research Centre at James Cook University. In addition to the support the program receives from AIMS, the scholars' initiative is currently supported by JCU, AIMS@JCU, World Wildlife Fund, Gudjuda Reference Group Aboriginal Corporation, Giringun Aboriginal Corporation, ARC Centre of Excellence for Coral Reef Studies, Townsville Catholic Education, the US Department of State, SeaLink, Oregon State University, Reef HQ Aquarium, and the Museum of Tropical Queensland.

In 2018–19, AIMS participated in CSIRO's Aboriginal Summer School for Excellence in Technology and Science (ASSETS) program. During the residential summer school, students completed a group research project and presented their findings at the closing ceremony. Scientists shared their research and Indigenous mentors helped strengthen cultural connections. After the summer school, the program assists students to develop leadership skills and to access work experience.

## Joe Baker recognised for his mentoring and support of graduates

In January 2018, world renowned marine scientist Professor Joe Baker AO, OBE, FTSE, FRACI, C.Chem. died at age 85 in Canberra. Joe's connection with AIMS spanned more than 40 years, first as a member of the committee formed to find a permanent site for the Institute, then through to his appointment as Director (1985 to 1992). Joe was generous with his time and especially supportive of junior researchers and students. This enduring interest in the next generation of marine scientists was reflected on a national scale by his long-time patronage of the Australian Marine Sciences Association (AMSA). In 2018, AIMS established a long-term agreement with the AMSA to sponsor a session that promoted exposure of research conducted by early career researchers at the association's annual conference in memory of Professor Baker.



Photo: Sabine Dittman, Joe's son Rohan Baker and Libby Evans-Illidge at the inaugural Joe Baker Memorial Session

## RESEARCH COLLABORATION

Collaboration is a core value of AIMS. Collaboration with domestic and international partners enables AIMS to draw on complementary skills to deliver practical research results and to share knowledge more broadly. During 2018–19, AIMS was involved in 160 collaborative projects conducted in 29 countries. These projects involved 226 Australian scientists from 63 Australian organisations and 120 international colleagues from 79 overseas organisations.

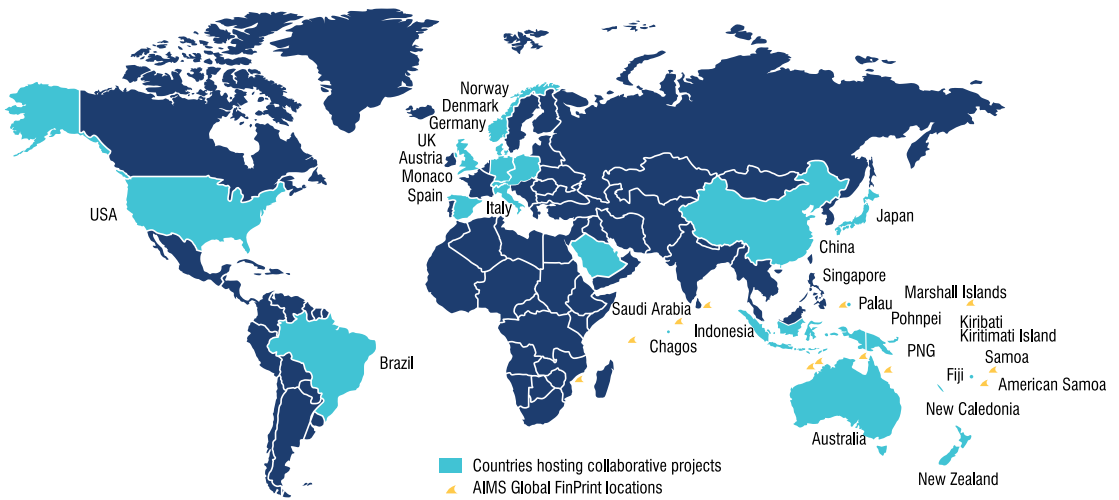


Figure 6: Location of countries hosting AIMS' collaborative projects

Collaborative research accounts for a high proportion of our scientific publications (see Figure 7). Of the 219 journal articles published by AIMS scientists, 108 (49%) had co-authors from other Australian research organisations and 101 (46%) involved international colleagues. Only 10 articles (5%) were solely authored by AIMS staff.

COLLABORATIVE PUBLICATIONS

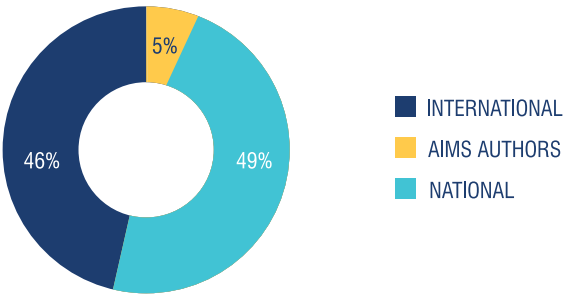


Figure 7: Percentage of collaborative publications

In addition to these research collaborations, in 2018–19 we:

- renewed our membership with Plymouth Marine Laboratory – AIMS’ membership in the Partnership for Observation of the Global Oceans (POGO), a forum to promote and advance the observation of the global ocean
- signed an MoU with the Great Barrier Reef Marine Park Authority – to collaborate in marine research and support sustained protection and use of the GBRMP
- extended our Strategic Alliance Agreement with JCU to 31 December with a view to finalising a new agreement to commence on 1 January 2020
- re-established an MoU with CRR Qld Pty Ltd, John (Charlie) Veron and Mary Stafford-Smith to update, improve and develop the interactive program *Corals of the World* online.



Image: S Clarke



## SCIENCE QUALITY ASSURANCE

Rigorous quality assurance and quality control procedures ensure we deliver high quality and timely research to stakeholders. At inception, all projects are reviewed by the relevant Research Program Directors, the Chief Research Officer and (if the magnitude of the project warrants), the CEO to ensure that they align with AIMS Strategy 2025, that they use public funds and resources appropriately, and that they will deliver tangible benefits to one or more of AIMS' stakeholders.

Initially, projects are managed using a centralised database with the collection and management of data governed by standard operating procedures. The subsequent release of project outputs involves rigorous internal review and is governed by several policies and procedures, including Intellectual Property, Data Access and External Document Control policies.

AIMS' research process and procedures are consistent with the Australian Code for the Responsible Conduct of Research (2018).<sup>6</sup>

### Data management and dissemination

The AIMS Research Data Centre manages and secures the Institute's data making it globally discoverable and accessible via the internet. Our metadata and data holdings are also submitted to the Australian Ocean Data Network portal and the Research Data Australia data catalogue, increasing their accessibility and allowing integration into national datasets.

The following figures depict the types of data that AIMS collects and how it is managed.

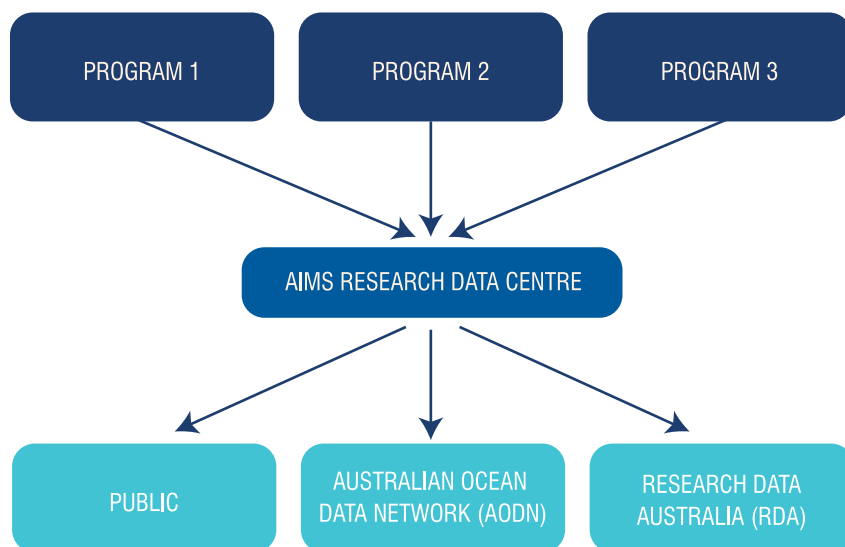


Figure 8: AIMS' research programs deliver data into the research data centre allowing centralised management and facilitating reuse

<sup>6</sup> <https://www.nhmrc.gov.au/sites/default/files/documents/attachments/grant%20documents/The-australian-code-for-the-responsible-conduct-of-research-2018.pdf>

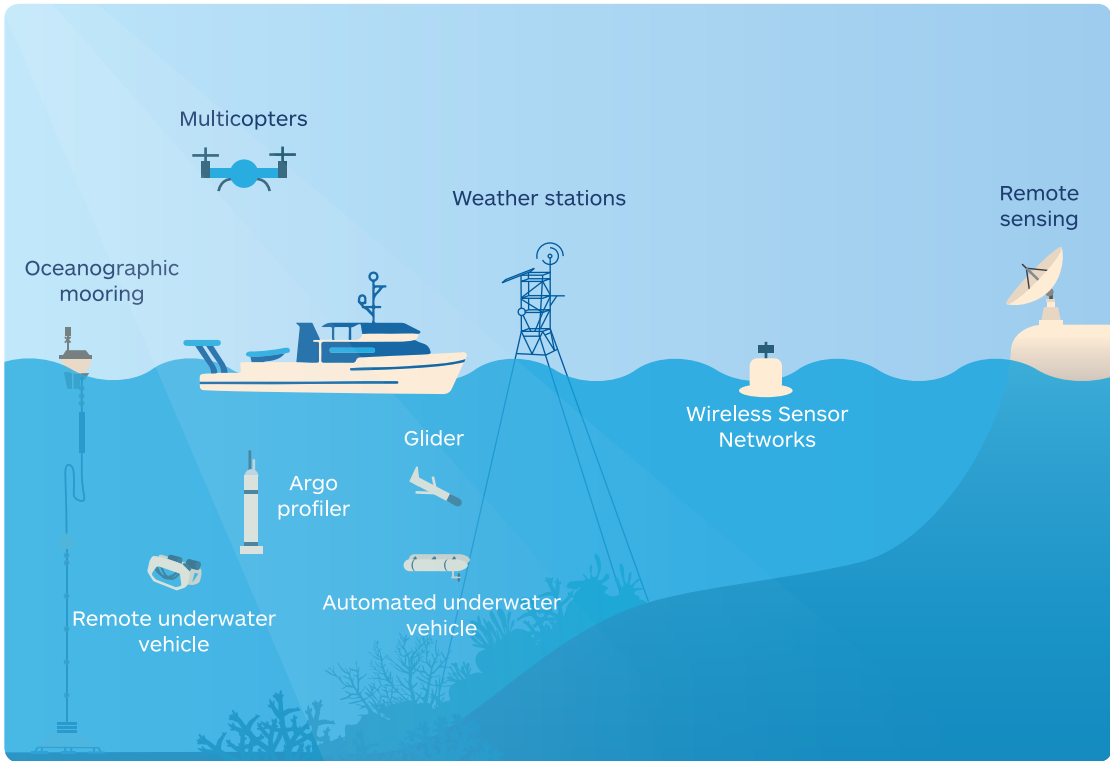


Figure 9: Extensive technology deployed to provide environmental variations in Australia's coastal seas

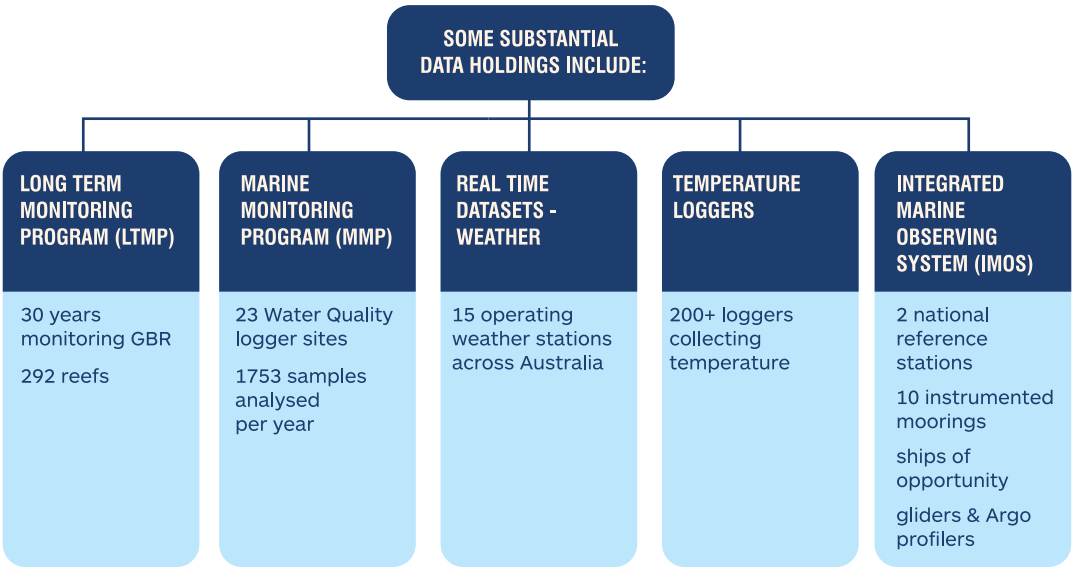


Figure 10: Examples of landmark datasets critical to national and international stakeholders in marine science, December 2018

## AIMS Data Explorer

### AIMS continues to raise the bar for public accessibility to high quality marine science datasets

In the Era of Big Data, the knowledge economy and 24-hour access to information, there is an expectation that data collected with public funds will be made available to the public. As a publicly funded research agency, AIMS is committed to making all its scientific data accessible to stakeholders and the community. The AIMS Data Explorer makes the findings of AIMS' research accessible via our website. Developed in-house by the Data Centre, the Data Explorer presents AIMS' scientific data in a visually appealing, easy-to-understand format.

Providing the extensive catalogue of AIMS' datasets in the Data Explorer is one element of a wider strategy to position AIMS as a partner of choice for potential collaborators by developing value-added products, apps and services, and to maintain and enhance our reputation as a responsive and trusted agency.

The Data Explorer:

- features innovative map-focused search and exploration of datasets that helps researchers find data that are available from their area of interest
- identifies gaps ('data deserts') and data-rich areas ('data-bergs') that decision makers can use to guide future strategic data collection initiatives
- uses a 'full screen' feature for impressive, high impact interactive presentations
- manages datasets, such as AIMS' real-time weather stations, which have interactive (zoom/pan) charting previews that highlight temporal coverage or gaps and allow exploration of time-series datasets, saving users significant time in downloading and visualising data themselves

- applies a low barrier to entry.
- works with national data initiatives such as the Australian Ocean Data Network/Integrated Marine Observing System and the Australian National Data Service/Research Data Australia.

**As a publicly funded research agency, AIMS is committed to making all its scientific data accessible to stakeholders and the community**

AIMS will increase opportunities to access and reuse its datasets by continuously adding new data to Data Explorer, streamlining and automating data science workflows, and providing interfaces (APIs) to compatible datasets for modelling, data analysis, machine learning and other data software applications.

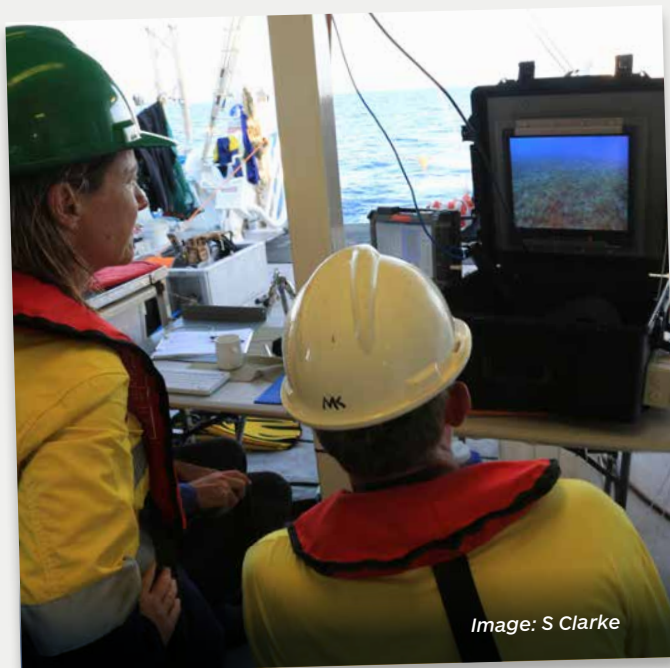


Image: S Clarke

## STAKEHOLDER ENGAGEMENT

Our research, internal and external relationships, and organisational ethos are guided by a set of operating principles that inform and underline our focus on supporting key stakeholders.

Our guiding principles are:



### TRUST

AIMS is a trusted adviser, delivering independent, evidence-based scientific advice to our stakeholders for the economic, environmental and social good of Australia



### FOCUSED RESEARCH

AIMS executes focused research plans with identified pathways to impact



### KNOWLEDGE TRANSFER

AIMS documents and widely disseminates findings through a variety of mechanisms and formats to a wide range of stakeholders and collaborators

## GUIDING PRINCIPLES



### EXCELLENCE & INNOVATION

AIMS undertakes high calibre research



### RETURN ON INVESTMENT

AIMS maximises the returns on investment in marine science through collaborations, co-investment and contracting of industry-funded research



### HEALTH, SAFETY AND ENVIRONMENT

AIMS leads the way in providing safe working conditions and ensuring that its activities are planned to minimise any adverse environmental impacts

AIMS works closely with stakeholders to identify and meet their needs for high quality research over long and short timeframes. Specifically, we map how the research will be used, identify who will benefit and rigorously review the outcomes. Within this process, we take a 'big picture' view of Australia's marine science challenges, asking the right questions, anticipating future needs and investing strategically in research designed to reduce future uncertainty.

Key stakeholders who benefited from AIMS' activities during the year are shown in Table 4.

Table 4: Stakeholders benefiting from AIMS' activities in 2018-19

Stakeholder category	Sector/organisation	Examples of AIMS' support
Industry	North-west Australian oil and gas industry	<ul style="list-style-type: none"> <li>developing environmental baselines that help industry plan and manage their environmental risks and regulatory compliance</li> <li>providing a rapid response research capability to optimise management actions should a spill occur</li> <li>providing guidance on minimising adverse environmental impacts of dredging operations as a member of industry expert panels</li> <li>supporting the development of collaborative industry sharing of marine environmental data</li> </ul>
	Commodity ports/ Northern Territory Government, Darwin Ports Corporation, Port of Townsville, Gladstone Healthy Harbour Partnership	<ul style="list-style-type: none"> <li>developing systems to improve the operational efficiency of Darwin Harbour and environmental research to inform development decisions</li> <li>researching the impacts of dredging to develop better risk-based dredging protocols</li> </ul>
	Coastal industries	<ul style="list-style-type: none"> <li>researching inputs to monitoring programs for regulatory compliance</li> <li>applying new technologies for in situ monitoring to manage dredging operations and environmental regulatory compliance more effectively</li> <li>studying water quality to validate hydrodynamic modelling of effluent diffusion</li> <li>developing ecotoxicological assays and assessments to guide water quality guidelines and standards</li> </ul>



Stakeholder category	Sector/organisation	Examples of AIMS' support
Government and public	Australian Government and public	<ul style="list-style-type: none"> <li>developing a framework to assess the cumulative impact of natural and development stresses on the Great Barrier Reef</li> <li>developing a mapping system for presenting environmental research data in an accessible form that promotes greater information use</li> <li>educating the public and stakeholders via the AIMS website and with site tours, increasing the state of environmental knowledge and identifying any gaps and risks</li> <li>supporting postgraduate students as a means of enhancing the marine research workforce in tropical Australia</li> <li>providing expert marine science advice and interpretation to Australian Government ministers and their science advisers on key marine science developments, such as the 2016 and 2017 coral bleaching events</li> <li>supporting the education and future employment potential of northern Australia's Indigenous youth through the Aboriginals and Torres Strait Islanders in Marine Science (ATSIMS) and Aboriginal Summer School for Excellence in Technology and Science (ASSETS) programs</li> </ul>
	Great Barrier Reef Foundation	<ul style="list-style-type: none"> <li>researching coral health in a variable and changing marine environment to assess coral reef resilience, and potential intervention and management options through the Reef Restoration and Adaptation Program</li> <li>researching ecosystem processes and crown-of-thorns starfish outbreaks to increase our understanding of outbreak impacts and improve our ability to forecast and manage outbreaks</li> </ul>
	Queensland Government and public	<ul style="list-style-type: none"> <li>researching the impact of changed land use practices on water quality in the GBR Marine Park</li> </ul>
	Western Australian Government and public	<ul style="list-style-type: none"> <li>identifying and characterising biodiversity patterns and underlying processes in the Kimberley to aid effective management</li> <li>surveying sensitive seabed organisms to evaluate impacts of dredging operations</li> <li>researching the impacts of dredging to inform guidelines for marine dredging programs</li> </ul>
Managers and regulators	Great Barrier Marine Park Authority	<ul style="list-style-type: none"> <li>monitoring the health of the GBR in ongoing surveys</li> <li>providing specialist advice to, and peer review of, development activity impacts</li> <li>contributing to the planning for the development of RIMReP (Reef 2050 Integrated Monitoring and Reporting Program)</li> <li>providing independent scientific advice on the implementation of the Reef 2050 Plan</li> </ul>

## COMMUNICATION

AIMS released its Strategy 2025 document in September 2018. This sets out the agency's direction for the next seven years. While we continue to improve and preserve the health of our marine ecosystems, the strategy will help to ensure that our research and knowledge also:

- underpins the sustainable use of our oceans and resources
- builds economic value
- creates employment
- improves people's livelihoods and lifestyles while preserving and improving the health of our marine ecosystems.

The Strategy was the basis for a communication plan to help make stakeholders, the media and the community aware of our activities and achievements. We communicated our findings through our newsletter Waypoint, building our reputation with key government, industry and community stakeholders.

One of our priorities is to demonstrate the economic, social and environmental value of marine science to the nation. To increase awareness of AIMS' value to the nation, the Minister for Industry, Science and Technology launched the seventh edition of the AIMS Index of Marine Industry, which provides a two-yearly update of the economic contribution of Australia's marine sector to the nation's economy.

Our scientists work in distant, remote and spectacular places—both above and below the ocean. During 2018–19, we conducted eight imagery projects to bring this exciting and valuable work to the public through video, photography and storytelling to position AIMS as leaders in several marine science fields.

The International Year of the Reef in 2018 was marked by the Reef 2050 communications network (convened by the Queensland Department of Environment and Science), which comprises communication representatives from Queensland and Australian government agencies and partner organisations involved in implementing Reef 2050 actions. In September AIMS hosted a visit by members of the network which included a tour of the SeaSim.

## **ADVANCES IN INDIGENOUS PARTNERSHIPS**

We recognise that Indigenous peoples are the traditional custodians of the sea country where AIMS works, and we are committed to putting Indigenous people's interests and knowledge needs into our research priorities. We will do this by facilitating 2-way knowledge sharing through a partnership approach for marine science, which is articulated in a new Indigenous Partnerships Plan developed during the year.

### **Indigenous Partnerships Plan**

The plan sets out the way to achieve the ambitious Indigenous science partnership targets in our Strategy 2025. We recognise that greater research impact and value can be created, and new insights gained, if Indigenous knowledge, interests, capacity and capability can be joined with our science. The plan is particularly important because it recognises the aspirations of Traditional Owners for greater empowerment in sea country monitoring, research, decision making and science. The plan is designed to:

- build cultural competency and appropriate tools within our agency to facilitate stronger partnerships with Traditional Owners
- strengthen existing relationships with Traditional Owners and establish new ones based on mutual trust, understanding, respect and two-way learning
- establish AIMS as a leader in working with Traditional Owners by responding to Indigenous needs and raising the profile of the value of partnerships between leading science organisations and Indigenous groups.

### **Indigenous advice to support Australia's international position**

The 24th Conference of the Parties to the United Nations Framework Convention on Climate Change (COP24) was held in Katowice, Poland, in December 2018. After three years of work, the COP24 meeting reached a major accomplishment with a draft decision on the Local Communities and Indigenous Peoples Platform to scale up consideration of the experiences of local communities and Indigenous peoples with climate change and efforts to respond to it. AIMS' Indigenous Partnerships Coordinator, Traceylee Forester, was a member of the Australian delegation. Traceylee advised the delegation, especially about the platform, and took part in the International Indigenous Peoples' Forum on Climate Change. In addition, AIMS, through the contribution of Traceylee Forester to a larger Australian delegation led by the Department of Foreign Affairs and Trade, provided advice on Indigenous aspirations in the management of sea country to countries who are leading the implementation of the Commonwealth Blue Charter, which is an agreement by all 53 countries of the Commonwealth to actively cooperate to solve ocean-related problems and meet commitments for sustainable ocean development.

## Alliances in marine monitoring

AIMS is already working with several Traditional Owner ranger groups and Traditional Owners on marine monitoring projects. For example, work to map sea country habitats and establish a monitoring baseline with the Anindilyakwa rangers at Groote Eylandt was nearing completion in 2018–19. Externally funded through the Anindilyakwa Land Council, the project:

- captured local and traditional knowledge about the area
- increased the capability of rangers to operate image-based seafloor technology
- improved fish monitoring
- complemented the rangers' small vessel shallow water capability with the deep-water capability of AIMS' research vessel, the RV *Solander*.

Results of the monitoring will be provided to the community using customised communication products, including posters and video, later in 2019.

In the Cape Leveque region of the Kimberley, WA, AIMS partnered with Bardi Jawi Rangers in a similar project. As well as mapping, the rangers attended training workshops to learn monitoring techniques. AIMS scientists are helping with data analysis and will co-present preliminary results at the Australian Marine Science Association annual conference in July.

Another joint project, this time with the Torres Strait Regional Authority Land and Sea Management Unit and rangers, has established a comprehensive ocean observing system including fixed loggers and near-real-time weather stations, and is developing a towed video technique as a tool for diverless monitoring of seabed habitats and communities.



Image: N Thake

## RESEARCH INFRASTRUCTURE

Our research focuses on Australia's tropical marine environments, from the southern end of the GBR on the east coast and across the north of the country to Shark Bay and the Abrolhos Islands in the west. Field activities are supported by laboratory and administrative facilities located at Townsville, Darwin, Perth and Canberra.

Our headquarters is at Cape Ferguson, about 50 km from Townsville in North Queensland, close to the centre of the GBR and surrounded by national park and marine reserve.

AIMS' Arafura Timor Research Facility in Darwin is located on a satellite campus of the Australian National University, immediately adjacent to the Charles Darwin University campus.

In Western Australia, our facilities are co-located with The University of Western Australia and the CSIRO in the new Indian Ocean Marine Research Centre at the university's Crawley campus in Perth.

Our major research infrastructure is subject to detailed capital planning and asset management to ensure our facilities and equipment are safe, reliable, available and functional. Delivery against preventive maintenance and capital investment plans is monitored throughout the year to ensure that targeted outcomes are met.

### Field operations

Our field activities are supported by a research fleet—two large, well-equipped research vessels, the RV *Cape Ferguson* and the RV *Solander*—and a number of smaller vessels, carrying researchers to diverse habitats in Australia's tropical waters. About half of all trips on the RV *Cape Ferguson* and RV *Solander* involved researchers from collaborating organisations.

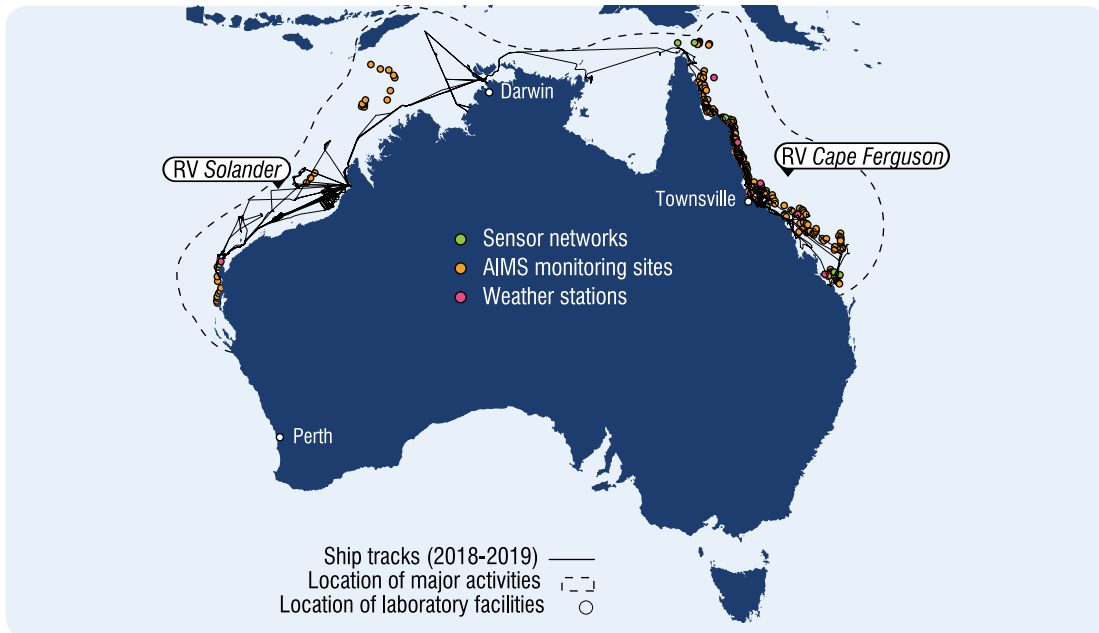


Figure 11: AIMS' facilities and activities of the major research vessels.



# SUMMARY OF FIELD OPERATIONS PERFORMANCE

## Objective: Sustain High Utilisation of Research Infrastructure

### Utilisation of Research Vessels

TARGET:

**90%**

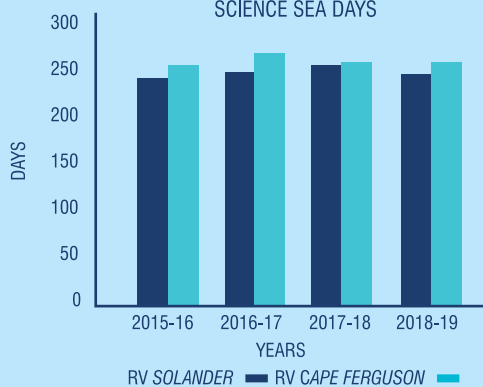
2018-19 ACTUAL:

**88%**

AIMS RV UTILISATION



AIMS RESEARCH VESSEL SCIENCE SEA DAYS



RV CAPE FERGUSON

**259**

SCIENCE SEA DAYS



RV SOLANDER

**247**

SCIENCE SEA DAYS



CHARTER VESSELS

**321**

ADDITIONAL FIELD DAYS

**RV Solander made its first voyage into the Great Barrier Reef, to increase knowledge of the current state of the northern sector**



**11,213**  
RESEARCHER  
FIELD DAYS



**188**  
COLLABORATORS  
ON FIELD TRIPS



**36,500**  
NAUTICAL MILES STEAMED

## National Sea Simulator

The SeaSim is a globally unique experimental aquarium facility that provides researchers with unprecedented experimental control of a range of variables, allowing investigation of individual and combined effects of tropical marine ecosystems and organisms.

The SeaSim provides a step change in capability compared with previous technologies and is an essential for the success of many of our research programs.

Up to 50 per cent of the SeaSim's capability is available to external scientists and research institutions from around the world for marine science projects. We work closely with national and international collaborators, with over 80 per cent of all experiments in the SeaSim involving external collaborators. In 2018-19, researchers have come from 12 national and 23 international organisations from 10 countries.

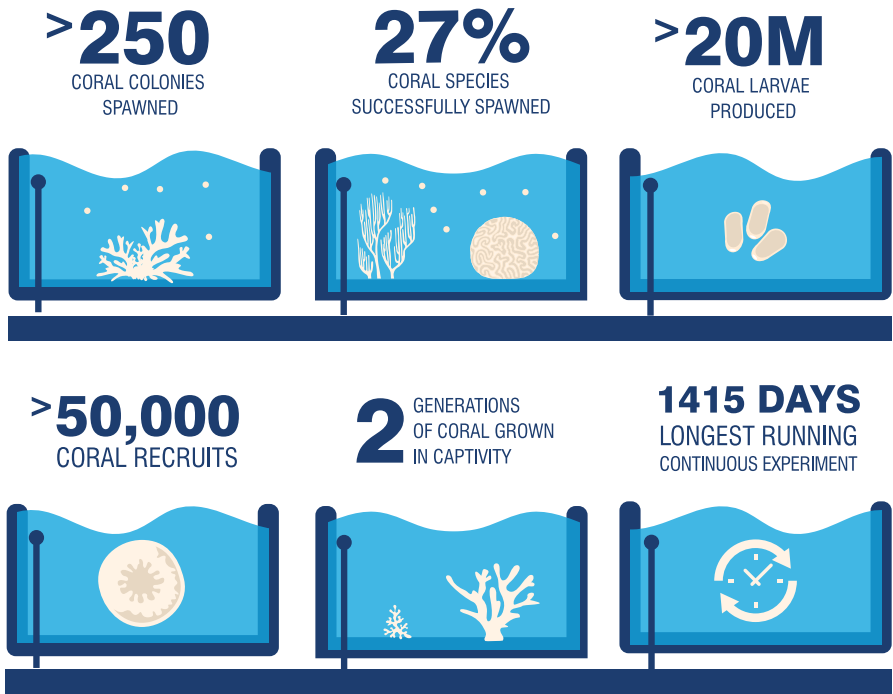


Figure 12: Statistics showing use of the National Sea Simulator (SeaSim), 2018-19

Projects have attracted funding from a range of sources including industry partners, universities, the Australian Research Council, WAMSI, the National Environmental Science Programme, the Great Barrier Reef Foundation and the Paul G. Allen Philanthropies.

Collaborating organisations include:

**National** – CSIRO, University of Wollongong, Southern Cross University, James Cook University, University of Melbourne and Queensland University of Technology.

International – University of Miami (US), King Abdullah University of Science and Technology (Saudi Arabia), Victoria University (Wellington, NZ), Oregon State University (US), University of Amsterdam (The Netherlands), University of Barcelona (Spain), and the University of Copenhagen (Denmark).

The SeaSim boasts a number of unique capabilities developed by our staff to assist researchers:

- full solar spectrum lighting with the ability to dynamically manipulate intensity and spectrum to model natural lighting conditions as found in the field (e.g. sediment plumes from dredging operations)
- 18 large, fully independent mesocosm systems with the ability to provide daily, monthly and seasonal patterns of light, temperature and pCO<sub>2</sub>
- sophisticated climate change and ocean acidification systems with tightly controlled temperature ( $\pm 0.1^{\circ}\text{C}$ ) and diel pCO<sub>2</sub>
- large-scale systems for coral spawning, larval rearing, settlement and long-term grow out
- flow-through contaminant dosing systems for ecotoxicology research on priority contaminants.

These capabilities have been applied to a range of high-priority research areas, including climate change and ocean acidification, reef restoration and adaptation, impacts of dredging, pest management and impacts of contaminants.



Image: C Miller

## REVENUE

AIMS' operations were supported by a mix of Australian Government appropriation funding and non-appropriation funding from state and territory governments, competitive research funds, environmental regulators and the private sector.

Total revenue for 2018-19 was \$69.754 million, representing an increase of 2.7 per cent on 2017-18 revenue (Figure 13). The \$1.873 million increase was due to an increase in Australian Government appropriation revenue (\$2.5 million) and offset by a decrease in other revenue (\$0.657 million).

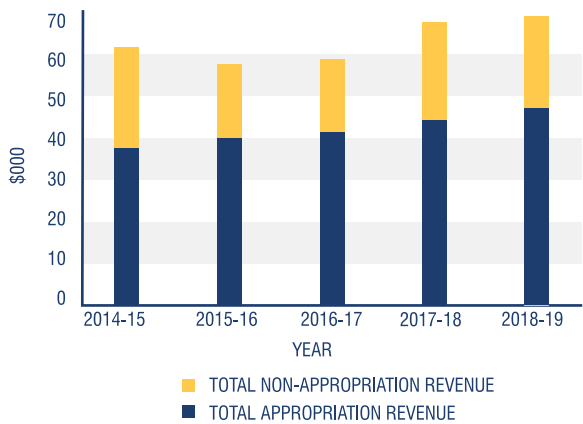


Figure 13: AIMS revenue, 2014-15 to 2018-19

## External Revenue

External funding is critical for AIMS to maintain its present level of scientific research. In 2018-19, revenue from external sources was \$20.798 million, which accounted for 30 per cent of total revenue (Figure 14).

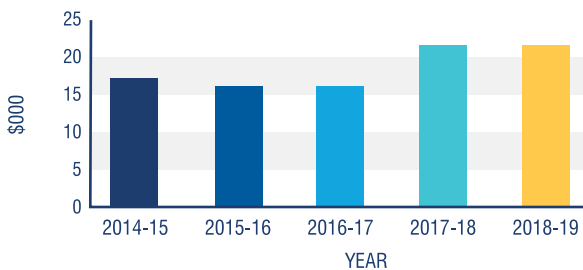


Figure 14: Total external revenue earned by AIMS during the past five years

## Sources of Co-Investment Funding for 2018–19

Australian Government departments and agencies and Australian industry partners together provide 93 per cent of AIMS' total external revenue (i.e. funds earned on top of AIMS' appropriation allocation) through major grants and project contracts (Figure 15).

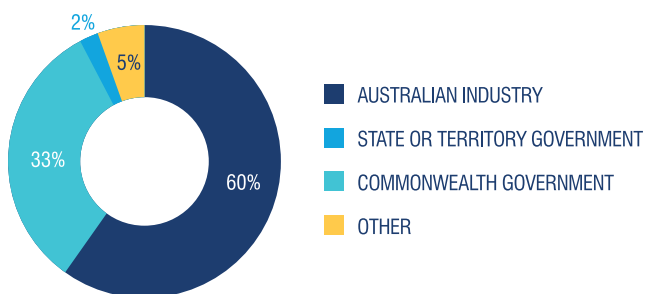


Figure 15: Major sources of external revenue, 2018–19



# Part 3:

# MANAGEMENT AND ACCOUNTABILITY

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## GOVERNMENT ENGAGEMENT

AIMS has a comprehensive system of corporate governance practices that provide compliance, disclosure and accountability of its activities.

### ROLE AND LEGISLATION

AIMS was established by the *Australian Institute of Marine Science Act 1972* (AIMS Act) and is a corporate Commonwealth entity under the *Public Governance, Performance and Accountability Act 2013* (PGPA Act).

The Institute's functions and powers are set out in the AIMS Act (see Appendix C on page 152). AIMS has two main roles under its governing legislation:

- carry out research and development in relation to
- marine science and marine technology
- the application and use of marine science and marine technology
- encourage and facilitate the non-commercial and commercial application of the results arising from such activities.

The PGPA Act sets out reporting, accountability and other requirements relating to our operations, management and governance. Section 39 of the PGPA Act requires corporate Commonwealth entities to prepare annual performance statements and to include them in an annual report to the Australian Parliament. Schedule 1, subdivision B, s. 17BE of the Public Governance, Performance and Accountability Rule 2014 sets out the requirements for annual reports produced in accordance with s. 46 of the PGPA Act. An index of annual report requirements (page 157) provides details of how this annual report meets those requirements.

### RESPONSIBLE MINISTERS

This year, there were three ministers with responsibility for matters relating to AIMS:



Senator the Hon. Michaelia Cash  
Minister for Jobs and Innovation  
(1 July 2018 to 28 August 2018)



Senator the Hon. Zed Seselja,  
Assistant Minister for Science,  
Jobs and Innovation (1 July  
2018 to 28 August 2018)



The Hon. Karen Andrews MP,  
Minister for Industry, Science  
and Technology (28 August 2018  
to 30 June 2019).

## GENERAL POLICIES OF THE AUSTRALIAN GOVERNMENT

Under s. 22 of the PGPA Act, the Finance Minister may make a government policy order that specifies a policy of the Australian Government that is to apply in relation to one or more corporate Commonwealth entities. No ministerial directions were received by the AIMS Council during 2018-19.

AIMS did not form, or participate in, the formation of any new companies, trusts or partnerships.

## GOVERNANCE

### AIMS COUNCIL

AIMS is governed by a Council that reports to the relevant Minister. The CEO is responsible for the day-to-day affairs of the Institute.



*AIMS Council: Mr Roy Peterson, Dr Stephen Morton, Professor Sandra Harding AO, The Hon. Penelope Wensley AC (Chairman), Ms Jeanette Roberts, Dr Paul Hardisty (CEO), Ms Anna Matysek*

### Role of Council

The AIMS Council sets AIMS' key objectives and research strategies and oversees management. The Council advises the Minister and the Department of Industry, Innovation and Science of AIMS' progress against its research plans. The Minister is also provided with advice on developments of significance, as appropriate.



The PGPA Act requires the AIMS Council, as the accountable authority of AIMS, to comply with the following specific duties:

- to govern the Commonwealth entity
- to establish and maintain systems relating to risk and control
- to encourage cooperation with others
- in relation to requirements imposed on others
- to keep the responsible minister and the Finance Minister informed.

### Council membership

The AIMS Council consists of a Chairman, AIMS' CEO, a member nominated by James Cook University, and four other members. The AIMS Act requires that at least three members of the Council have scientific qualifications. All members of the Council, with the exception of the CEO, are non-executive appointments made by the Governor-General on the nomination of the Minister. Appointments can be up to five years and reappointment is permissible. The CEO is appointed by the Council for a period not exceeding five years and is eligible for reappointment.

#### The Hon. Penelope Wensley AC FAIA

##### Council Chairman: 1 January 2015 to 31 December 2019

As a former career diplomat (1968–2008) and Governor of Queensland (2008–2014), Ms Wensley has a distinguished record of public service and extensive experience of government processes and public policy formulation.

She has held many leadership roles, nationally and internationally, and, in addition to her deep knowledge of foreign and trade policy, brings to the AIMS Council particular expertise in strategy development and implementation, communication and negotiation, and community and stakeholder engagement.

In 2001, Ms Wensley was made an Officer of the Order of Australia (AO) for her distinguished contributions to Australia's international relations and in 2011, a Companion of the Order (AC) for eminent contribution to the people of Queensland and to Australia's international relations through senior diplomatic representational roles and as a key contributor to initiatives of the United Nations. These senior roles included: Australian Ambassador to the UN, in both Geneva and New York; Ambassador to France; High Commissioner to India and Ambassador for the Environment.

An Arts Honours graduate of the University of Queensland, Ms Wensley holds honorary doctorates from UQ, Griffith University, James Cook University and the Queensland University of Technology. She is a Fellow of the Australian Institute of International Affairs (FAIA) and an Honorary Fellow of the Environment Institute of Australia and New Zealand (HFEIANZ).

She is a Director of the Lowy Institute, Chairman of the Reef Advisory Committee (advising the Queensland and Australian governments on implementation of the Long-term Sustainability Plan for the GBR (Reef 2050)), and National Patron of Soil Science Australia.

**Professor Sandra Harding AO, BSc (Hons), MPubAdmin, PhD, Hon Doc JIU, FACE, FQA, FAICD, FAIM Council member: 10 May 2007 to 27 May 2020**

Professor Harding is Vice Chancellor and President of James Cook University, represents the university on the AIMS Council and maintains links with the wider education and business sectors.

In 2019, Professor Harding was awarded an Officer of the Order of Australia (AO) for her distinguished service to education at the national and international level, and to the community of Queensland.

A former Chair of Universities Australia, Professor Harding is an economic sociologist with an interest in education policy, the global tropics and economic development.

She is a member of a number of boards, including the Australian American Education Leadership Foundation, Citizens of the Great Barrier Reef Foundation Board, Townsville Enterprises Limited and Advance Cairns. She is Governor of the Committee for Economic Development of Australia.

**Dr Paul Hardisty MSc, P.Eng, FIEAust  
CEO and Council member: 24 July 2017 to 23 July 2022**

Dr Hardisty, a recognised thought leader and sought-after speaker in his field, was appointed CEO of AIMS in July 2017.

An engineer who has worked extensively in marine and coastal environments and marine research projects, he is experienced in both the public and private sectors.

Dr Hardisty co-founded international environmental consultancy Komex Environmental Ltd, which he developed from a start-up to a \$50 million-a-year company with 1000 employees.

More recently, he was director at CSIRO's Climate Adaptation Flagship, and business unit director in CSIRO's Land and Water division.

Dr Hardisty holds a Master in Hydrology, and a Doctorate in Environmental Engineering from Imperial College, London. He is an adjunct Professor at The University of Western Australia.

**Ms Anna Matysek, BEcon (Hons), MEnv  
Council member: 15 June 2017 to 14 June 2022**

Ms Matysek is an experienced economist, and an expert business development and investment strategist. She is a senior executive and independent consultant with a strong background in stakeholder engagement, and policy development in the resources, energy and infrastructure sectors.

Ms Matysek has worked with leading global mining companies, utilities, agribusinesses, and government including holding senior positions in Rio Tinto, economics consulting firms, at the Australian Bureau of Agricultural and Resource Economics and the Productivity Commission.

Ms Matysek was a lead author on the Intergovernmental Panel on Climate Change Fourth Assessment Report, and the International Assessment of Agricultural Knowledge, Science and Technology for Development.



**Dr Stephen Morton, BSc (Hons), PhD, Doc (Hon. Causa), GAICD**

**Council member: 16 December 2014 to 15 December 2019**

Dr Morton is an Honorary Professorial Fellow with Charles Darwin University, a Doctor of Philosophy in animal ecology, an author, and has published more than 150 scientific articles.

He was formerly chief of CSIRO's Sustainable Ecosystems and Group Executive for Environment and Natural Resources, for Energy and Environment, and for Manufacturing, Materials and Minerals.

Dr Morton is an independent consultant and sits on councils and scientific advisory panels including the Western Australian Biodiversity Science Institute, and the steering committee for the Threatened Species Recovery Hub, National Environmental Science Program.

**Mr Roy Peterson, BCom, FCA, FTI**

**Council member: 11 December 2014 to 10 December 2019**

Mr Peterson is Chairman of the AIMS Audit Committee, and a leader in his field.

He is a Chartered Accountant with strong governance and audit committee experience, including internal audit, risk management, process improvement and taxation.

Mr Peterson has chaired the North Queensland Committee for the Australian Institute of Company Directors and was a member of the Taxation Institute National Taxation Liaison Committee.

He is a Fellow of the Institute of Chartered Accountants, and the Taxation Institute of Australia.

**Ms Jeanette Roberts BEng (Hons) FIChemE**

**Council member: 21 June 2018 to 20 June 2023**

Ms Roberts is a chemical engineer and a senior executive with more than 30 years' international experience in the oil and gas industry, including in China, India, Russia, Africa, Europe and the Asia-Pacific.

A director of her own company, Jeanette Roberts Consulting, she has major global merger and acquisitions experience, including divestments, global restructures, risk management and governance.

Ms Roberts has worked on policy development at both state and Commonwealth level, as well as in the research sector, building partnerships and collaboration frameworks, particularly around marine environments and sustainable development.

She has worked for oil and gas operators and service companies both in Australia and internationally.

## Council attendance

Table 5: Attendance at Council meetings, 2018-19

Attendance	24 Aug. 2018	27-28 Sept. 2018	10-11 Dec. 2018	2-3 Apr. 2019	13-14 Jun. 2019
The Hon. Penelope Wensley AC	Yes	Yes	Yes	Yes	Yes
Professor Sandra Harding AO	Yes	No	Yes	Yes	Yes
Dr Stephen Morton	Yes	Yes	Yes	Yes	Yes
Mr Roy Peterson	Yes	Yes	Yes	Yes	Yes
Ms Anna Matysek	Yes	Yes	Yes	Yes	Yes
Dr Paul Hardisty	Yes	Yes	Yes	Yes	Yes
Ms Jeanette Roberts	Yes	Yes	Yes	Yes	Yes

For remuneration, see Financial Statements, Note 3.2 on page 117

## Education and performance review processes for Council members

At induction, Council members are provided with a comprehensive set of documents including the PGPA Act, AIMS Act, AIMS Strategy 2025, Corporate Plan, Risk Management Framework and key plans and policies including the Business Continuity Plan, Enterprise Agreement and Fraud Control Plan.

Council members are encouraged to maintain their membership with the Australian Institute of Company Directors. The performance of Council members is reviewed regularly, alternately by the Chairman and by an external reviewer.

## ANAO audit of the effectiveness of the AIMS Council

In 2018-19, the Australian National Audit Office conducted an audit into the effectiveness of governance of the AIMS Council (see *Auditor-General Report No. 36 of 2018-19 into the Effectiveness of Board Governance at the Australian Institute of Marine Science* tabled in Parliament on 30 April 2019).

The report affirmed the effectiveness of AIMS' governance and oversight arrangements. It found that the governance and administrative arrangements of the Council are consistent with relevant legislative requirements, support effective governance and are fit for purpose in overseeing compliance. The report's only recommendation in relation to ensuring that the Institute's Corporate Plan meets all the minimum requirements of the Public Governance, Performance and Accountability Rule 2014 was accepted and was addressed in the 2019-20 Corporate Plan.

## Ethics

Council members are briefed on—and are required to sign—the AIMS Code of Conduct. Council members must also abide by the Code of Conduct for Directors published by the Australian Institute of Company Directors.

## Disclosure of interest

Section 29 of the PGPA Act provides for the disclosure of material personal interests in a matter that is being considered by the Council, and prohibits participation, deliberation and decision making by any member on such matters, unless so resolved by the Council or entitled by the Minister. Details of such disclosure are recorded in the minutes of Council meetings. All of these requirements are currently being met.

## AUDIT COMMITTEE

The Audit Committee is a formal subcommittee of the Council that meets quarterly. Audit Committee members in 2018–19 were:

- Mr Roy Peterson (Council member and Committee Chairman)
- Dr Steve Morton (member to August 2018)
- Ms Jeanette Roberts (member from September 2018)
- Ms Margaret Walker (independent member).

The AIMS Chief Operating Officer and Chief Finance Officer, representatives of the Australian National Audit Office, and an internal auditor, attend all meetings or relevant parts of all meetings, by invitation.

In accordance with best practice, all Council members receive copies of the Audit Committee agenda and meeting minutes and can attend meetings as a right.

The Audit Committee is responsible for providing independent assurance and assistance to Council on:

- financial reporting
- performance reporting
- systems of risk oversight and management
- systems of internal control
- internal audit
- external audit.

Four full meetings of the committee and one extraordinary meeting were held during FY 2018–19.

## Attendance

Table 6: Audit Committee attendance, 2018–19

Attendance	7 Aug. 2018	31 Aug. 2018	13 Nov. 2018	5 Mar. 2019	14 May 2019
<b>Members</b>					
Mr Roy Peterson (Chair)	Yes	Yes	Yes	Yes	Yes
Dr Steve Morton (Council member, Audit Committee member to Sept. 2018)	Yes	Yes	No	No	No
Ms Jeanette Roberts (Council member, Audit Committee member from Sept. 2018)	No	No	Yes	Yes	Yes
Ms Margaret Walker (independent member)	Yes	Yes	Yes	Yes	Yes
<b>Invitees</b>					
Mr Basil Ahyick (AIMS CFO)	Yes	Yes	Yes	Yes	Yes
Dr John Chappell (AIMS COO)	Yes	Yes	Yes	Yes	Yes
Mr Jason Davidson (AIMS Finance Manager)	Yes	Yes	Yes	Yes	Yes
Mr Will Fellowes (PricewaterhouseCoopers (PwC) internal auditor)	Yes	No	Yes	Yes	No
Mr John Skilling (PwC internal auditor)	No	No	Yes	Yes	Yes
Mr Kristian Gage (ANAO signing officer 2018)	Yes	No	No	No	No
Mr Brandon Jarett (ANAO signing officer 2019)	No	No	No	Yes	Yes
Mr Benjamin Nicholls (ANAO)	Yes	No	Yes	Yes	Yes
Mr Jared Hill (RSM Australia, external auditors)	Yes	No	No	No	No
Mr Albert Loots (RSM Australia, external auditors)	Yes	No	No	No	No

## Independent professional advice

The Council has the right to obtain, at AIMS' expense, relevant independent professional advice in connection with the discharge of its responsibilities. It did not seek such advice in 2018–19.

## **FRAUD CONTROL**

AIMS remains committed to mitigating incidences of fraud and managing risks. AIMS has developed a Fraud Control Plan using the Commonwealth Fraud Control Framework 2017 and in adherence to s. 10 of the PGPA Rule 2014. AIMS reports its fraud data to the Australian Institute of Criminology by 30 September each year.

## **FINANCIAL REPORTING**

AIMS' financial statements are prepared in accordance with:

- Public Governance, Performance and Accountability (Financial Reporting) Rule 2015 (FRR) for the reporting periods ending on or after 1 July 2018
- Australian Accounting Standards and Interpretations – Reduced Disclosure Requirements issued by the Australian Accounting Standards Board that apply for the reporting period.

The financial statements are accompanied by a signed statement by the Accountable Authority, CEO and CFO, declaring that the statements comply with the accounting standards and any other requirements prescribed by the FRR and present fairly the entity's financial position, financial performance and cash flows in accordance with s. 42 of the PGPA Act.

There were related entity transactions during 2018–19 (refer to Note 3.3 of the Financial Statements).

## **PERFORMANCE REPORTING**

Section 39 of the PGPA Act requires an annual performance statement to be provided by corporate Commonwealth entities. AIMS' annual performance statement for 2018–19 starts on page 18 of this report.

## **SYSTEMS OF RISK OVERSIGHT AND MANAGEMENT**

Under s. 17(2) (c) of the PGPA Rule, the Audit Committee is responsible for reviewing the Institute's risk framework (and monitoring management's compliance with that framework) and making recommendations to the Council to address any significant issues raised.

## **SYSTEM OF INTERNAL AUDIT CONTROL**

The Audit Committee's responsibilities include reviewing the audit plan and internal audit reports, and also making recommendations to the Council and management to address any significant issues raised. The committee also reviews whether the internal audit coverage aligns with AIMS' key risks. The internal audit function was performed by PricewaterhouseCoopers (PwC) during the year. The internal auditor is responsible for independently reviewing risk in accordance with the AIMS Corporate Plan.





Image: N Thake

## **EXTERNAL AUDIT**

Under s. 43 of the PGPA Act, the Commonwealth Auditor-General, through the ANAO, is the external auditor for the Institute. The Audit Committee reviewed the ANAO Audit Plan and reported to, and met with, ANAO representatives before recommending to the Council that the annual financial statements be accepted, and the Statement by Council be signed.

## **RISK MANAGEMENT**

AIMS has a comprehensive corporate risk management strategy, which includes processes to identify and assess new risks to AIMS, and to monitor and refine existing risks and control measures.

Operational risk management is established across the Institute, with processes, procedures and systems of work in place to manage workplace health and safety risks that may affect AIMS' workers. We participate in the annual Comcover risk management benchmarking survey.

## **INVESTING AND FINANCING ACTIVITIES**

AIMS invested its surplus money in accordance with s. 59 of the PGPA Act and AIMS' policy on investments.

## **INDEMNITIES AND INSURANCE PREMIUMS FOR OFFICERS**

There were no liabilities to any current or former officials of AIMS during the reporting period. No premium was paid (or was agreed to be paid) against a current or former official's liability for legal costs. AIMS paid premiums for directors' and officers' insurances, as required.

## **COMPLIANCE**

AIMS conducted its affairs in accordance with the requirements of all applicable laws and regulations, including the PGPA Act and prescribed rules, the applicable policies of the Australian Government, and the internal policies of AIMS. Any government policy orders notified as being applicable to AIMS would be duly complied with (s. 22(3), PGPA Act).

## **DUTY TO INFORM AND MINISTERIAL NOTIFICATIONS**

The AIMS Council is required to notify the responsible minister of any significant issue that has affected AIMS (s. 19(1)(e), PGPA Act). There were no significant issues requiring notification to the responsible minister during 2018–19.



## **CONSULTANCY SERVICES**

AIMS engages individuals and companies as external consultants from time to time where it lacks specialist expertise or when independent research, review or assessment is required.

Consultants are engaged to investigate or diagnose a defined issue or problem, carry out defined reviews or evaluations, or provide independent advice, information or creative solutions to assist in AIMS' decision making.

Decisions to engage consultants take into consideration the skills and resources required for the task, the skills or resources available internally and the cost-effectiveness of these options. Engagement of a consultant is made in accordance with our Procurement Policy and Procedures and other relevant internal policies.

AIMS spent \$166,000 (excluding GST) on consultancies during 2018–19.

## **PUBLIC ACCOUNTABILITY**

### **Judicial decisions and reviews by outside bodies**

No judicial decisions relating to AIMS were handed down during the reporting period.

### **Ombudsman**

No issues relating to AIMS were referred to the Commonwealth Ombudsman during 2018–19.

### **Industrial relations**

No significant industrial relations issues arose during 2018–19.

## **CUSTOMER SERVICE CHARTER**

AIMS has a formal customer service charter that outlines the standards it commits to regarding management of customer relationships, a copy of which is posted on our website. AIMS welcomes feedback on our performance against our service standards. The charter and details on how to provide feedback can be found at [www.aims.gov.au/docs/about/corporate/service-charter.html](http://www.aims.gov.au/docs/about/corporate/service-charter.html)

## **PARLIAMENTARY COMMITTEES**

No reports were produced on the operations of AIMS by a parliamentary committee during 2018–19.

## PRIVACY ACT 1988

To ensure the proper management, administration and safety of its officers, employees, visitors, volunteers and contractors, AIMS is required to collect personal, and occasionally sensitive, information. AIMS is committed to the Australian privacy principles contained within the *Privacy Act 1988* and has formal processes to manage privacy, as detailed in the AIMS Privacy Policy and Procedures. AIMS has a privacy officer ([privacy@aims.gov.au](mailto:privacy@aims.gov.au)) who is responsible for ensuring that the Institute's Privacy Policy and Procedures are adhered to and comply with all applicable statutory requirements.

## FREEDOM OF INFORMATION

### Freedom of Information (FOI) requests, reviews, decisions and statements

No requests for documents under the provisions of the *Freedom of Information Act 1982* (FOI Act) were received by AIMS during 2018–19.

In addition, no applications were received during 2018–19:

- for internal review of decisions made under the FOI Act
- for external review by the Administrative Appeals Tribunal of decisions made under the FOI Act
- to amend any records under the FOI Act.

A request for the production of all documents held or created by AIMS in relation to the \$443.4 million grant by the Department of Environment and Energy to the Great Barrier Reef Foundation was received from the Senate during FY 2018–19. Although not strictly a request under the FOI Act, it was responded to in accordance with the FOI Act and FOI Guidelines as permitted under the Senate Guidelines for Production of Documents to the Senate.

### FOI operations

Agencies subject to the FOI Act are required to make information available to the public as part of the Information Publication Scheme (IPS). Under their IPS, each agency must display on its website a plan showing what information it publishes in accordance with the IPS requirements in Part II of the FOI Act.

The documents listed in our IPS Agency Plan are generally freely available to any person requesting them. The availability of other information is subject to assessment, which is made on a case-by-case basis in accordance with the relevant provisions of the FOI Act, as supplemented and explained in the relevant fact sheets, guidelines and other materials published on the website of the Office of the Australian Information Commissioner<sup>7</sup>. The grounds for assessment include considerations of commercial confidentiality, legal professional privilege and personal privacy. The FOI Act and the above website explain these, the other unconditional exemptions and the conditional exemptions as contained in the current legislation.

Requests for any such information from AIMS must be made in writing, addressed to the relevant person, and must contain the information set out under 'How do I make an FOI request?' in FOI Fact Sheet 6 Freedom of information – How to apply on the above website. The request should be

<sup>7</sup> ([www.oaic.gov.au/freedom-of-information/foi-resources/all/](http://www.oaic.gov.au/freedom-of-information/foi-resources/all/))

addressed to the FOI officer at the address given below. There is no fee payable for the request. However, fees and charges may apply and, if they do, will be set in accordance with Part 4 of the FOI Guidelines, which are available from the FOI website.

### Information publication scheme

AIMS continues to undertake actions consistent with compliance requirements under the IPS introduced in May 2011 pursuant to the relevant provisions of the FOI Act. The IPS encourages governments and government agencies to provide open, accountable and transparent information in formats that are easy to understand and freely accessible.

#### Contact

All enquiries and requests for information, or concerning access to documents or any other matters relating to FOI, should be directed to:

**FOI Officer, Australian Institute of Marine Science**

PMB No. 3, Townsville Mail Centre MC, Qld 4810

Telephone: (07) 4753 4444 | Facsimile: (07) 4772 5852 | Email: [privacy@aims.gov.au](mailto:privacy@aims.gov.au)

## Sounding out marine noise

The impacts of noise generated by seismic surveys on the physiology and behaviour of marine fauna and any resulting change in mortality, distribution and abundance, has been of interest for decades. Most studies have focused on cetaceans; comparatively few studies have investigated the effect on commercially important species, particularly invertebrates.

The North West Shoals to Shore Research Program (NWSSRP), which is funded by Santos, has allowed AIMS researchers to monitor the effects of these impacts on fish communities and pearl oysters.

Using the seismic vessel the *BGP Explorer*, and the collaborative efforts of more than 100 people over 12 months of design and planning, a team from AIMS conducted a detailed real world experiment over 10 days in November 2018 to determine the effects of marine noise associated with seismic surveys on commercially valuable fish and pearl oysters.

AIMS researchers tagged and released 390 red emperor 90 km off the Pilbara coast. These fish are commercially important and an indicator species for other demersal fish. Their movement before, during and after exposure to the seismic source was tracked using an array of 96 acoustic receivers. The tracking determined whether the noise from seismic surveys displaced fish from particular areas and quantified the timeframe over which this occurred, as well as the range from the source where behavioural responses could no longer be detected. Additionally, the demersal fish community was monitored using baited remote underwater video stations (BRUVS) to document relative abundance, size distribution and species composition.

The pearl oyster experiment was conducted close to Broome in 20–35 metres of water and involved setting out more than 10,000 pearl oysters in groups of about 1,200, at different distances of up to 6 km from the seismic vessel operation. After being exposed to the seismic source, the condition, physiology, growth and mortality of the pearl oysters was recorded over a six-month period to determine if seismic surveys have an impact on these parameters and, if so, the exposure ranges and period over which this occurs. In addition, other oysters were seeded to test if these acoustic signals affected the ability of the oyster to produce market quality pearls at the same rate as unexposed shell.

The knowledge and understanding of the effect of seismic surveys on commercially important species gained from this study will be critical for evidence-based environmental resource management. This has particular relevance in north-west Australia, where oil and gas exploration has occurred for many years and will continue into the future in the vicinity of high-value commercial fisheries.

### **The pearl oyster experiment was conducted close to Broome in 20–35 metres of water**

See video at <https://www.aims.gov.au/nw-shoals-to-shore/marine-noise-monitoring-and-impacts>.



Image: N Thake



# Applied acoustics strike the right chord

## Key habitats of harbour floors revealed

Mapping the bathymetry has uncovered the secrets of the seabed in Darwin's sister harbours, bringing new insights to marine managers. The undersea study, one of the most comprehensive undertaken in Australia, has:

- improved understanding of the busy port's seabed, including a deep central channel that divides into smaller and shallower channels
- produced a seascape map showing six classes of potential habitats
- demonstrated the utility of multibeam acoustic data to describe the distribution of key fauna and flora habitats.

The total area mapped (about 2,000 km<sup>2</sup>) is believed to be the largest contiguous benthic mapping and modelling activity undertaken in Australia.

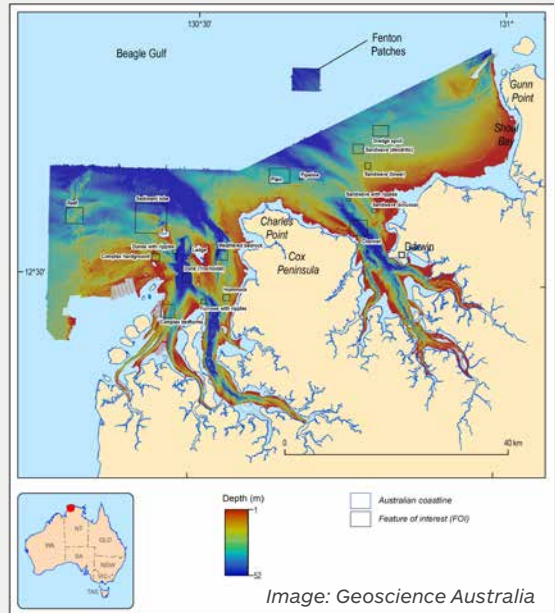
As a direct result of the project, the new database is now an important scientific and educational resource for marine managers to support conservation and sustainable development in the region.

The project began in December 2010 when the Northern Territory Government funded a baseline habitat mapping program. It was a collaboration between AIMS, Geoscience Australia, the NT Department of Environment and Natural Resources and the Darwin Port Corporation.

In 2011, INPEX-operated Ichthys LNG funded further environmental and social offset programs to improve knowledge of Darwin's marine habitats.

Under the project, AIMS collected and processed most of the shallow water multibeam bathymetry and developed a model of the distribution of the major benthic habitat classes in the region to help achieve the three primary objectives of the study:

**As a direct result of the project, the new database is now an important scientific and educational resource**



- conduct seabed mapping to obtain high resolution bathymetric and backscatter data
- examine the abiotic patterns important to benthic communities
- characterise the seabed fauna and flora (i.e. benthos) and model the spatial distribution of benthic communities.

The bulk of the multibeam data from deeper waters was collected using AIMS' research vessel *RV Solander*, with smaller vessels filling the gaps in the vast intertidal areas of the harbours.

The maps produced through the project provide a solid baseline for benthic biodiversity and habitat distributions in the region and offer new insight into the marine environments of the NT coastline.

They will also support future management decisions, including marine planning, long-term monitoring and environmental impact assessments, and contribute to research into the mobile biota—dugongs, turtles and fish—associated with these habitats.



# Part 4: OUR PEOPLE

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# ORGANISATIONAL STRUCTURE

ORGANISATIONAL STRUCTURE OF THE AUSTRALIAN INSTITUTE OF MARINE SCIENCE

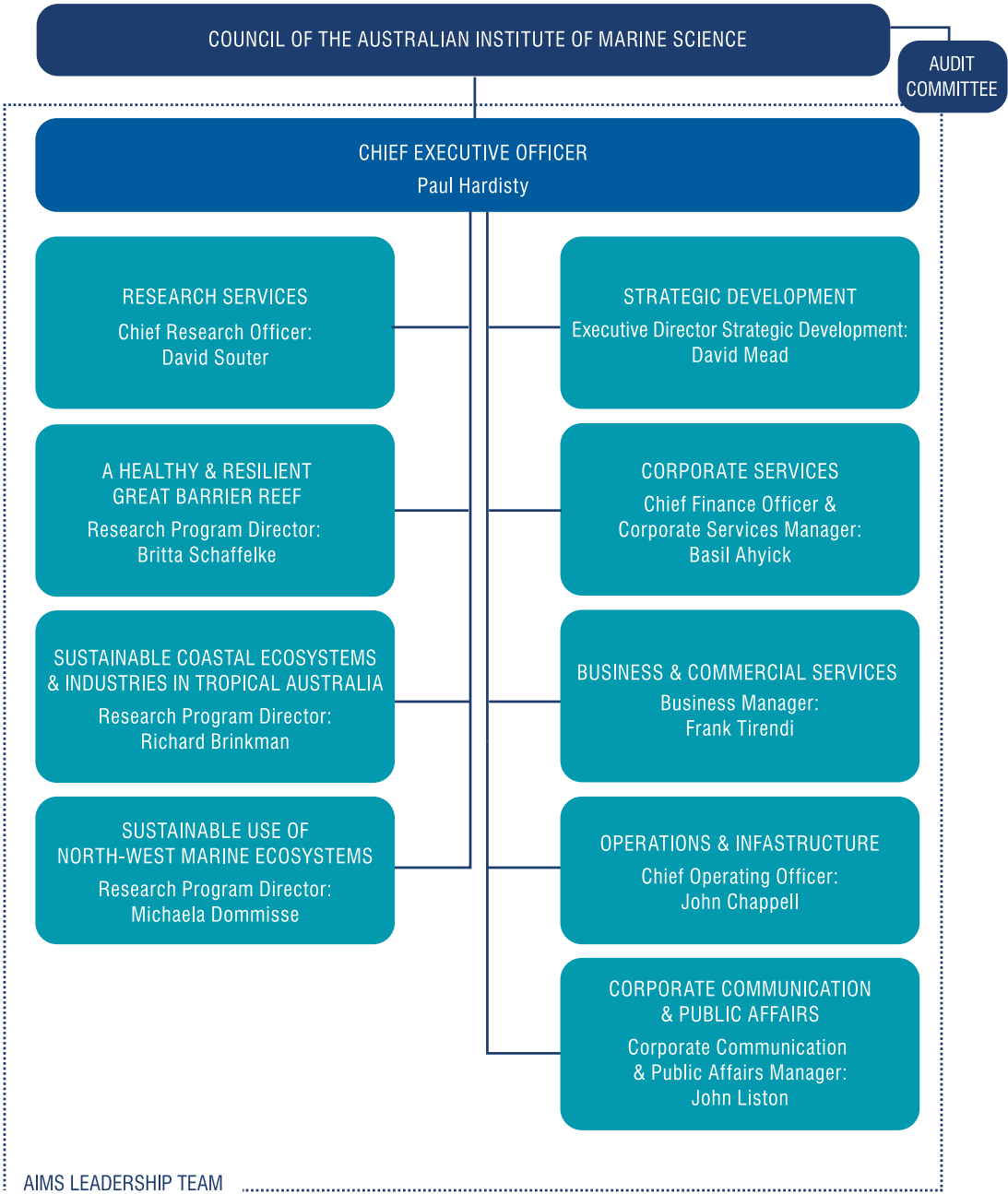


Figure 16: Organisational structure of the Australian Institute of Marine Science

## STAFF

AIMS employed an average of 243.53 full-time equivalent (FTE) science and support staff during FY 2018–19, including 26.05 FTE under labour hire arrangements, 0.1 FTE casuals and 2.38 FTE temporary staff. In addition, AIMS engaged 47 FTE personnel via outsourced functions (see Table 7) and 2.12 FTE of secondments from the Department of Industry, Innovation and Science.

Many of our scientists are world authorities in their field who have achieved international acclaim for their research. The work of the research scientists is supported by a variety of professional and technical support staff skilled in the following:

- research support
- laboratory and analytical services
- data collection and data management
- commercial and business development services
- intellectual property portfolio management
- engineering and field operations services
- science communication
- corporate support functions comprising human resources, financial, information services, supply and general management.

Where appropriate, AIMS contracts services. Currently, contracted services are for catering, cleaning, site maintenance, security and crewing marine research vessels.



Image: S Clarke



## AIMS CORE STAFF NUMBERS

Table 7: Average staffing level numbers (ASL)

Staff category	female 2016-17	Part-time	2016-17	female 2017-18	Part-time	2017-18	female 2018-19	Part-time	2018-19
<b>Research Scientists</b>	<b>21</b>	<b>3</b>	<b>46</b>	<b>25</b>	<b>4</b>	<b>48</b>	<b>24</b>	<b>4</b>	<b>53</b>
Townsville	15	2	28	18	4	29	16	3	32
Perth	5	1	12	6	-	13	7	1	16
Darwin	1	-	6	1	-	6	1	-	5
<b>Research Support</b>	<b>24</b>	<b>2</b>	<b>68</b>	<b>22</b>	<b>2</b>	<b>59</b>	<b>21</b>	<b>2</b>	<b>58</b>
Townsville	21	2	57	16	2	48	17	1	46
Perth	2	-	9	5	-	9	3	1	10
Darwin	1	-	2	1	-	2	1	-	2
<b>Technical and corporate support</b>	<b>37</b>	<b>7</b>	<b>105</b>	<b>38</b>	<b>6</b>	<b>98</b>	<b>37</b>	<b>5</b>	<b>104</b>
Townsville	32	7	93	32	6	85	31	5	89
Perth	5	-	9	6	-	10	6	-	12
Darwin	-	-	3	-	-	3	-	-	3
<b>Total Staff (excluding casual and temporary)</b>	<b>82</b>	<b>12</b>	<b>219</b>	<b>85</b>	<b>12</b>	<b>205</b>	<b>82</b>	<b>11</b>	<b>215</b>
Townsville	68	11	178	66	12	162	64	9	167
Perth	12	1	30	17	-	32	16	2	38
Darwin	2	-	11	2	-	11	2	-	10
<b>Postdoctoral Fellows included in total*</b>	<b>-</b>	<b>-</b>	<b>7</b>	<b>4</b>	<b>-</b>	<b>13</b>	<b>5</b>	<b>-</b>	<b>12</b>
Townsville	-	-	4	3	-	6	4	-	6
Perth	-	-	3	1	-	6	1	-	5
Darwin	-	-	-	-	-	1	-	-	1
<b>Temporary and Casual staff</b>	<b>6</b>	<b>-</b>	<b>18</b>	<b>15</b>	<b>-</b>	<b>36</b>	<b>19</b>	<b>-</b>	<b>29</b>
Townsville	5	-	16	13	-	33	18	-	26
Perth	1	-	2	2	-	3	1	-	3
Darwin	-	-	-	-	-	-	-	-	-
<b>Contractors</b>	<b>-</b>	<b>-</b>	<b>42</b>	<b>-</b>	<b>-</b>	<b>49</b>	<b>-</b>	<b>-</b>	<b>47</b>

\*AIMS host employer

## STAFF CONSULTATION

Staff consultation and communication takes place via a range of mediums such as all-staff meetings, emails and newsletters. The Joint Consultative Committee—comprising AIMS CEO (Chair), a management representative (Chief Operating Officer), the Human Resources Manager, Community and Public Sector Union (CPSU) representatives (internal), a CPSU organiser (external), and a staff representative—met three times in 2018–19. This committee provides a forum for discussion and consultation between management and staff representatives on issues that may affect staff conditions and entitlements.

## LEADERSHIP DEVELOPMENT

During 2018–19, AIMS implemented a significant leadership development program affording all staff the opportunity to participate.

## EQUAL EMPLOYMENT OPPORTUNITY AND WORKFORCE DIVERSITY

Our workforce diversity policy acknowledges differences and adapts work practices to create an inclusive work environment in which diverse skills, perspectives and cultural backgrounds are valued.

The Institute's staffing policies and procedures align with the requirements of the *Equal Employment Opportunity (Commonwealth Authorities) Act 1987*. Designed to ensure that workforce diversity and equality of opportunity are fundamental operating principles for AIMS, they include:

- regularly reviewing employment policies and practices, and providing ongoing instruction for user groups
- promoting AIMS as an equal opportunity employer in all recruitment advertisements placed in online media and on our website
- supporting equity of access and providing amenities for people with disabilities in AIMS' public access facilities such as conference rooms, theatre, library, cafe and display areas
- constructing new facilities that support equity of access
- catering to staff and visitors with a disability, and providing a wheelchair, if required, on public tours of AIMS
- having mechanisms in place to handle complaints and grievances (formal and informal) to address issues and concerns raised by staff and visitors.



Table 8: Staff numbers in equal employment opportunity categories

EEO category	Proportion of total staff (%)			
	2015–16	2016–17	2017–18	2018–19
Aboriginal and Torres Strait Islander	0.5	1.31	0.98	2.05
Non-English speaking background	15.3	16.44	16.78	14.67
Staff with disability	1.5	1.84	1.68	1.59
Women	36.8	37.25	41.36	41.32

## WOMEN IN SCIENCE

In 2018–19, our Equity, Diversity and Gender team, known internally as EDGE, developed a draft equity and diversity plan for AIMS. The plan incorporates the objectives of the former Women@AIMS Reference Group but has a wider focus on gender equity across the organisation. The plan brings related policies and initiatives under one umbrella with diversity and inclusion as core principles.

The plan was one element of AIMS' application for an Athena SWAN Bronze Award as part of the Science in Australia Gender Equity (SAGE) program. The application required a four-year action plan for AIMS to demonstrate progress towards gender equity, particularly for women in science. The action plan reflects input from all staff about the equity and diversity issues that are important to them and covers workplace flexibility options, parental leave, policy language and career progression. EDGE and Human Resources are taking the lead in its implementation.

## CODE OF CONDUCT

AIMS has a Code of Conduct to which the Council, management, staff and visitors are required to adhere. The Code complies with the *Public Governance, Performance and Accountability Act 2014*. New Council members, staff and visitors are briefed on the Code during induction. Council members abide by the Code of Conduct for Directors published by the Australian Institute of Company Directors.

## WORKPLACE BEHAVIOUR

Management, staff and visitors at AIMS share responsibility for providing and working in an environment free of harassment and other unacceptable forms of behaviour. In accordance with the AIMS Code of Conduct, staff are required to treat others with courtesy, respect, dignity, fairness and equity, and to have concern for their rights, freedoms and individual needs. A high standard of behaviour is expected and AIMS has a set of principles outlining the way staff are expected to behave toward others.

Workplace harassment contact officers are available throughout AIMS to discuss, in confidence, matters of concern regarding harassment and associated issues raised by a staff member. AIMS received one formal reported cases of harassment in 2018–19.

## **PUBLIC INTEREST DISCLOSURE (WHISTLE-BLOWER POLICY)**

AIMS has a whistle-blower policy designed to facilitate effective notification, assessment and management of the disclosure of serious wrongdoings in accordance with the *Public Interest Disclosure Act 2013*.

AIMS strongly encourages reporting of serious wrongdoing and will take appropriate and necessary action to uphold the integrity of the Institute and to promote the public interest. To achieve our goals and obligations in this regard, AIMS is committed to creating and maintaining an environment and culture in which the disclosure of serious wrongdoings is fully supported and protected. There were no formal reported public interest disclosure cases in 2018–19.

## **NATIONAL DISABILITY STRATEGY**

AIMS is committed to ensuring that people with disabilities are given opportunities for independence, access and full participation. AIMS assesses cases individually and endeavours to implement the most appropriate measures to assist people with disabilities.

AIMS' physical resources continue to be upgraded to meet access needs for people with disabilities, which includes building modifications and the construction of new facilities.

## **EMPLOYEE ASSISTANCE PROGRAM**

Lifeworks is contracted by AIMS to provide an independent employee assistance program. The program is free to staff, and their family members, and provides for up to six sessions to assist with issues of:

- relationship and family problems
- maximising performance
- depression, anxiety and stress
- conflict and communication
- children or family member concerns
- grief and bereavement
- elder care issues
- addiction
- work-life balance
- career path issues
- retirement
- work stress.

Participants can refer themselves or be encouraged by a colleague, supervisor, human resource staff or workplace health and safety staff to access the program. The use rate during 2018–19 was 10.9 per cent, compared with 6.67 per cent in the previous year. Analysis reveals that staff accessed the service primarily for issues of a personal nature.

## HEALTH AND SAFETY

Performance – Competent, Considered and Focused

### OUR STRATEGY



The safety of our people, collaborators, contractors and those with whom we share the oceans remains paramount. AIMS Strategy 2025 defines AIMS safety value, to care for ourselves and others in all that we do.



AIMS defines measurable targets with which we will track our progress towards our work, health and safety objectives. At the highest level, AIMS has committed to achieving continuous improvement in our safety performance. That being, year on year improvement in safety performance.

### CONTINUOUS IMPROVEMENT



#### Injury Reduction Program

Reducing injuries, implementing manual-task risk management strategies including early intervention, PErforM assessments and role-based functional assessment



#### Leadership and Cultural Change Program

Developing AIMS people, changing behaviours through assessment, coaching and leadership development



#### Safe Driving Program

Improving the skills and performance of AIMS approved drivers through survey, improved communication and advanced driver training



#### Physical and Mental Wellness Program

Providing opportunities for physical and mental training and exercise opportunities in the workplace to promote and encourage improved wellbeing



#### Internal Audit and Inspection Regime

Providing a safe workplace and practice through site inspection and Internal Audit Committee review of policies and procedures

## SAFETY PILLARS

Our health and safety strategy is based on six pillars (Figure 17) that guide our annual strategic work planning:



Figure 17: Health and safety pillars

## DEDICATED SAFETY ROLES

Our commitment to the health and safety of workers is demonstrated by the number and diversity of roles dedicated to health and safety management at AIMS (Figure 18).

### OPERATIONAL & SCIENTIFIC LEADERS



Figure 18: Health and safety dedicated roles

## LOST TIME INJURIES

There was one lost time injury recorded in FY 2018–19. AIMS has consistently achieved low lost time injury rates over the past four years – that is  $\leq 1$  per annum (FY2015–19).

## LEAD AND LAG INDICATORS

Our reporting culture remains strong, with the number of hazards reported again well in excess of target and comprising 69 per cent of all reports. Of the 79 incidents reported, five resulted in an injury classification of lost time or medical treatment, and 14 involved minor first aid cases (Figure 19).

Year on year improvement has been achieved in the areas of safety delivery, with respect to incident reporting, investigation timeframes and the number of incidents resulting in work restrictions.

AIMS notified Comcare of one dangerous incident involving electric shock as per the requirements of the *Work Health and Safety Act 2011*. No injury was sustained and the incident was assessed as minor. Comcare closed the incident satisfied that our action plan eliminated/minimised this type of risk from recurring, so far as reasonably practicable.

No new workers' compensation claims were made under the Comcare workers' compensation scheme, in large part due to AIMS' effective early intervention program.



Figure 19: AIMS safety reports, 2018–19





## MANUAL TASK INJURY REDUCTION

The number of manual task-related recordable injuries halved compared with the previous two years. We attribute this improvement to our dedicated injury reduction plan providing early intervention, training to raise awareness around key risk factors, and the application of manual task-specific risk management tools and role-based functional assessment.

### TRAINING

Manual Handling and PErforM (participatory ergonomics for manual tasks) training has been rolled out across the organisation as part of AIMS' injury reduction plan. Most (90%) of all AIMS employees have received this targeted training addressing manual handling risk management. This requirement has now been embedded within AIMS as essential training. In general, mandatory health and safety training has remained on track, achieving monthly targets.

## ENVIRONMENTAL PERFORMANCE

We have delivered against our commitments to protecting the environment and conserving biodiversity during the year. In particular, we worked with multiple industries, government, the community and other scientific institutions and agencies on programs and projects dedicated to conserving and sustainably managing tropical marine resources. As a community leader and a Commonwealth statutory authority, we have both a moral obligation and a statutory obligation under the *EPBC Act* to protect and maintain the biodiversity and heritage under our control. We also carefully guard against any avoidable adverse impacts on the environment arising from our own activities.

### REDUCING OUR ENVIRONMENTAL IMPACTS

In 2018–19, we completed construction of a 1050 kW photovoltaic solar system at our head office near Townsville. The renewable energy infrastructure is made up of 550 kW of roof-mounted panels and 500 kW of a land-based solar array. The rooftop system was switched on in June 2019 with the land-based solar array due to be commissioned in September 2019.

As well as saving money by going solar, we continued to promote energy efficiency among our workforce. An excellent example is our car pool where staff, visitors and students are able to commute to and from AIMS each day using cars from our own fleet. Only vehicles with a Green Vehicle Guide rating of 10.5 or higher are used. We estimate the commuter program takes between 80 and 100 vehicles off the road each day, further reducing carbon emissions.



## **WATER USAGE**

Our operations at Cape Ferguson used 46 megalitres (ML) of water in 2018–19, a decrease of 11 ML from the previous year. The 20 per cent reduction for the past 12 months was achieved as there were no hydro-excavation activities requiring the use of freshwater. This year's usage was very similar to FY 2015–16 and FY 2016–17.



## **RECYCLING**

We introduced a co-mingle recycling program this year, which added plastic containers to the previous recycling program for paper and cardboard. In addition, we recycle batteries, printer cartridges, lubricants and metals. In 2018–19, we recycled 11,040kg of paper and 11,100kg of cardboard.



## **ENERGY USAGE**

Cape Ferguson electricity consumption for 2018–19 was 7,785 MW for the year. This is a slight increase from the previous year's result (7,718 MW). The increase in consumption was for additional cooling for site facilities and experimental systems as a result of a heatwave in November 2018.



## **RADIATION SAFETY**

During the year, AIMS continued to hold a source licence issued by the Australian Radiation Protection and Nuclear Safety Agency. This licence is subject to conditions including quarterly reporting, maintaining a source inventory and complying with relevant regulations, codes and standards.



## **GENE TECHNOLOGY**

Two new proposals for dealing with genetically modified organisms (GMOs) were assessed and approved out-of-session by the AIMS Biosafety Committee this year. Three existing projects, one Notifiable Low Risk Dealing (NLRD) and two exempt dealings were completed. AIMS now has five active GMO projects – one rated NLRD and four exempt dealings.



## Global shark and ray survey

About one quarter of the world's sharks and rays are threatened with extinction. Despite this knowledge, the status of many species are either unknown or only understood on local or regional scales. Reef sharks are often excluded from survey methods, such as underwater visual census, so data on their status is limited.

The Global FinPrint Project aims to produce the world's first standardised survey of shark and ray abundance and diversity in coral reef environments ([www.globalfinprint.org](http://www.globalfinprint.org)).

This ambitious project employed baited remote underwater video stations (BRUVS) as a standardised sampling method to increase our understanding of how abundant reef sharks and rays are around the globe and inform improved conservation and management efforts.

Funded by Paul G. Allen Philanthropies, the international project team deployed over 14,000 BRUVS on 400 reefs around the world to examine the status of reef shark and ray populations.

Global data indicate that reef sharks and rays are highly variable in their global presence, with no sharks recorded in several of the sampled countries. Greatest reef shark abundances were found in the waters of developed nations like the US and Australia, but in general, the Pacific Ocean region retains higher relative abundances than the Coral Triangle, Caribbean or Indian Ocean. Analyses of the global dataset are still being finalised but indicate the dire situation for reef sharks in some areas.

The primary cause of the observed declines is heavy fishing pressure and inadequate management. Current analyses being led by AIMS suggest that some species may have been extirpated from some countries. Heavy fishing pressure on sharks and reef fish, combined with environmental impacts of climate change (bleaching, cyclone

damage) will make it difficult to recover reef shark populations in some areas. The long-lived and slow breeding life history traits of sharks also means that population recovery times are measured in decades rather than years.

The findings of this global initiative are likely to have significant impacts in management and conservation arenas in a number of countries. Conversations are underway to determine how the Global FinPrint data can be used to help countries improve their protection of reef sharks and rays in areas where there is still potential for recovery, and what can be done in places that are more heavily impacted.

The findings of this project will be significant for management and conservation of reef sharks and rays within our reef systems (Great Barrier Reef, Ningaloo). Since Australia contains healthy numbers of reef shark populations, we now play an important role in ensuring the future of these species, particularly in proximity to the Coral Triangle and Indian Ocean where populations have declined significantly.

### **The primary cause of the observed declines is heavy fishing pressure and inadequate management**



Image: S Lindfield

## Mysteries of hammerhead shark movement revealed

AIMS has been leading a multi-year collaborative research project to define the movements and connectivity of scalloped and great hammerhead sharks in northern Australia. This project, funded by the National Environmental Science Programme (NESP) Marine Biodiversity Hub, used multiple methods to examine population connectivity.

The project included satellite tracking to examine the extent of movements of individuals over periods of several months, genetic analyses to define any population separation and analyses of hammerhead parasite fauna, which can be an indicator of where individuals have travelled. Knowing if adult hammerhead sharks travel across international borders has significant implications for Australian management and conservation policies concerning these sharks. Defining this connectivity has increased in importance since the scalloped hammerhead was listed as Conservation Dependent under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) in April 2018.

The status of hammerhead sharks in Australia is of importance due to the extensive nursery areas for juveniles that occur around our northern coastline and the presence of multiple coastal fisheries that harvest sharks. Nurseries help inform us about hammerhead populations, but little is known about where adults occur and move, and most importantly, whether Australian populations are connected with those in Indonesia and Papua New Guinea.

AIMS satellite tracking data revealed tagged hammerheads had relatively localised movements, with the farthest latitudinal distance moved being less than 250 km, and the longest distance between tagging and recapture locations being only 169 km. Analysis of parasite fauna supported satellite tracking results that suggested limited movement among regions. However, tracked individuals and those surveyed

for parasites were all less than 3 metres in length, and so may not represent the behaviour patterns of large adult sharks. Additional parasite analysis of the composition of parasite communities hosted by larger hammerhead sharks in Indonesia is currently underway to determine if there is evidence that these individuals have ventured into Australia. This final step will try to help clarify local connectivity.

In contrast, genetic analysis of scalloped hammerhead sharks has revealed distinct differences between the breeding populations of the Indo-Pacific populations (Australia, Papua New Guinea, Philippines, Taiwan, Fiji) and those of the Indian Ocean and Central Pacific. Individuals sampled in Australia–Indonesia–Papua New Guinea showed high gene flow between the Northern Territory, Indonesia, the Australian east coast and Papua New Guinea, but no significant gene flow between Indonesia and WA. Collectively, these samples show limited interbreeding between scalloped hammerhead sharks of Australia and Indonesia but indicate that populations are connected to both Indonesia and Papua New Guinea over evolutionary time scales.

### AIMS satellite tracking data revealed tagged hammerheads had relatively localised movements

The project will conclude at the end of 2019, with a synthesis of findings to help define populations within the region. The listing of scalloped hammerhead under the EPBC Act requires management to recover populations, so our understanding of their distribution, movement and connectivity will be used by the Department of the Environment and Energy in conjunction with fisheries managers in Queensland, the Northern Territory and Western Australia to ensure we maintain healthy populations of these iconic shark species.





## Part 5:

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**Independent Auditor’s Report**

**Statement by the Accountable Authority, Chief Executive and Chief Finance Officer**

**Primary financial statements**

- Statement of Comprehensive Income
- Statement of Financial Position
- Statement of Changes in Equity
- Cash Flow Statement
- Budgetary Reporting of Major Variances

**Notes to and forming part of the financial statements:**

**Overview**

**1. Financial performance**

- 1.1 Expenses
- 1.2 Own-Source Revenue and Gains

**2. Financial position**

- 2.1 Financial Assets
- 2.2 Non-Financial Assets
- 2.3 Payables

**3. People and relationships**

- 3.1 Employee Provisions
- 3.2 Key Personnel Remuneration
- 3.3 Related Party Disclosures

**4. Managing uncertainties**

- 4.1 Contingent Assets and Liabilities
- 4.2 Financial Instruments
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**5. Other Information**

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## INDEPENDENT AUDITOR'S REPORT

### To the Minister for Industry, Science and Technology

#### Opinion

In my opinion, the financial statements of the Australian Institute of Marine Science ('the Entity') for the year ended 30 June 2019:

- (a) comply with Australian Accounting Standards – Reduced Disclosure Requirements and the *Public Governance, Performance and Accountability (Financial Reporting) Rule 2015*; and
- (b) present fairly the financial position of the Entity as at 30 June 2019 and its financial performance and cash flows for the year then ended.

The financial statements of the Entity, which I have audited, comprise the following statements as at 30 June 2019 and for the year then ended:

- Statement by the Accountable Authority, Chief Executive and Chief Finance Officer;
- Statement of Comprehensive Income;
- Statement of Financial Position;
- Statement of Changes in Equity;
- Cash Flow Statement; and
- Notes to the financial statements, comprising a summary of significant accounting policies and other explanatory information.

#### Basis for opinion

I conducted my audit in accordance with the Australian National Audit Office Auditing Standards, which incorporate the Australian Auditing Standards. My responsibilities under those standards are further described in the *Auditor's Responsibilities for the Audit of the Financial Statements* section of my report. I am independent of the Entity in accordance with the relevant ethical requirements for financial statement audits conducted by the Auditor-General and his delegates. These include the relevant independence requirements of the Accounting Professional and Ethical Standards Board's APES 110 *Code of Ethics for Professional Accountants* (the Code) to the extent that they are not in conflict with the *Auditor-General Act 1997*. I have also fulfilled my other responsibilities in accordance with the Code. I believe that the audit evidence I have obtained is sufficient and appropriate to provide a basis for my opinion.

#### Accountable Authority's responsibility for the financial statements

As the Accountable Authority of the Entity, the Council of the Australian Institute of Marine Science is responsible under the *Public Governance, Performance and Accountability Act 2013* (the Act) for the preparation and fair presentation of annual financial statements that comply with Australian Accounting Standards – Reduced Disclosure Requirements and the rules made under the Act. The Accountable Authority is also responsible for such internal control as the Accountable Authority determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, the Accountable Authority is responsible for assessing the ability of the Entity to continue as a going concern, taking into account whether the Entity's operations will cease as a result of an administrative restructure or for any other reason. The Accountable Authority is also responsible for disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless the assessment indicates that it is not appropriate.

### **Auditor's responsibilities for the audit of the financial statements**

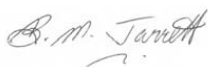
My objective is to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes my opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with the Australian National Audit Office Auditing Standards will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of the financial statements.

As part of an audit in accordance with the Australian National Audit Office Auditing Standards, I exercise professional judgement and maintain professional scepticism throughout the audit. I also:

- identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for my opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control;
- obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Entity's internal control;
- evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by the Accountable Authority;
- conclude on the appropriateness of the Accountable Authority's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Entity's ability to continue as a going concern. If I conclude that a material uncertainty exists, I am required to draw attention in my auditor's report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify my opinion. My conclusions are based on the audit evidence obtained up to the date of my auditor's report. However, future events or conditions may cause the Entity to cease to continue as a going concern; and
- evaluate the overall presentation, structure and content of the financial statements, including the disclosures, and whether the financial statements represent the underlying transactions and events in a manner that achieves fair presentation.

I communicate with the Accountable Authority regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that I identify during my audit.

Australian National Audit Office



Brandon Jarrett  
Executive Director

Delegate of the Auditor-General

Canberra

27 August 2019

## STATEMENT BY THE ACCOUNTABLE AUTHORITY, CHIEF EXECUTIVE AND CHIEF FINANCE OFFICER

In our opinion, the attached financial statements for the year ended 30 June 2019 comply with subsection 42(2) of the *Public Governance, Performance and Accountability Act 2013* (PGPA Act), and are based on properly maintained financial records as per subsection 41(2) of the PGPA Act.

In our opinion, at the date of this statement, there are reasonable grounds to believe that the Australian Institute of Marine Science will be able to pay its debts as and when they fall due.

This statement is made in accordance with a resolution of the directors.

Signed



**The Hon Penelope Wensley AC**  
**Accountable Authority**

27<sup>th</sup> August 2019

Signed



**Dr Paul Hardisty**  
**Chief Executive Officer**

27<sup>th</sup> August 2019

Signed



**Mr Basil Ahyick**  
**Chief Finance Officer**

27<sup>th</sup> August 2019

# PRIMARY FINANCIAL STATEMENTS

## STATEMENT OF COMPREHENSIVE INCOME

for the period ended 30 June 2019

	Notes	2019 \$'000	2018 \$'000	Original Budget \$'000
<b>NET COST OF SERVICES</b>				
<b>Expenses</b>				
Employee Benefits	1.1A	30,289	28,672	29,846
Suppliers	1.1B	31,951	28,788	34,648
Depreciation	2.2A	13,075	12,307	12,421
Foreign exchange loss		37	74	-
Losses from asset disposal	2.2A	438	133	-
<b>Total Expenses</b>		<b>75,790</b>	<b>69,974</b>	<b>76,915</b>
<b>Own-source Income</b>				
<b>Own-source revenue</b>				
Rendering of services		20,798	21,426	23,788
Interest on deposits		1,111	1,027	1,200
Other revenue	1.2C	394	565	150
<b>Total own-source revenue</b>		<b>22,303</b>	<b>23,018</b>	<b>25,138</b>
<b>Gains</b>				
Gains from sale of assets	1.2D	74	16	-
<b>Total gains</b>		<b>74</b>	<b>16</b>	<b>-</b>
<b>Total own-source income</b>		<b>22,377</b>	<b>23,034</b>	<b>25,138</b>
<b>Net cost of services</b>		<b>(53,413)</b>	<b>(46,940)</b>	<b>(51,777)</b>
Revenue from Government	1.2E	47,377	44,847	47,377
<b>Total Revenue from Government</b>		<b>47,377</b>	<b>44,847</b>	<b>47,377</b>
<b>Surplus/(Deficit) attributable to the Australian Government</b>		<b>(6,036)</b>	<b>(2,093)</b>	<b>(4,400)</b>
<b>OTHER COMPREHENSIVE INCOME</b>				
<b>Items not subject to subsequent reclassification to net cost of services</b>				
Changes in asset revaluation surplus		-	9,713	-
<b>Total other comprehensive income</b>		<b>-</b>	<b>9,713</b>	<b>-</b>
<b>Total comprehensive income/(loss) attributable to the Australian Government</b>		<b>(6,036)</b>	<b>7,620</b>	<b>(4,400)</b>

The above statement should be read in conjunction with the accompanying notes.



## STATEMENT OF FINANCIAL POSITION

as at 30 June 2019

	Notes	2019 \$'000	2018 \$'000	Original Budget \$'000
<b>ASSETS</b>				
<b>Financial Assets</b>				
Cash and cash equivalents	2.1A	21,623	11,491	250
Investments	2.1A	17,200	26,100	36,523
Trade and other receivables	2.1B	7,274	7,277	7,277
<b>Total financial assets</b>		<b>46,097</b>	<b>44,868</b>	<b>44,050</b>
<b>Non-Financial Assets</b>				
Buildings	2.2A	95,054	94,983	91,343
Infrastructure, plant & equipment	2.2A	28,563	31,456	26,544
Computer equipment	2.2A	1,076	1,502	1,000
Computer software	2.2A	4,888	4,111	4,318
Vehicles	2.2A	1,489	1,716	1,384
Office equipment	2.2A	5	2	5
Ships, launches and vessels	2.2A	19,155	20,506	17,801
Library books	2.2A	1	3	1
Prepayments		3,122	3,232	4,007
Inventories		203	160	273
<b>Total non-financial assets</b>		<b>153,556</b>	<b>157,671</b>	<b>146,676</b>
<b>Total assets</b>		<b>199,653</b>	<b>202,539</b>	<b>190,726</b>
<b>LIABILITIES</b>				
<b>Payables</b>				
Suppliers		2,394	2,648	4,243
Other payables	2.3A	5,616	3,717	5,346
<b>Total payables</b>		<b>8,010</b>	<b>6,365</b>	<b>9,589</b>
<b>Provisions</b>				
Employee provisions	3.1A	11,757	10,402	11,470
<b>Total provisions</b>		<b>11,757</b>	<b>10,402</b>	<b>11,470</b>
<b>Total liabilities</b>		<b>19,767</b>	<b>16,767</b>	<b>21,059</b>
<b>Net assets</b>		<b>179,886</b>	<b>185,772</b>	<b>169,667</b>
<b>EQUITY</b>				
Contributed equity		88,357	88,207	88,357
Reserves		97,680	77,857	68,144
Retained surplus (accumulated deficit)		(6,151)	19,708	13,166
<b>Total equity</b>		<b>179,886</b>	<b>185,772</b>	<b>169,667</b>

The above statement should be read in conjunction with the accompanying notes.

## STATEMENT OF CHANGES IN EQUITY

for the period ended 30 June 2019

	Notes	2019 \$'000	2018 \$'000	Original Budget \$'000
<b>CONTRIBUTED EQUITY</b>				
Opening balance				
Balance carried forward from previous period		88,207	86,607	88,207
Adjusted opening balance		88,207	86,607	88,207
Transactions with owners				
Contributions by owners				
Equity injection - Appropriations		150	1,600	150
Total transactions with owners		150	1,600	150
Closing balance as at 30 June		88,357	88,207	88,357
<b>RETAINED EARNINGS</b>				
Opening balance				
Balance carried forward from previous period		19,708	21,801	17,566
Adjusted opening balance		19,708	21,801	17,566
Comprehensive income				
Surplus/(Deficit) for the period		(6,036)	(2,093)	(4,400)
Total comprehensive income		(6,036)	(2,093)	(4,400)
Transfers between equity components		(19,823)	-	-
Closing balance as at 30 June		(6,151)	19,708	13,166
<b>ASSET REVALUATION RESERVE</b>				
Opening balance				
Balance carried forward from previous period		77,857	68,144	68,144
Adjusted opening balance		77,857	68,144	68,144
Comprehensive income				
Other comprehensive income		-	9,713	-
Total comprehensive income		-	9,713	-
Transfers between equity components		19,823	-	-
Closing balance as at 30 June		97,680	77,857	68,144
<b>TOTAL EQUITY</b>				
Opening balance				
Balance carried forward from previous period		185,772	176,552	173,917
Adjusted opening balance		185,772	176,552	173,917
Comprehensive income				
Surplus/(Deficit) for the period		(6,036)	(2,093)	(4,400)
Total comprehensive income		(6,036)	(2,093)	(4,400)
Asset revaluation reserve				
Other comprehensive income		-	9,713	-
Total comprehensive income		-	9,713	-
Transactions with owners				
Contributions by owners				
Equity injection - Appropriations		150	1,600	150
Total transactions with owners		150	1,600	150
Closing balance as at 30 June		179,886	185,772	169,667

The above statement should be read in conjunction with the accompanying notes.

### Accounting Policy

#### Equity injections

Amounts appropriated which are designated as 'equity injections' for a year (less any formal reductions).

## CASH FLOW STATEMENT

for the period ended 30 June 2019

	Notes	2019 \$'000	2018 \$'000	Original Budget \$'000
<b>OPERATING ACTIVITIES</b>				
<b>Cash received</b>				
Appropriations		47,377	44,847	47,377
Sale of Goods and rendering of services		25,023	22,001	23,894
Interest		901	1,198	1,200
Net GST receipts		2,279	1,411	-
Receipts from other		137	565	150
<b>Total cash received</b>		<b>75,717</b>	<b>70,022</b>	<b>72,621</b>
<b>Cash used</b>				
Employees		28,956	28,116	29,290
Suppliers		35,964	32,016	34,921
<b>Total cash used</b>		<b>64,920</b>	<b>60,132</b>	<b>64,211</b>
<b>Net cash from/(used by) operating activities</b>		<b>10,797</b>	<b>9,890</b>	<b>8,410</b>
<b>INVESTING ACTIVITIES</b>				
<b>Cash received</b>				
Proceeds from sales of property, plant & equipment		74	157	317
Investments		8,900	1,700	473
<b>Total cash used</b>		<b>8,974</b>	<b>1,857</b>	<b>790</b>
<b>Cash used</b>				
Purchase of property, plant and equipment		9,789	10,620	9,350
<b>Total cash used</b>		<b>9,789</b>	<b>10,620</b>	<b>9,350</b>
<b>Net cash from/(used by) investing activities</b>		<b>(815)</b>	<b>(8,763)</b>	<b>(8,560)</b>
<b>FINANCING ACTIVITIES</b>				
<b>Cash received</b>				
Contributed equity		150	1,600	150
<b>Total cash received</b>		<b>150</b>	<b>1,600</b>	<b>150</b>
<b>Net Cash from/(used by) Financing activities</b>		<b>150</b>	<b>1,600</b>	<b>150</b>
<b>Net increase/(decrease) in cash held</b>		<b>10,132</b>	<b>2,727</b>	<b>-</b>
Cash and cash equivalents at the beginning of the reporting period		11,491	8,764	250
<b>Cash and cash equivalents at the end of the reporting period</b>	2.1A	<b>21,623</b>	<b>11,491</b>	<b>250</b>

The above statement should be read in conjunction with the accompanying notes.

## BUDGETARY REPORTING OF MAJOR VARIANCES (AASB1055)

The Budget variances reporting commentary provides a comparison between the 2018-19 Portfolio Budget Statements (PBS) provided to Parliament in May 2018 and the final outcome in the 2018-19 financial statements. The PBS is not audited.

Major changes in budget have been explained as part of the variance analysis where relevant.

Variances are considered to be 'major' where:

- (a) the variance between budget and actual is greater than +/-10% of the budget for the line items; and
- (b) the variance between budget and actual is greater than +/-2% of the relevant budget base.

Variance explanations will also be provided where there have been major changes to business activities that may not be numerically material but by nature may assist users in understanding underlying business changes that may have occurred since the original budget was released.

Where a revised budget has been presented to Parliament, AIMS may include variance explanations of major variances between the revised budget and actual amounts where they are considered relevant to an assessment of the discharge of accountability and to an analysis of the performance of AIMS.

Affected line items and statement	Explanations of major variances
<b>Expenses</b> AIMS does not budget for Foreign exchange loss/(gain) and Losses from asset disposal.	Foreign exchange loss, Losses from asset disposal
<b>Revenue</b> External revenue was not attained as we contracted the revenue but the work was not undertaken transferring the work to 2019/20. There was also delay in commencement of several large projects due to weather.	Rendering of Services
<b>Gains</b> AIMS does not budget for Gain on sale of assets	Gain on sale of assets
<b>Comprehensive Income</b> AIMS deficit is higher than the approved Portfolio Budget Statement 18/19 operating loss, however AIMS received approval during Portfolio Budget Statements process for \$6.050m. The overspend is mainly due to Reef Restoration and Adaptation Program underspend from last financial year of \$1.4m and additional depreciation of \$0.5m.	Surplus/(Deficit)
<b>Assets</b> Cash and cash equivalents and Investments are different due to calculations at the end of the financial year dependent upon the maturities of the investments. For Portfolio Budget Statements (PBS) AIMS accounts all Investments in total as the liquidity of the investments cannot be predicted during PBS preparation.	Cash and Cash Equivalents, Investments
AIMS is undertaking significant Enterprise Resource Planning (ERP) system changes commencing in 2017/18 and has slightly gone over budget on the project due to delays in the delivery of Project Management system.	Computer Software
Prepayments is slightly down on budget as we have not renewed software support which was no longer needed.	Prepayments
Prepayment account is also affected by timing of payments and releasing of the expense.	
Inventories are lower than budget as we transferred the AIMS Dive inventory to consumables after budget was set. Inventories are also affected by timing of stock-on-hand and use of the stock by staff.	Inventories
<b>Liabilities</b> Supplier payables account is affected by timing of processing of payment to suppliers and invoices not due.	Supplier payables
<b>Equity</b> An adjustment was made to the Asset Revaluation Reserve (ARR) account for disposals in previous years as per AASB116.41. AIMS has never adjusted the ARR for disposal of assets therefore the initial adjustment was increasing the ARR by \$21.5m as at 1 July 2018 with a further decrease of \$1.68m at 30 June 2019 for disposals processed in 18/19. Also see Comprehensive Income budgetary comment.	Asset Revaluation Reserve, Retained Earnings
<b>Cashflow</b> GST net receipts is not budgeted for and will be implemented for 2020/21 financial year PBS.	Net GST received
AIMS was expecting higher than normal disposals this financial year however prices achieved for used goods have been worse than expected.	Sale of assets
AIMS level of investments are still as per previous years however the maturity of the investments are higher this financial with more of them at 3 months or less therefore policies state these are liquid cash instead of investments with the offsetting amount in cash at bank.	Investments, Cash at end of reporting period

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## OVERVIEW

### Objectives of the Australian Institute of Marine Science

The Australian Institute of Marine Science (AIMS) is a corporate Commonwealth entity established by the *Australian Institute of Marine Science Act 1972*. It is a not-for-profit entity.

The mission of AIMS is to provide research and knowledge of Australia's tropical marine estate required to support growth in its sustainable use, effective environmental management and protection of its unique ecosystems.

The continued existence of AIMS in its present form and with its present programs is dependent on Government policy and on continuing funding by Parliament for AIMS administration and science research programs.

### Basis of Preparation of the Financial Statements

The financial statements are general purpose financial statements and are required by section 42 of the *Public Governance, Performance and Accountability Act 2013*.

The financial statements and notes have been prepared in accordance with:

- a) *Public Governance, Performance and Accountability (Financial Reporting) Rule 2015* (FRR) for reporting periods ending on or after 1 July 2018; and
- b) Australian Accounting Standards and Interpretations - Reduced Disclosure Requirements issued by the Australian Accounting Standards Board (AASB) that apply for the reporting period.

The financial statements have been prepared on an accrual basis and in accordance with the historical cost convention, except for certain assets and liabilities at fair value. Except where stated, no allowance is made for the effect of changing prices on the results or the financial position.

The financial statements are presented in Australian dollars and values are rounded to the nearest thousand dollars unless otherwise specified.

Unless alternative treatment is specifically required by an accounting standard, income and expenses are recognised in the statement of comprehensive income when and only when the flow, consumption or loss of economic benefits has occurred and can be reliably measured.

Unless an alternative treatment is specifically required by an accounting standard or the FRR, assets and liabilities are recognised in the statement of financial position when and only when it is probable that future economic benefits will flow to the entity or a future sacrifice of economic benefits will be required and the amounts of the assets or liabilities can be reliably measured. However, assets and liabilities arising under executory contracts are not recognised unless required by an accounting standard. Liabilities and assets that are unquantifiable are reported in the contingencies note.

### Significant Accounting Judgements and Estimates

In the process of applying the accounting policies listed in this note, AIMS has made the following judgements that have the most significant impact on the amounts recorded in the financial statements.

- Recognition of revenue for rendering of services – Refer Note 1.2: Own-Source Revenue and Gains
- Fair value of buildings, plant and equipment – Refer Note 2.2: Non-Financial Assets
- Remaining useful lives of buildings, infrastructure, plant and equipment - Refer Note 2.2: Non-Financial Assets
- Employee entitlement provision – Refer Note 3.1: Employee Provisions
- Contingent assets and contingent liabilities – Refer Note 4.1: Contingent Assets and Liabilities

No accounting assumptions or estimates have been identified that have a significant risk of causing a material adjustment to the carrying amounts of assets and liabilities within the next reporting period.

### New Australian Accounting Standards

All new/revised standards and/or interpretations that were issued prior to the sign-off date and are applicable to the current reporting period, did not have a material effect to AIMS' financial statements.

### Taxation

AIMS is exempt from all forms of taxation except Fringe Benefits Tax (FBT) and the Goods and Services Tax (GST). Revenues, expenses, assets and liabilities are recognised net of GST, except:

- a) where the amount of GST incurred is not recoverable from the Australian Taxation Office; and
- b) for receivables and payables.

### Insurance

AIMS is insured through the Governments insurable managed fund Comcover.  
Workers compensation is insured through Comcare Australia.

### Events After the Reporting Period

There was no subsequent event that had the potential to significantly affect the ongoing structure and financial activities of AIMS.



## FINANCIAL PERFORMANCE

This section analyses the financial performance of the Australian Institute of Marine Science for the year ended 2019

### 1.1: Expenses

	Notes	2019 \$'000	2018 \$'000
<b>1.1A: Employee Benefits</b>			
Wages and salaries		22,030	21,522
Superannuation			
Defined contribution plans		2,129	1,920
Defined benefit plans		1,467	1,706
Leave and other entitlements		4,319	3,184
Fringe Benefit Tax		344	340
<b>Total employee benefits</b>		<b>30,289</b>	<b>28,672</b>

#### Accounting Policy

Accounting policies for employee related expenses are contained in the People and relationships section.

### 1.1B: Suppliers

#### Goods and services supplied or rendered

Consultants	166	22
Contractors	3,299	2,754
Travel	1,980	1,797
Consumables	1,348	1,464
Repairs and maintenance	2,658	3,372
Electricity	1,668	1,584
Fuel, oil and gas	977	649
Hire of equipment	2,356	1,052
Labour Hire staff	2,540	1,611
Vessel management	4,928	3,693
Support for post-doctorate positions	3,423	4,143
Audit fees	123	115
Other general expenses	6,143	6,312
<b>Total goods and services supplied or rendered</b>	<b>31,609</b>	<b>28,568</b>

Goods supplied	6,771	7,299
Services rendered	24,838	21,269
<b>Total goods and services supplied or rendered</b>	<b>31,609</b>	<b>28,568</b>

#### Other Suppliers

#### Operating lease rentals in connection with

External Parties		
Minimum lease payments	292	175
Workers compensation premiums	50	45
<b>Total other suppliers</b>	<b>342</b>	<b>220</b>
<b>Total suppliers</b>	<b>31,951</b>	<b>28,788</b>

#### Leasing commitments

AIMS in its capacity as lessee has leasing arrangements with Port of Townsville for berthing facilities. The lease includes GST and CPI annual inflator clauses.

#### Commitments for minimum lease payments in relation to non-cancellable operating leases are payable as follows:

Within 1 year	59	84
Between 1 to 5 years	243	342
More than 5 years	837	1,194
<b>Total operating lease commitments</b>	<b>1,139</b>	<b>1,620</b>

#### Accounting Policy

Leased assets are amortised over the period of the lease. Lease payments are allocated between the principal component and the interest expense.

Operating lease payments are expensed on a straight-line basis which is representative of the pattern of benefits derived from the leased assets.

## 1.2 Own-Source Revenue and Gains

	Notes	2019 \$'000	2018 \$'000
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### Own-Source Revenue

#### Accounting Policy

Revenue from rendering of services is recognised by reference to the stage of completion of contracts at the reporting date.

The revenue is recognised when:

- a) the amount of revenue, stage of completion and transaction costs incurred can be reliably measured; and
- b) the probable economic benefits associated with the transaction will flow to AIMS.

The stage of completion of contracts at the reporting date is determined by reference to the proportion that costs incurred to date bear to the estimated cost of the transaction.

#### Sale of Assets

Gains from disposal of assets are recognised when control of the asset has passed to the buyer.

#### Revenue from Government

Funding received or receivable from agencies (appropriated to AIMS as a corporate body payment item) is recognised as revenue from Government when the entity gains control of the funding unless the funding is in the nature of an equity injection or loan.

#### Accounting Judgement and Estimates

Revenue recognition for rendering of services is accounted for on a percentage completed basis which determines the timing of revenue recognition and the amount of recognition. The determination of the percentage of completion requires judgement in relation to determining the costs to date of the project budgeted costs to complete the contract values including variations.

#### 1.2C: Other Revenue

Other revenue	369	239
Insurance claims	25	326
<b>Total other revenue</b>	<b>394</b>	<b>565</b>

#### Leasing commitments

AIMS in its capacity as lessor has leasing arrangements with Optus Australia for land within AIMS Townsville.

The lease includes GST and CPI annual inflator clauses.

Commitments for minimum lease receivables in relation to non-cancellable operating leases are receivable as follows:

Within 1 year	9	-
Between 1 to 5 years	38	-
More than 5 years	38	-
<b>Total lease commitment receivables</b>	<b>85</b>	<b>-</b>

## FINANCIAL POSITION

This section analyses the Australian Institute of Marine Science assets used to conduct its operations and the operating liabilities incurred as a result.

Employee related information is disclosed in the People and Relationships section.

### 2.1 Financial Assets

	Notes	2019 \$'000	2018 \$'000
<b>2.1A: Cash and Cash Equivalents</b>			
Cash on hand		6	6
Cash on deposit		21,617	11,485
<b>Total cash and cash equivalents</b>		<b>21,623</b>	<b>11,491</b>
<b>2.1B: Trade and Other Receivables</b>			
<b>Services receivables</b>			
Services		6,693	6,908
<b>Total services receivables</b>		<b>6,693</b>	<b>6,908</b>
<b>Other Receivables</b>			
GST receivable from the Australian Taxation Office (net)		221	212
Interest		360	157
<b>Total other receivables</b>		<b>581</b>	<b>369</b>
<b>Total trade and other receivables (gross)</b>		<b>7,274</b>	<b>7,277</b>
<b>Total trade and other receivables (net)</b>		<b>7,274</b>	<b>7,277</b>

Credit terms for goods and services were within 30 days (2018: 30 days).

### 2.1C: Other Investments

Deposits	17,200	26,100
<b>Total other investments</b>	<b>17,200</b>	<b>26,100</b>

#### Accounting Policy

##### Financial Assets

Trade receivables and other receivables that are held for the purpose of collecting the contractual cash flows where the cash flows are solely payments of principal and interest, that are not provided at below-market interest rates, are subsequently measured at amortised cost using the effective interest method adjusted for any loss allowance.

## 2.2 Non-Financial Assets

### 2.2.A: Reconciliation of the Opening and Closing Balances of Property, Plant and Equipment and Computer Software

Reconciliation of the opening and closing balances of property, plant and equipment and computer software 2019

	Buildings \$'000	Infrastructure Plant & Equipment \$'000	Computer Equipment \$'000	Computer Software \$'000	Vehicles \$'000	Office Equipment \$'000	Ships, Launches & Vessels \$'000	Library Books \$'000	Total \$'000
As at 1 July 2018									
Gross book value	96,052	32,586	1,666	7,025	1,883	2	20,921	4	160,139
Accumulated depreciation and impairment	(1,069)	(1,130)	(164)	(2,914)	(167)	-	(415)	(1)	(5,860)
<b>Net book value 1 July 2018</b>	<b>94,983</b>	<b>31,456</b>	<b>1,502</b>	<b>4,111</b>	<b>1,716</b>	<b>2</b>	<b>20,506</b>	<b>3</b>	<b>154,279</b>
Additions									
Purchase or internally developed	4,281	1,352	217	1,861	724	6	287	-	8,728
Work in progress	343	556	22	84	-	-	56	-	1,061
Depreciation	(4,369)	(4,605)	(662)	(1,164)	(576)	(3)	(1,694)	(2)	(13,075)
Disposals									
Other	(184)	(196)	(3)	(4)	(375)	-	-	-	(762)
<b>Net book value 30 June 2019</b>	<b>95,054</b>	<b>28,563</b>	<b>1,076</b>	<b>4,888</b>	<b>1,489</b>	<b>5</b>	<b>19,155</b>	<b>1</b>	<b>150,231</b>
<b>Net book value as of 30 June 2019 represented by</b>									
Gross book value	100,484	34,173	1,897	7,312	1,995	8	21,264	4	167,137
Accumulated depreciation and impairment	(5,430)	(5,610)	(821)	(2,424)	(506)	(3)	(2,109)	(3)	(16,906)
<b>Net book value 30 June 2019</b>	<b>95,054</b>	<b>28,563</b>	<b>1,076</b>	<b>4,888</b>	<b>1,489</b>	<b>5</b>	<b>19,155</b>	<b>1</b>	<b>150,231</b>

Depreciation rates are based on the following useful lives:

	5-72 years	2-42 years	4-23 years	2-10 years	4-12 years	5-30 years	3-25 years	10-20 years
--	------------	------------	------------	------------	------------	------------	------------	-------------

1. The carrying amount of computer software included \$567,505 purchased software, \$42,36,950 internally generated software and \$84,369 of work-in-progress.

2. No property, plant and equipment and intangibles are expected to be sold or disposed of within the next 12 months.

#### Revaluations of non-financial assets

In the current year a desktop valuation review was completed by Pickles Valuation Services (PVS) who completed the comprehensive valuation in 2018.

For assets classified as having Level 2 inputs, PVS compared the Written Down Value (WDV) of the assets against similar assets in the most appropriate active market.

This enabled PVS to ascertain that the WDV was materially in line with observable market data. For assets that PVS were unable to be valued by identifiable observable market data an alternative approach was utilised. These assets were valued by the cost approach method, a depreciated replacement cost (DRC) approach, utilising Level 3 inputs. In doing so, the PVS review ensured the estimated replacement cost, total useful lives (TUL), and remaining useful lives (RUL) were in line with industry standards to ensure the DRC calculation was reliable. PVS have relied upon previous valuation and asset lives data to conduct this review.

No changes were made in 2018/19 for property, plant and equipment. The next scheduled revaluation of Property, Plant and Equipment is in 2020/21 by an independent valuer.

All increments and decrements are transferred to the asset revaluation surplus by asset class and included in the equity section of the statement of financial position.

Any disposals of revalued assets, the revaluation amount is transferred to the retained surplus/deficit account. \$19,822,731 was recognised as a decrement (2018: Nil).

## 2.2 Non-Financial Assets (cont)

### Accounting Policy

Assets are recorded at cost on acquisition except as stated below. The cost of acquisition includes the fair value of assets transferred in exchange and liabilities undertaken. Financial assets are initially measured at their fair value plus transaction costs where appropriate.

Assets acquired at no cost, or for nominal consideration, are initially recognised as assets and income at their fair value at the date of acquisition, unless acquired as a consequence of restructuring of administrative arrangements. In the latter case, assets are initially recognised as contributions by owners at the amounts at which they were recognised in the transferor's accounts immediately prior to the restructuring.

### Asset Recognition Threshold

Purchases of property, plant and equipment are recognised initially at cost in the statement of financial position, except for purchases costing less than \$2,000, which are expensed in the year of acquisition (other than where they form part of a group of similar items which are significant in total such as IT equipment).

### Revaluations

Following initial recognition at cost, property plant and equipment were carried at fair value less subsequent accumulated depreciation and accumulated impairment losses. Valuations were conducted with sufficient frequency to ensure that the carrying amounts of assets do not differ materially from the assets' fair values as at the reporting date. The regularity of independent valuations depends upon the volatility of movements in market values for the relevant assets.

Revaluation adjustments were made on a class basis. Any revaluation increment was credited to equity under the heading of asset revaluation surplus except to the extent that it reversed a previous revaluation decrement of the same asset class that was previously recognised in the surplus/deficit. Revaluations decrements for a class of assets were recognised directly in the surplus/deficit except to the extent that they reverse a previous revaluation increment for that class.

Any accumulated depreciation as at the revaluation date is eliminated against the gross carrying amount of the asset and the asset restated to the revalued amount.

### Depreciation

Depreciable property, plant and equipment assets are written-off to their estimated residual values over their estimated useful lives to the entity using, in all cases, the straight-line method of depreciation. Depreciation rates (useful lives), residual values and methods are reviewed at each reporting date and necessary adjustments are recognised in the current, or current and future reporting periods, as appropriate.

### Impairment

All assets were assessed for impairment at 30 June 2019. Where indications of impairment exist, the asset's recoverable amount is estimated and an impairment adjustment made if the asset's recoverable amount is less than its carrying amount.

The recoverable amount of an asset is the higher of its fair value less costs to sell and its value in use. Value in use is the present value of the future cash flows expected to be derived from the asset. Where the future economic benefit of an asset is not primarily dependent on the asset's ability to generate future cash flows, and the asset would be replaced if AIMS were deprived of the asset, its value in use is taken to be its depreciated replacement cost.

### Derecognition

An item of property, plant and equipment is derecognised upon disposal or when no further future economic benefits are expected from its use or disposal.

## 2.2 Non-Financial Assets (cont)

### Computer software

These assets are carried at cost less accumulated amortisation and accumulated impairment losses. Computer software costing less than \$2,000 are expensed in the year of acquisition. Computer software is amortised on a straight-line basis over its anticipated useful life. All software assets were assessed for indications of impairment as at 30 June 2019.

### Inventory

Inventories held for distribution are valued at cost, adjusted for any loss of service potential. Costs incurred in bringing each item of inventory to its present location and condition are assigned as follows:

- raw materials and stores – purchase cost on a first-in-first-out basis; and
- finished goods and work-in-progress – cost of direct materials and labour plus attributable costs that can be allocated on a reasonable basis.

## 2.3 Payables

	Notes	2019 \$'000	2018 \$'000
<b>2.3A: Other payables</b>			
Unearned revenue		5,211	3,317
Salary and wages including oncosts		405	400
<b>Total other payables</b>		<b>5,616</b>	<b>3,717</b>

## PEOPLE AND RELATIONSHIPS

This section describes a range of employment and post employment benefits provided to our people and our relationships with other key people.

3.1 Employee Provisions			
	Notes	2019 \$'000	2018 \$'000
<b>3.1A: Employee Provisions</b>			
Leave		11,655	10,387
Other		102	15
<b>Total employee provisions</b>		<b>11,757</b>	<b>10,402</b>

<b>Accounting Policy</b>			
Liabilities for 'short-term employee benefits' (as defined in AASB 119 <i>Employee Benefits</i> ) and termination benefits expected within twelve months of the end of reporting period are measured at their nominal amounts.			
Other long term employee benefits are measured as net total of the present value of the defined benefit obligation at the end of the reporting period period minus the fair value at the end of the reporting period of plan assets (if any) out of which the obligation are to be settled directly.			
<u>Leave</u>			
The liability for employee benefits includes provision for annual leave and long service leave. No provision has been made for sick leave as all sick leave is non-vesting and the average sick leave taken in future years by employees of AIMS is estimated to be less than the annual entitlement for sick leave.			
The leave liabilities are calculated on the basis of employees' remuneration at the estimated salary rates that will be applied at the time the leave is taken, including AIMS's employer superannuation contribution rates to the extent that the leave is likely to be taken during service rather than paid out on termination.			
The estimate of the present value of the liability takes into account attrition rates and pay increases through promotion and inflation.			
<u>Superannuation</u>			
AIMS staff are members of the Commonwealth Superannuation Scheme (CSS), the Public Sector Superannuation Scheme (PSS), the PSS accumulation plan (PSSap), UniSuper, Australian Super (AUS), Australian Ethical and Sunsuper.			
The CSS and PSS is a defined benefit schemes for the Australian Government. The other schemes are defined (accumulated funds) contribution schemes.			
The liability for defined benefits is recognised in the financial statements of the Australian Government and is settled by the Australian Government in due course. This liability is reported by the Department of Finance administered schedules and notes.			
AIMS makes employer contributions to the employees' superannuation scheme at rates determined by an actuary to be sufficient to meet the current cost to the Government. AIMS accounts for contributions as if they were contributions to defined contribution plans.			
The liability for superannuation recognised as at 30 June represents outstanding contributions for the final fortnight of the year.			



### 3.2: Key Management Personnel Remuneration

Key management personnel are those persons having authority and responsibility for planning, directing and controlling the activities of the entity, directly or indirectly, including any director (whether executive or otherwise) of the entity. AIMS has determined the Key Management Personnel during the reporting period to be Council members, CEO and AIMS Leadership Team. Key management personnel remuneration is reported below.

	2019 \$'000	2018 \$'000
Short-term employee benefits	2,562	2,429
Post-employment benefits	327	386
Other long-term employee benefits	105	280
<b>Total</b>	<b>2,994</b>	<b>3,095</b>

Name & Position	Short-term benefits		Post employment benefits	Other long term benefits	Total remuneration
	Base Salary	Bonuses			
The Hon. Penelope Wensley AO - Council Chairman*	51,474	-	-	-	59,378
Mr Roy Peterson - Council member and Audit Committee Chairman*	41,347	-	-	-	41,347
Ms Jeanette Roberts - Council and Audit Committee member*	35,148	-	-	-	35,148
Ms Anna Matyssek - Council member*	25,737	-	6,087	-	31,824
Dr Stephen Morton - Council member*	30,080	-	3,921	-	30,915
Professor Sandra Harding AO - Council member*	349,347	54,214	-	-	403,561
Dr Paul Hardisty - CEO and Council member*	248,190	28,848	49,334	14,187	336,559
Mr David Mead - Executive Director	187,713	17,485	26,472	9,437	231,107
Dr John Chappell - Chief Operating Officer	177,932	15,771	32,791	16,255	232,753
Dr Richard Brinkman - Research Program Director	175,323	17,485	33,314	13,927	239,049
Dr Britta Schaffelke - Research Program Director	188,630	17,878	28,120	3,907	238,535
Dr Michaela Domnissem - Research Program Director	184,069	17,485	26,562	4,875	232,991
Mr Basil Ahyrick - Chief Finance Officer	176,685	15,771	28,914	7,948	229,318
Dr David Souter - Chief Research Officer	159,292	-	30,735	18,826	208,853
Mr Frank Trendi - Business Services Group Manager	142,276	-	20,912	2,428	165,616
Mr John Liston - Communications Manager	-	-	-	-	-
<b>Total</b>	<b>2,200,237</b>	<b>184,937</b>	<b>327,566</b>	<b>104,640</b>	<b>2,994,015</b>

\* denotes staff paid under Remuneration Tribunal (Remuneration and Allowances for Holders of Part-time Public Office) Determination 2018. All other KMP are paid in accordance to AIMS Enterprise Agreement.

The total number of key management personnel that are included in the above table are 16 individuals (2018: 20 individuals).

1. The above key management personnel remuneration excludes the remuneration and other benefits of the Portfolio Minister. The Portfolio Minister's remuneration and other benefits are set by the Remuneration Tribunal and are not paid by AIMS.

#### Other highly paid staff - non-Key Management Personnel

Remuneration Band	# highly paid staff	Short-term benefits		Post employment benefits	Other long term benefits	Total remuneration
		Base Salary	Bonuses			
\$245,001 - \$270,000	5	194,121	1,782	30,149	17,840	261,600
<b>Total</b>		<b>194,121</b>	<b>1,782</b>	<b>30,149</b>	<b>17,840</b>	<b>261,600</b>

### 3.3 Related Party Disclosures

#### Related party relationships

AIMS is an Australian Government controlled entity. Related parties to AIMS are Board members, Executive and Senior Management, the Portfolio Minister, and other Australian Government entities.

#### Transactions with related parties

Board members and their related parties may hold positions in other entities that result in them having control or significant influence over the financial or operating policies of those entities.

Given the breadth of Government activities, related parties may transact with the Government sector in the same capacity as ordinary citizens. Such transactions include the payment or refund of taxes, receipt of Medicare rebate or Higher Education loans. These transactions have not been separately included in this note. Certain entities transacted with AIMS in the reporting period. The terms and conditions of those transactions with key management personnel and their related parties were no more favourable than those available, or which might reasonably be expected to be available, on a similar transactions to non-related entities on an arm's length basis.

#### Loans to Key Management Personnel or Key Management Personnel-Related Entities

In 2019, no loans were made to key management personnel or key management personnel-related entities (2018: Nil).

#### Other Transactions with Key Management Personnel or Key Management Personnel-Related Entities

Details of transactions between key management personnel and related parties during the year for the purchase of science services were:

	2019	2018
	\$	\$
Curtin University	339	-
Great Barrier Reef Foundation	195	69
James Cook University	531	649
University of Western Australia - IOMRC	1,301	403
University of Sydney	220	-
University of Tasmania - IMOS/NESP	195	-
<b>Total</b>	<b>2,781</b>	<b>1,121</b>

Details of transactions between key management personnel and related parties during the year for the rendering of science services were:

	2019	2018
	\$	\$
Great Barrier Reef Foundation	1,498	432
Great Barrier Reef Marine Park Authority	1,565	2,138
James Cook University	298	102
RioTinto	711	-
University of Melbourne	69	-
University of Tasmania - IMOS/NESP	3,377	1,204
University of Western Australia - IOMRC	-	1,865
<b>Total</b>	<b>7,518</b>	<b>5,741</b>

### 3.3 Related Party Disclosures (cont)

Details of balances outstanding at year end for purchase of science services were:

	2019	2018
	\$	\$
Curtin University	55	-
James Cook University	51	-
University of Sydney	21	-
<b>Total</b>	<b>127</b>	<b>-</b>

Details of balances outstanding at year end for rendering of science services were:

	2019	2018
	\$	\$
Great Barrier Reef Foundation	85	-
Great Barrier Reef Marine Park Authority	-	760
University of Tasmania - IMOS/NESP	-	285
University of Western Australia	191	-
<b>Total</b>	<b>276</b>	<b>1,045</b>

AIMS transacts with Australian Government related entities consistent with normal day-to-day business operations provided under normal terms and conditions, including the purchase and rendering of science services.

Details of transactions with related entities during the year for the purchase of science services were:

	2019	2018
	\$	\$
Department of Industry, Innovation and Science	208	214
Commonwealth Scientific and Industry Research Organisation	793	1,312
<b>Total</b>	<b>1,001</b>	<b>1,526</b>

Details of transactions with related entities during the year for the rendering of science services were:

	2019	2018
	\$	\$
Great Barrier Reef Marine Park Authority	1,565	2,138
Department of Foreign Affairs and Trade	147	-
Department of the Environment and Energy	-	252
Department of Industry, Innovation and Science	-	267
Commonwealth Scientific and Industry Research Organisation	63	296
<b>Total</b>	<b>1,775</b>	<b>2,953</b>

There were no other transactions with related entities during the year.

## MANAGING UNCERTAINTIES

This section analyses how the Australian Institute of Marine Science manages financial risks within its operating environment.

4.1A Contingent Assets and Liabilities		
<b>Contingent assets</b>		
	2019	2018
<b>Guarantees</b>	\$	\$
Balance from previous period	183	87
New contingent assets recognised	87	100
Rights expired	(94)	(4)
<b>Total</b>	<b>176</b>	<b>183</b>

**Quantifiable Contingencies**

AIMS holds performance guarantees of \$176,000 (2018:\$183,000). Performance guarantees include Bank guarantees in relation to the refurbishment of AIMS's buildings.

**Unquantifiable Contingencies**

As at 30 June 2019, AIMS has a 21 year lease on a berthing facility with Port of Townsville. At the expiry of the lease AIMS is required to carry out at its own cost remediation work necessary to return the level of contamination in the leased land to a level as prescribed by Assessment and Management of Containment Land in Queensland (May 1998). AIMS is unable to reliably estimate the cost of any future remediation.

**Accounting Policy**

Contingent liabilities and contingent assets are not recognised in the statement of financial position but are reported in the relevant schedules and notes. They may arise from uncertainty as to the existence of a liability or asset or represent an asset or liability in respect of which the amount cannot be reliably measured. Contingent assets are disclosed when settlement is probable but not virtually certain and contingent liabilities are disclosed when settlement is greater than remote.

## 4.2 Financial Instruments

### 4.2A: Categories of Financial Instruments

#### Financial Assets under AASB139

##### Held to maturity investments

Investments

##### Total held to maturity investments

#### Loans and receivables

Cash at bank

Receivables for services

Other receivables

##### Total loans and receivables

##### Total financial assets

#### Financial Assets under AASB9

##### Amortised cost

Investments

Cash at bank

Receivables for services

Other receivables

##### Total financial assets - amortised cost

#### Financial Liabilities

##### Financial liabilities measured at amortised cost

Trade Creditors

Other payables

##### Total financial liabilities measured at amortised cost

### Classification of financial assets on the date of initial application of AASB9.

Financial Asset Class	Note	AASB139 original classification	AASB139 carrying amount at 1 July 2018 \$'000	AASB9 new classification	AASB9 carrying amount at 1 July 2018 \$'000
Cash and cash equivalents	2.1A	Held-to- maturity	11,491	Amortised cost	11,491
Trade receivables	2.1B	Held-to- maturity	7,065	Amortised cost	7,065
Investments	2.1C	Held-to- maturity	26,100	Amortised cost	26,100
<b>Total financial assets</b>			<b>44,656</b>		<b>44,656</b>

## 4.2 Financial Instruments (cont)

### Reconciliation of carrying amounts of financial assets on the date of initial application of AASB9.

Financial Asset Class	Note	AASB139 carrying amount at 30 June 2018	Re- classification	Re- measurement	AASB9 carrying amount at 1 July 2018 \$'000
Cash and cash equivalents	2.1A	11,491	-	-	11,491
Trade receivables	2.1B	7,065	-	-	7,065
Investments	2.1C	26,100	-	-	26,100
<b>Total financial assets</b>		<b>44,656</b>	<b>-</b>	<b>-</b>	<b>44,656</b>

#### Accounting Policy

##### Financial Assets

With the implementation of AASB 9 Financial Instruments for the first time in 2019, AIMS classifies its financial assets measured at amortised cost. The classification depends on both the AIMS's business model for managing the financial assets and contractual cash flow characteristics at the time of initial recognition. Financial assets are recognised when the AIMS becomes a party to the contract and, as a consequence, has a legal right to receive or a legal obligation to pay cash and derecognised when the contractual rights to the cash from the financial asset expire or are transferred upon trade date.

Comparatives have not been restated on initial application.

##### Impairment of Financial Assets

Financial assets are assessed for impairment at the end of each reporting period based on Expected Credit Losses, using the general approach which measures the loss allowance based on an amount equal to lifetime expected credit losses where risk has significantly increased, or an amount equal to 12-month expected credit losses if risk has not increased.

The simplified approach for trade, contract and lease receivables is used. This approach always measures the loss allowance as the amount equal to the lifetime expected credit losses.

A write-off constitutes a derecognition event where the write-off directly reduces the gross carrying amount of the financial asset.

##### Financial Assets at amortised cost

Financial assets included in this category need to meet two criteria:

1. the financial asset is held in order to collect the contractual cash flows; and
2. the cash flows are solely payments of principal and interest (SPPI) on the principal outstanding amount.

Amortised cost is determined using the effective interest rate method.

##### Effective interest rate

Income is recognised on an effective interest rate basis for financial assets that are recognised at amortised cost.

##### Financial Liabilities

Financial liabilities are classified as either financial liabilities 'at fair value through profit or loss' or other financial liabilities. Financial liabilities are recognised and derecognised upon 'trade date'.

##### Financial liabilities at amortised cost

Financial liabilities, including borrowings, are initially measured at fair value, net of transaction costs. These liabilities are subsequently measured at amortised cost using the effective interest method, with interest expense recognised on an effective interest basis.

Suppliers and other payables are recognised at amortised cost. Liabilities are recognised to the extent that the goods or services have been received (irrespective of having been invoiced).

### 4.2B: Net Gains or Losses on Financial Assets

#### Financial assets at amortised cost

Interest revenue

**Total net gains (losses) at amortised cost**

	2019	2018
	\$'000	\$'000
	1,111	1,027
	<u>1,111</u>	<u>1,027</u>



### 4.3 Fair Value Measurements

#### Accounting Policy

AIMS deems transfers between levels of the fair value hierarchy to have occurred at 30 June 2019.

#### 4.3A: Fair Value Measurements

	Fair value measurements at the end of the reporting period	
	2019 \$'000	2018 \$'000
<b>Non-financial assets</b>		
Buildings	95,054	94,983
Infrastructure, plant and equipment	28,563	31,456
Ships, launches & vessels	19,155	20,506
Computer equipment	1,076	1,502
Vehicles	1,489	1,716
Office equipment	5	2
Library books	1	3
<b>Total non-financial assets</b>	<b>145,343</b>	<b>150,168</b>
<b>Total fair value measurements of assets in the statement of financial position</b>	<b>145,343</b>	<b>150,168</b>

1. The following valuation techniques were used:

Cost approach: based on the amount required to replace the service potential of an asset

Market approach: based on market transactions involving identical or similar assets or liabilities

AIMS procured valuation services from Pickles Valuation Services (PVS) and relied on valuation models provided by PVS. PVS re-tests the valuation model every 12 months and has provided written assurance to AIMS that the model developed is compliant with AASB 13.

Refer to Asset revaluation policy in Note 2.2.

## OTHER INFORMATION

### 5.1 Aggregate Assets and Liabilities

#### 5.1A Aggregate Assets and Liabilities

	2019 \$'000	2018 \$'000
<b>Assets expected to be recovered in:</b>		
No more than 12 months	46,659	44,868
More than 12 months	152,994	157,671
<b>Total Assets</b>	<b>199,653</b>	<b>202,539</b>
<b>Liabilities expected to be settled in:</b>		
No more than 12 months	18,516	15,462
More than 12 months	1,251	1,305
<b>Total Liabilities</b>	<b>19,767</b>	<b>16,767</b>

## SUPPLEMENTARY FINANCIAL INFORMATION (UNAUDITED)

### NOTE 1:

#### Revenue comparison

	2015 \$'000	2016 \$'000	2017 \$'000	2018 \$'000	2019 \$'000
Appropriation revenue					
Operating	30,775	32,462	33,531	36,826	39,356
Asset replacement	8,021	8,021	8,021	8,021	8,021
<b>Total appropriation revenue</b>	<b>38,796</b>	<b>40,483</b>	<b>41,552</b>	<b>44,847</b>	<b>47,377</b>
Non-appropriation revenue					
Sale of goods and rendering of services <sup>1</sup>	17,396	16,324	16,318	21,426	20,798
Interest	1,367	1,283	1,109	1,027	1,111
Revenues from joint ventures	-	-	-	-	-
Other revenue	4,739	482	964	580	468
<b>Total non-appropriation revenue</b>	<b>23,502</b>	<b>18,089</b>	<b>18,391</b>	<b>23,032</b>	<b>22,377</b>
<b>Total Revenue</b>	<b>62,298</b>	<b>58,572</b>	<b>59,943</b>	<b>67,879</b>	<b>69,754</b>
Non-appropriation ratio <sup>2</sup>	37%	38%	31%	31%	32%

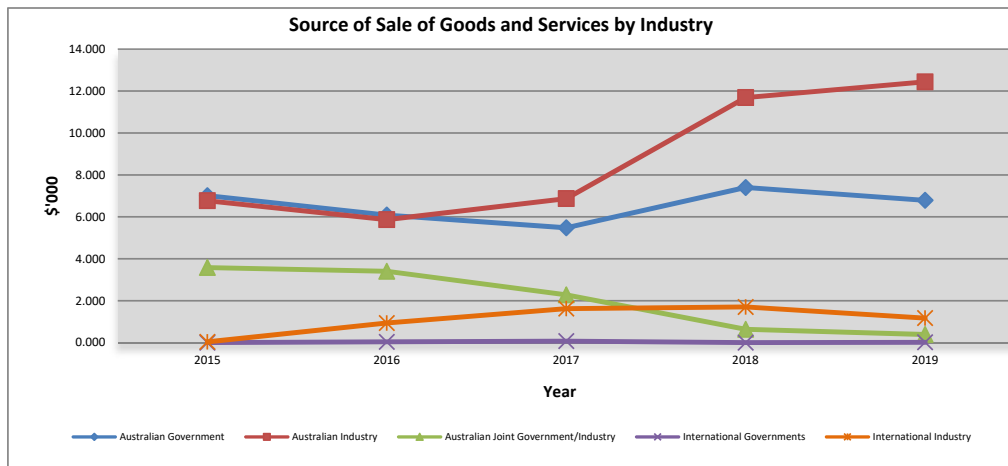
<sup>1</sup> Sale of goods and rendering of services includes consultancies, grants and contract collaborations.

<sup>2</sup> Non-appropriation ratio is percentage non-appropriation revenue of total revenue.

### NOTE 2:

#### Source of sale of goods and rendering of services by sector

	2015 \$'000	2016 \$'000	2017 \$'000	2018 \$'000	2019 \$'000
Australian Government	7,012	6,084	5,478	7,401	6,787
Australian joint Government/industry	3,579	3,401	2,277	634	387
International governments	-	36	71	-	15
Australian industry	6,769	5,867	6,868	11,689	12,439
International industry	36	936	1,624	1,702	1,170
Sale of goods	-	-	-	-	-
	<b>17,396</b>	<b>16,324</b>	<b>16,318</b>	<b>21,426</b>	<b>20,798</b>



**NOTE 3: Cost of output by research programs 2018-19**

	Variable \$'000	Salaries \$'000	Depreciation \$'000	Overheads \$'000	<b>Total \$'000</b>
A Healthy and Resilient Great Barrier Reef	8,166	5,382	223	7,819	<b>21,590</b>
Sustainable Coastal Ecosystems & Industries in Tropical Australia	5,423	5,759	917	8,366	<b>20,465</b>
Sustainable Use of North-West Marine Ecosystems	9,001	4,172	235	6,061	<b>19,469</b>
Research Services	1,705	2,635	529	3,829	<b>8,698</b>
Office of Executive Director Strategic Development	958	1,522	878	2,210	<b>5,568</b>
<b>Total</b>	<b>25,252</b>	<b>19,470</b>	<b>2,782</b>	<b>28,285</b>	<b>75,790</b>
Percentage of total expenses	33%	26%	4%	37%	100%

**Note 4: Supplier Expenses**

	<b>2019</b>	<b>2018</b>
Consist of:	<b>\$'000</b>	<b>\$'000</b>
Consultants	166	22
Contractors	3,299	2,754
Travel	1,980	1,797
Consumables	1,348	1,464
Repairs and maintenance	2,658	3,928
Electricity	1,668	1,584
Fuel, oil and gas	977	649
Hire of equipment	2,356	1,052
Labour Hire staff	2,540	1,611
Vessel management	4,928	3,693
Support for post-doctorate positions	3,423	4,143
Audit fees	123	115
Operating lease rentals	292	431
Workers compensation	50	45
Employee related expenses	956	594
IT Expenses	1,037	1,025
General Expenses	707	309
Science Expenses	1,910	2,363
Communications Expenses	393	662
Meeting expenses	326	-
Library Expenses	315	608
Assist to External Providers	221	-
Legal & Instrument Registration Expenses	155	29
Memberships & Subscriptions	123	-
<b>Total supplier expenses</b>	<b>31,951</b>	<b>28,878</b>

The background of the page is a vibrant underwater photograph. It features a large, colorful fish with orange, yellow, and white stripes swimming towards the right. Below it, a smaller yellow and white fish is visible. The foreground is filled with various types of coral, including branching and brain coral, in shades of pink, orange, and brown. The water is a deep, clear blue with some light filtering through from the surface.

## Part 6:

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## APPENDIX A: SCIENCE PUBLICATIONS

In 2018 AIMS scientists published the following:

### JOURNAL ARTICLES

- 1 Abdul Wahab MA, Radford B, Cappo M, Colquhoun J, Stowar M, Depczynski M, Miller K, Heyward A (2018) Biodiversity and spatial patterns of benthic habitat and associated demersal fish communities at two tropical submerged reef ecosystems. *Coral Reefs* 37(2): 327-343
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- 3 Anderson KD, Cantin NE, Heron SF, Lough JM, Pratchett MS (2018) Temporal and taxonomic contrasts in coral growth at Davies Reef, central Great Barrier Reef, Australia. *Coral Reefs* 37(2): 409-421
- 4 Andrzejaczek S, Gleiss AC, Jordan KLB, Pattiaratchi CB, Howey LA, Brooks EJ, Meekan MG (2018) Temperature and the vertical movements of oceanic whitetip sharks, *Carcharhinus longimanus*. *Scientific Reports* 8: 8351
- 5 Andrzejaczek S, Gleiss AC, Pattiaratchi CB, Meekan MG (2018) First insights into the fine-scale movements of the Sandbar Shark, *Carcharhinus plumbeus*. *Frontiers in Marine Science* 5: 483
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- 7 Baird ME, Mongin M, Rizwi F, Bay LK, Cantin NE, Soja-Wozniak M, Skerratt J (2018) A mechanistic model of coral bleaching due to temperature-mediated light-driven reactive oxygen build-up in zooxanthellae. *Ecological Modelling* 386: 20-37
- 8 Barfield SJ, Aglyamova GV, Bay LK, Matz MV (2018) Contrasting effects of *Symbiodinium* identity on coral host transcriptional profiles across latitudes. *Molecular Ecology* 27: 3103-3115
- 9 Bax NJ, Appeltans W, Brainard R, Duffy JE, Dunstan P, Hanich Q, Davies HH, Hills J, Miloslavich P, Muller-Karger FE, Simmons S, Aburto-Oropeza O, Batten S, Benedetti-Cecchi L, Checkley D, Chiba S, Fischer A, Garcia MA, Gunn J, Klein E, Kudela RM, Marsac F, Obura D, Shin YJ, Sloyan B, Tanhua T, Wilkin J (2018) Linking capacity development to GOOS monitoring networks to achieve sustained ocean observation. *Frontiers in Marine Science* 5: 346
- 10 Bayliss P, Finlayson CM, Innes J, Norman-Lopez A, Bartolo R, Harford A, Pettit NE, Humphrey CL, van Dam R, Dutra LXC, Woodward E, Ligtermoet E, Steven A, Chariton A, Williams DK (2018) An integrated risk-assessment framework for multiple threats to floodplain values in the Kakadu Region, Australia, under a changing climate. *Marine and Freshwater Research* 69(7): 1159-1185
- 11 Bell JJ, Bennett HM, Rovellini A, Webster NS (2018) Sponges to be winners under near-future climate scenarios. *Bioscience* 68(12): 955-968
- 12 Bell JJ, Rovellini A, Davy SK, Taylor MW, Fulton EA, Dunn MR, Bennett HM, Kandler NM, Luter HM, Webster NS (2018) Climate change alterations to ecosystem dominance: how might sponge-dominated reefs function? *Ecology* 99(9): 1920-1931

- 13 Bell SC, Garland S, Alford RA (2018) Increased numbers of culturable inhibitory bacterial taxa may mitigate the effects of *Batrachochytrium dendrobatidis* in Australian Wet Tropics frogs. *Frontiers In Microbiology* 9:1604
- 14 Bennett H, Bell JJ, Davy SK, Webster NS, Francis DS (2018) Elucidating the sponge stress response; lipids and fatty acids can facilitate survival under future climate scenarios. *Global Change Biology* 24(7): 3130-3144
- 15 Benthuyssen JA, Oliver ECJ, Feng M, Marshall AG (2018) Extreme marine warming across tropical Australia during Austral Summer 2015-2016. *Journal of Geophysical Research-Oceans* 123(2): 1301-1326
- 16 Beyer HL, Kennedy EV, Beger M, Chen CA, Cinner JE, Darling ES, Eakin CM, Gates RD, Heron SF, Knowlton N, Obura DO, Palumbi SR, Possingham HP, Puotinen M, Runting RK, Skirving WJ, Spalding M, Wilson KA, Wood S, Veron JE, Hoegh-Guldberg O (2018) Risk-sensitive planning for conserving coral reefs under rapid climate change. *Conservation Letters* 11(6): e12587
- 17 Bierwagen SL, Emslie MJ, Heupel MR, Chin A, Simpfendorfer CA (2018) Reef-scale variability in fish and coral assemblages on the central Great Barrier Reef. *Marine Biology* 165: 144
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- 20 Blondeau-Patissier D, Brando VE, Lønborg C, Leahy SM, Dekker AG (2018) Phenology of *Trichodesmium* spp. blooms in the Great Barrier Reef lagoon, Australia, from the ESA-MERIS 10-year mission. *PLoS ONE* 13(12): e0208010
- 21 Boyd PW, Collins S, Dupont S, Fabricius K, Gattuso JP, Havenhand J, Hutchins DA, Riebesell U, Rintoul MS, Vichi M, Biswas H, Ciotti A, Gao K, Gehlen M, Hurd CL, Kurihara H, McGraw CM, Navarro JM, Nilsson GE, Passow U, Pörtner HO (2018) Experimental strategies to assess the biological ramifications of multiple drivers of global ocean change - A review. *Global Change Biology* 24(6): 2239-2261
- 22 Brodie S, Lédée EJI, Heupel MR, Babcock RC, Campbell HA, Gledhill DC, Hoenner X, Huveneers C, Jaine FRA, Simpfendorfer CA, Taylor MD, Udyawer V, Harcourt RG (2018) Continental-scale animal tracking reveals functional movement classes across marine taxa. *Scientific Reports* 8: 3717
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- 38 Condie SA, Herzfeld M, Hock K, Andrewartha JR, Gorton R, Brinkman R, Schultz M (2018) System level indicators of changing marine connectivity. *Ecological Indicators* 91: 531-541
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- 41 Waterhouse J, Lønborg C, Logan M, Petus C, Tracey D, Lewis S, Howley C, Harper E, Tonin H, Skuza M, Doyle J, Costello P, Davidson J, Gunn K, Wright M, Zagorskis I, Kroon F, Gruber R (2018) Marine Monitoring Program: Annual Report for inshore water quality monitoring 2016-2017. Report for the Great Barrier Reef Marine Park Authority, Great Barrier Reef Marine Park Authority, Townsville (318 pp)
- 42 Webster N, Gorsuch H (2018) RIMReP Additional values report: monitoring microbes within the Reef 2050 Integrated Monitoring and Reporting Program: final report. Great Barrier Reef Marine Park Authority, Townsville (27 pp)
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## THESES

### Doctor of Philosophy

- 1 Conlan, Jessica V (2018) Nutritional health of captive corals. Thesis (PhD). Deakin University, Warrnambool
- 2 Epstein, Hannah E (2018) Investigating the drivers of microbial community composition in reef-building corals. Thesis (PhD). James Cook University
- 3 Marcus Zamora, Lara (2018) Feeding ecology of whale sharks at Ningaloo Reef, Western Australia. Thesis (PhD) University of Tasmania
- 4 Montanari, Stefano (2018) Causes and consequences of natural hybridisation among coral reef butterflyfishes (Chaetodon: Chaetodontidae). Thesis (PhD) James Cook University
- 5 Ramsby, Blake (2018) The effects of a changing marine environment on the bioeroding sponge *Cliona orientalis*. Thesis (PhD) James Cook University



- 6 Razak, Tries B (2018) The effect of temperature variability and life-history strategy in coral response to long-term increase in sea surface temperature. Thesis (PhD). The University of Queensland
- 7 Roberts, Thomas Edward (2018) Ecological determinates of depth zonation in reef-building corals. Thesis (PhD) James Cook University
- 8 Smith, Meaghan K (2018) Molecular investigators of the neural system in the Crown-of-Thorns Seastar, *Acanthaster planci* species-complex. Thesis (PhD). University of the Sunshine Coast

#### Master of Science

- 9 Chin, Ying-Yueh (Kimberley) (2018) Comparison of sponge-associated faunal diversity between sponges with distinct morphologies from Ningaloo Reef and Rottnest Island. Thesis (MSc) University of Western Australia

## APPENDIX B: EXTERNAL COMMITTEES AND NON-GOVERNMENT ORGANISATIONS AND POSITIONS

### International forums

Alliance for Coastal Technologies, Technical Advisory Committee

Australia New Zealand Marine Biotechnology Society Management Committee

Convention on Migratory Species, Sharks MOU Conservation Working Group member

Global Environment Fund, Coral Disease Working Group

Great Barrier Reef Foundation - International Scientific Advisory Committee (ISAC) member

Homeward Bound – Carbon Emissions Offsets team

International Congress on Fish Telemetry Committee - member

International Coral Reef Society (ICRS) – Council member

International Coral Reef Society (ICRS) Conservation Committee – member and Council representative

International Oceanographic Commission Intergovernmental Panel on Harmful Algal Blooms – Australian representative

International Society for Microbial Ecology (ISME) – International board member and director of International Ambassadors Program

International Union for Conservation of Nature (IUCN) Shark Specialist Group – Vice Chair for Strategy

International Union for Conservation of Nature (IUCN) – member Synthetic Biology and Biodiversity Conservation Task Force Technical Subgroup on Scientific and Policy Assessment

National Academies of Sciences, Engineering & Medicine (US) Committee on Interventions to Increase Resilience of Coral Reefs

Ocean Acidification Expert Review Committee to the United Nation's Convention on Biological Diversity

Ocean Tracking Network (Canada) Scientific Advisory Committee

Red Sea Research Centre (RSRC) Advisory Board committee member

Scientific Committee on Oceanic Research (SCOR) – Australian delegate

SCOR Working Group 149 Changing Ocean Biological Systems (COBS): How will biota respond to a changing ocean?

United Nations Oceans & Law of the Sea Global Reporting and Assessment of the State of the Marine Environment (Regular Process) – member of the Pool of Experts

Wildlife Trust of India – Scientific Advisory Committee

## National forums

AIMS@JCU – Management Committee

AIMS@JCU – Scientific Advisory Committee

AMOS Physical Oceanographic Expert Group

ANZLIC Marine Community Profile Metadata Standards Governance Committee

Australian Animal Tagging and Monitoring System – Scientific Committee

Australian Hydrographic Office, RAN – Permanent Committee on Tides and Mean Sea Level

Australian Lions Foundation for Medical Research into Species of Medical Importance to Humans – Scientific Advisory Committee

Australian Microbiome Initiative Scientific Coordination Working Group

Australian National Committee on the International Indian Ocean Expedition-2

Australian Ocean Data Centre Joint Facility

Australian Research Council (ARC) Centre of Excellence for Mathematical and Statistical Frontiers: Big Data, Big Models, New Insights (ACEMS) Governance Advisory Board

Australian Research Council (ARC) Centre of Excellence for Coral Reef Studies – Advisory Board

Australian Research Council (ARC) Centre of Excellence for Coral Reef Studies – Scientific Management Committee

Bureau of Meteorology Northern Territory Marine Reference Group

Centre for Southern Hemisphere Oceans Research (CSHOR) – member

Chevron Australia Pty Ltd – Independent expert on the Gorgon Marine Turtle Expert Panel (Ministerial appointment)

Chevron Australia Pty Ltd Commonwealth expert panel Dredging Technical Advisory Panel (DTAP)

Coastal, Ocean and Port Engineering Panel for Western Australia (Engineers Australia)

Darwin Harbour Advisory Committee (DHAC)

Darwin Harbour Integrated Monitoring & Research Program Coordination Committee (IMRP)

Darwin Marine Supply Base – Taskforce Advisory Group

Dry Tropics Partnership for Healthy Waters

eReefs Advisory Board Member

eReefs User Reference Group

Fisheries Research and Development Corporation (FRDC) – Indigenous Reference Group (IRG)

Fitzroy Partnership for River Health Science Panel

Forum for Operational Oceanography (FOO) Steering Committee

Forum for Operational Oceanography (FOO) Surface Currents Working Group

Forum for Operational Oceanography (FOO) Surface Waves Working Group

Great Barrier Reef Foundation – Biophysical Technical Advisory Group

Great Barrier Reef Foundation COTS Working Group

GBRMPA & Queensland Government Reef Integrated Monitoring and Reporting Program – Steering Group member

GBRMPA COTS Advisory Committee

GBRMPA Reef Integrated Monitoring and Reporting Network – Design Working Group

Gladstone Healthy Harbour Partnership (GHHP) Science Panel

Integrated Marine Observing System (IMOS) – Board Member

Integrated Marine Observing System (IMOS) Science and Technology Advisory Committee

IMOS Animal Tracking Facility – Advisory Committee

IMOS Animal Tracking Facility – Task Team (Chair and leader)

IMOS Animal Tracking Facility and Biologging Committee

IMOS National Moorings Network Facility – Steering Committee (Chair and leader)

IMOS Wireless Sensor Networks Facility

IMOS National Reference Stations Scientific Steering Committee

IMOS Satellite Remote Sensing Facility

IMOS Sub-facility for Event Based Sampling (leader/coordinator for National Steering Committee)

IMOS Ships of Opportunity Facility – Sensors on Tropical Research Vessels (leader)

Integrated Marine Observing System: Queensland (Q-IMOS) Node leader

Integrated Marine Observing System: Queensland (Q-IMOS) Technical Reference Group

Integrated Marine Observing System: Western Australia (WAIMOS) Scientific Reference Group

Institute of Electrical and Electronics Engineers (IEEE) Northern Australia Executive Committee

Indian Ocean Marine Research Centre (IOMRC) – Executive Committee (chair)

Indian Ocean Marine Research Centre (IOMRC) – Management Committee

Indian Ocean Marine Research Centre (IOMRC) – Research Committee

Kakadu Research Advisory Committee

Marine Monitoring Program (MMP) Project Committee

Marine National Facility Scientific Advisory Committee

National BRUVS Working Group

National Committee for Coastal and Ocean Engineering (NCCOE) – Engineers Australia

National Environmental Priority Pest and Diseases List – Aquatic Animal Diseases Expert Group (ABARES, Department of Agriculture and Water Resources)

National Environmental Science Programme (NESP) Marine Biodiversity Hub – Partners Committee member

National Environmental Science Programme (NESP) Marine Biodiversity Hub – Theme leader

National Environmental Science Programme (NESP) Tropical Water Quality Hub – Steering Committee

National Environmental Science Programme (NESP) Tropical Water Quality Hub – Science Advisory Committee

National Environmental Science Programme (NESP) Tropical Water Quality Hub – CoTS Working Group

National Estuaries Network Organising Committee

National Marine Science Committee (NMSC) – Executive member

National Marine Science Committee (NMSC) – Marine Biotechnology subcommittee member

National Science, Technology and Research Committee (NTRSC) member

Northern Territory Marine and Coastal Science User Needs Analysis – Steering Committee member

Organisation for Economic Co-operation and Development (OECD) Test Guideline Committee

Port of Townsville Independent Technical Advisory Committee – Channel Upgrade Project

Queensland Department of Agriculture and Fisheries – Sustainable Fisheries Expert Panel

Queensland Government Pesticide Working Group

Queensland Water Modelling Network Climate Change Modelling Review Steering Committee

Queensland Water Modelling Network External Engagement Program Management Committee

Reef 2050 Indigenous Implementation Plan – Steering Committee

Reef 2050 Integrated Monitoring and Reporting Program (RIMReP)

Reef 2050 Integrated Monitoring and Reporting Program (RIMReP) Expert Working Group on Marine Physico-Chemical Environment - lead

Reef 2050 Integrated Monitoring and Reporting Program (RIMReP) Expert Working Group on Coral Reefs – lead

Reef 2050 Long Term Sustainability Plan – Independent Expert Panel

Reef 2050 Long Term Sustainability Plan – Reef Advisory Committee (RAC)

Reef and Rainforest Research Centre Pty Ltd (RRRC) – Non-executive director

Reef Restoration and Adaptation Program (RRAP) – Executive Committee

Reef Water Quality Protection Plan Independent Science Panel

Regional Report Card Technical Working Group

Western Australian Government Independent Scientific Advisory Panel on Sharks

Western Australian Marine Science Institution (WAMSI) Board

Western Australian Marine Science Institution (WAMSI) Governors

Western Australian Marine Science Institution (WAMSI) Node Leader Science

Western Australian Marine Science Institution (WAMSI) Operations Group

## APPENDIX C: LEGISLATIVE FOUNDATION AND MINISTERIAL POWERS

### Enabling legislation

The Australian Institute of Marine Science is a corporate Commonwealth entity established on 9 June 1972 by the *Australian Institute of Marine Science Act 1972* (AIMS Act).

### Functions of the Institute

- (1) The functions of the Institute are:
- (a) to carry out research and development in relation to:
    - i) marine science and marine technology
    - ii) the application and use of marine science and marine technology
  - (b) to encourage and facilitate the application and use of the results of research and development of that kind
  - (c) to arrange for carrying out research and development of that kind
  - (d) to cooperate with other institutions and persons in carrying out research and development of that kind
  - (e) to provide any other institution or person with facilities for carrying out research and development of that kind
  - (f) to collect and disseminate information relating to:
    - i) marine science and marine technology
    - ii) the application and use of marine science and marine technology and, in particular, to publish reports and other papers
  - (g) to produce, acquire, provide and sell goods, and to provide services, in connection with:
    - i) marine science and marine technology
    - ii) the application and use of marine science and marine technology
  - (h) to make available to other persons, on a commercial basis, the knowledge, expertise, equipment, facilities, resources and property of the Institute
  - (i) to do anything incidental or conducive to the performance of any of the functions in paragraphs (a) to (h).



## Powers of the Institute

Under s. 10 of the AIMS Act, the Institute is empowered to do all things necessary or convenient to be done for, or in connection with, the performance of its functions, including power:

- (a) to enter into contracts
- (b) to acquire, hold and dispose of personal property
  - (ba) to take on hire, or to accept on loan, equipment (including vessels) or other goods needed for the purposes of the Institute
  - (bb) to lend or to hire out equipment (including vessels) or other goods that are the property of the Institute
- (c) to purchase or take on lease land or buildings, and to erect buildings, necessary for the purposes of the Institute
- (d) to dispose of, or grant leases of, land or buildings vested in the Institute
- (e) to occupy, use and control any land or building owned or held under lease by the Commonwealth and made available for the purposes of the Institute
- (f) to participate in partnerships, trusts, unincorporated joint ventures and other arrangements for sharing profits
- (g) to subscribe for and to purchase shares in, and debentures and other securities of, companies
- (h) to form, and to participate in the formation of, companies:
  - (ha) to lend money to associated companies of the Institute
  - (hb) with the written approval of the Finance Minister, to provide guarantees for the benefit of associated companies of the Institute
- (i) to appoint agents and attorneys, and to act as agents for other persons
- (j) to accept anything given or transmitted to the Institute whether on trust or otherwise, and to act as trustee of money or other property vested in the Institute on trust
- (k) to arrange for displaying material and giving lectures, to the public or otherwise, about:
  - (i) marine science and marine technology
  - (ii) the application and use of marine science and marine technology.

## Ministerial powers of direction

Under s. 10 (1) of the AIMS Act, the responsible minister (and Finance Minister) has power to direct the Institute in matters of a general or specific nature. These powers pertain particularly to the following:

1. Granting leave of absence to Council members (ss. 13, 16(b))
2. Appointing (and terminating such appointment) a person to act as Chairperson (ss. 17(1) and (3))
3. Appointing (and terminating such appointment) a person to act as a member of Council (ss. 17(2) and (3))
4. Convening a meeting of Council (s. 20(2))
5. The Finance Minister may give directions at any time as to amount and moneys to be paid to the Institute (s. 36(2))
6. Out of money appropriated by the Parliament for the purpose, the Finance Minister has power to lend money to the Institute (s. 42A)
7. The Finance Minister has the power to provide written approval for the Institute to borrow money from persons other than the Commonwealth (s. 42B)
8. The Finance Minister has the power to guarantee borrowings of the Institute (s. 42C)
9. Appointing a committee to assist Council and approving the terms and conditions of members (s. 45)
10. Delegation of powers by Finance Minister (s. 50).
  - (1) The Finance Minister may, by written instrument, delegate to an official (within the meaning of the *Public Governance, Performance and Accountability Act 2013*) of a non-corporate Commonwealth entity (within the meaning of that Act) the power:
    - (a) to approve the provision of guarantees as mentioned in paragraph 10(2)(hb)
    - (b) to approve the borrowing of money on terms and conditions specified in, or consistent with, the approval as mentioned in subsection 42B(1)
    - (c) to enter into contracts as mentioned in subsection 42C(1)
    - (d) to make determinations as mentioned in subsection 42C(2).
  - (2) In exercising power under a delegation, the official must comply with any directions of the Finance Minister.

# INDEXES

## ACRONYMS

ACRONYM	TERM IN FULL
AICD	Australian Institute of Company Directors
AIMS	Australian Institute of Marine Science
AIMS Act	<i>Australian Institute of Marine Science Act 1972</i>
AMSA	Australian Marine Science Association
ANAO	Australian National Audit Office
AODN	Australian Ocean Data Network
ARC	Australian Research Council
ASSETS	Aboriginal Summer School for Excellence in Technology and Science
ATSIMS	Aboriginals and Torres Strait Islanders in Marine Science
BRUVS	baited remote underwater video stations
CDU	Charles Darwin University
pCO <sub>2</sub>	partial pressure of carbon dioxide
CI	citation impact
CPSU	Community and Public Sector Union
CSIRO	Commonwealth Scientific and Industrial Research Organisation
DoEE	Department of Environment and Energy
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i>
FOI Act	<i>Freedom of Information Act 1982</i>
FTE	full-time equivalent
GBR	Great Barrier Reef
GBRF	Great Barrier Reef Foundation
GBRMPA	Great Barrier Reef Marine Park Authority
HSE	Health, Safety and Environment
ICRI	International Coral Reef Initiative
IMOS	Integrated Marine Observing System
IOCAS	Institute of Oceanology, Chinese Academy of Sciences
IOMRC	Indian Ocean Marine Research Centre

ACRONYM	TERM IN FULL
IUCN	International Union for Conservation of Nature
JCU	James Cook University
KPI	key performance indicator
LTMP	Long-Term Monitoring Program
NCRIS	National Collaborative Research Infrastructure Strategy
NESP	National Environmental Science Programme
NOAA	US National Oceanic and Atmospheric Administration
NT	Northern Territory
NWSSRP	North West Shoals to Shore Research Program
PBS	Portfolio Budget Statement
PGPA Act	<i>Public Governance, Performance and Accountability Act 2013</i>
PID Act	<i>Public Interest Disclosure Act 2013</i>
PMC	Department of the Prime Minister and Cabinet
PNG	Papua New Guinea
POGO	Partnership for Observation of the Global Oceans
QUT	Queensland University of Technology
RDA	Research Data Australia
RRAP	Reef Restoration and Adaptation Program
RIMReP	Reef 2050 Integrated Monitoring and Reporting Program
ROV	remotely operated vehicle
SAGE	Science in Australia Gender Equity
SeaSim	AIMS' National Sea Simulator
STEMM	Science, engineering, technology, mathematics and medicine
UQ	University of Queensland
UVC	underwater visual census
UWA	The University of Western Australia
WA	Western Australia
WAMSI	Western Australian Marine Science Institution
WHS Act	<i>Work Health and Safety Act 2011</i>

## COMPLIANCE INDEX OF ANNUAL REPORT REQUIREMENTS

AIMS' requirement for annual reporting is outlined under s. 7 (2) of the AIMS Act, which states that the *Public Governance, Performance and Accountability Act 2013* applies to the Institute. That Act deals with matters relating to corporate Commonwealth entities, including reporting and the use and management of public resources.

The index below shows AIMS' compliance with annual report information requirements for corporate Commonwealth entities as stipulated under s. 46 of the *Public Governance, Performance and Accountability Act 2013* (PGPA Act).

The annual financial statements (see page 99) were prepared in accordance with ss. 42 and 43 of the PGPA Act and the Public Governance, Performance and Accountability (Financial Reporting) Rule 2015.

This annual report complies with parliamentary standards of presentation and printing and uses plain English and clear design.

Requirement	Source	Page in Annual Report
<b><i>Public Governance, Performance and Accountability Act 2013</i></b>		
The accountable authority (AA) of an entity must prepare and give an annual report to the responsible minister	s. 46 PGPA Act	1-167
<b><i>Public Governance, Performance and Accountability Amendment (Corporate Commonwealth Entity Annual Reporting) Rule 2016 (CCEAR Rule)</i></b>		
The annual report must be approved and signed by the accountable authority and include details of how and when approval was given. It must state that the accountable authority is responsible for preparing and delivering the annual report in accordance with the s. 46 of the PGPA Act.	s. 17BB	page 8 (letter of transmittal)
The annual report must comply with the guidelines for presenting documents to the Parliament.	s. 17BC	1-167
The annual report must be prepared having regard to the interests of the Parliament and any other persons who may be interested in it.	s. 17BD	1-167
The annual report must specify the entity's enabling legislation, including a summary of the entity's objects and functions and the purposes of the entity as included in the entity's corporate plan.	s. 17BE (a) (b)	page 69 (role & legislation) page 21 (entity purpose) page 21 (intended outcomes) page 152 (Appendix C Legislative foundations)

Requirement	Source	Page in Annual Report
The annual report must specify the name and title of the responsible minister.	s. 17BE (c)	page 69 (Responsible minister)
<p>The annual report must provide details of:</p> <ul style="list-style-type: none"> <li>any directions issued by any minister under an Act or instrument during the period</li> <li>any government policy orders that applied to the entity under section 22 of the PGPA Act</li> <li>particulars of non-compliance with any of the above directions or orders.</li> </ul>	s. 17BE (d) (f)	page 69 (Government engagement / Governance)
The annual report must include annual performance statements for the period in accordance with paragraph 39(1)(b) of the PGPA Act and section 16F of the PGPA Rule.	s. 17BE (g)	page 18 (Performance)
The annual report must include a statement of any significant issue reported to the responsible minister under paragraph 19(1)(e) of the PGPA Act that relates to non-compliance with the finance law in relation to the entity.	s. 17BE (h) (i)	page 78 (Duty to inform & Ministerial issues) page 77 (Fraud control)
The annual report must include information about the accountable authority(s), including names, qualifications, experience, attendance of board meetings and executive status.	s. 17BE(j)	page 70-76 (Governance, AIMS Council)
<p>The annual report must include an outline of the:</p> <ul style="list-style-type: none"> <li>organisational structure of the entity (including subsidiaries)</li> <li>statistics on the number of employees of the entity, at the end of that and the previous reporting period, for full-time and part-time employees, gender, location; and</li> <li>location of major activities and facilities of the entity</li> </ul>	s. 17BE (k) (l)	page 85 (Org structure) page 87 (AIMS core staff numbers) page 16 (location & activities map)
<p>The annual report must include information on the main corporate governance practices used by the entity, including, for example, details of:</p> <ul style="list-style-type: none"> <li>board committees and their main responsibilities</li> <li>education and performance review processes for the accountable authority</li> <li>ethics and risk management policies.</li> </ul>	s. 17BE (m)	page 70 (Corporate Governance)



Requirement	Source	Page in Annual Report
The annual report must disclose the decision making process undertaken by the Board in relation to transactions with other entities or if the transaction is more than \$10,000 (inclusive of GST).	s. 17BE (n) (o)	page 77 (Financial reporting); page 118 (Note 3.3 in Fin Statement)
<p>The annual report must detail any significant activities and changes that affected the operations or structure, for example:</p> <ul style="list-style-type: none"> <li>significant events such as forming or participating in the formation of a company, partnership</li> <li>operational and financial results</li> <li>key changes to its status of affairs or principal activities</li> <li>amendments to enabling legislation or any other legislation directly relevant to its operation(s).</li> </ul>	s. 17BE (p)	n/a
<p>The annual report must include details of third-party reviews, including:</p> <ul style="list-style-type: none"> <li>judicial decisions or decisions of administrative tribunals made during the period that have had, or may have, a significant effect of the operations of the entity</li> <li>the particulars of any report on the entity given during the period by the Auditor-General (other than one made under section 43 of the PGPA Act), a Parliamentary Committee, Commonwealth Ombudsman or the Office of the Australian Information Commissioner.</li> </ul>	s. 17BE (q) (r)	page 79 (Judicial decisions) page 79 (Ombudsman)
The annual report must include an explanation if information is missing from a subsidiary that is required to be included in the annual report, and state the effect of not having the information in the AR.	s. 17BE (s)	n/a
The annual report must include details of any indemnity that applied during the period to the AA, any member of the AA or officer of the entity against a liability (including premiums paid, or agreed to be paid, for insurance against the officer's liability for legal costs).	s. 17BE (t)	page 78 (indemnities and insurance)
The annual report must provide an index of annual report requirements identifying where relevant information can be found in the annual report.	s. 17BE (u)	page 155 (Index)

Requirement	Source	Page in Annual Report
<b>Performance statement</b>		
<p>The accountable authority must include a copy of the annual performance statements in the entity's annual report that is tabled in the Parliament.</p> <p>The annual performance statements must:</p> <ul style="list-style-type: none"> <li>(a) provide information about the entity's performance in achieving its purposes; and</li> <li>(b) comply with any requirements prescribed by the rules.</li> </ul>	s. 39(1) and (2)	page 17 (Performance section)
<p>The performance statement must include a statement:</p> <ul style="list-style-type: none"> <li>• declaring that the performance statements are prepared for section 39(1)(a) of the PGPA Act and any other applicable legislation</li> <li>• specifying the reporting period for which the performance statements are prepared</li> <li>• declaring that, in the opinion of the accountable authority, the performance statements accurately present the entity's performance and comply with s. 39(2) of the PGPA Act.</li> </ul>	s. 16F(2)	page 18 (Statement of preparation)
The performance statement must include the results of the measurement and assessment of performance.	s. 16F(2)	page 18 (Performance statement)  page 23 (AIMS performance against research KPIs)
<p>The performance statement must include an analysis of the factors that contributed to the entity's performance, including any changes to:</p> <ul style="list-style-type: none"> <li>• the entity's purpose, activities or organisational capacity; or</li> <li>• the environment in which the entity operated that may have had a significant impact on performance.</li> </ul>	s. 16F(2)	page 17 (Performance section)
<b>Financial statement</b>		
The accountable authority must prepare annual financial statements and given to the Auditor-General	s. 42(1)	page 99
The accountable authority must ensure that all the subsidiaries' financial statements are audited by the Auditor-General.	s. 44(2)	n/a

Requirement	Source	Page in Annual Report
A copy of the financial statement and the Auditor-General's report must be included in the annual report.	s. 43(4)	page 99
The financial statement must comply with the Public Governance, Performance and Accountability (Financial Reporting) Rule 2015.	s. 42(2)(a)	page 99
<b>Other requirements</b>		
Statement of Expectations	Suggested practice	page 26 (Statement of Ministerial Expectations)
<i>Environment Protection and Biodiversity Conservation Act 1999</i>	EPBC Act Section 516A(6)	page 95 (Environmental performance)
<i>Equal Employment Opportunity (Commonwealth Authorities) Act 1997</i>	EEO Act Section 9	page 88 (EEO & workplace diversity)
<i>Work Health and Safety Act 2011</i>	WHS Act Schedule 2, Part 4, Section 4(1)	page 91 (Health and Safety)
<i>Privacy Act 1988</i>		page 80
<i>Freedom of Information Act 1982</i>	Department of the Prime Minister and Cabinet (PMC)	page 80
<i>National Disability Strategy 2010–2020</i>	PMC	page 90
<i>Public Interest Disclosure Act 2013</i>	PID Act	page 90
Fraud control		page 77

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