



Australian Government



AUSTRALIAN INSTITUTE  
OF MARINE SCIENCE

# CORPORATE PLAN

## 2019-20

# AIMS CORPORATE PLAN 2019–20

The Australian Institute of Marine Science is Australia's tropical marine research agency. We provide world class research that helps governments, industry and the community make informed decisions about the management of Australia's marine estate.

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## OPENING MESSAGE

On behalf of the Council of the Australian Institute of Marine Science, we are pleased to present the AIMS 2019–20 Corporate Plan. This Plan covers the four years 2019–20 through to 2022–23, as required under paragraph 35(1) (b) of the *Public Governance, Performance and Accountability Act 2013*, PGPA Rule 2014 and s. 16E(1) of the *Corporate Plan for Commonwealth entities: resource management guide no. 132*.

Australia is a marine nation. Our marine estate is the third largest on Earth, with an exclusive economic zone of 10 million square kilometres. This massive area is home to some of the most diverse and iconic marine ecosystems and species on the planet. Eighty-five per cent of Australians live on or near the coast, and the oceans have a special place in our national psyche. Our blue economy, which includes fishing, aquaculture, tourism and the offshore oil and gas sectors, contributes almost \$70 billion a year to the nation's prosperity. The AIMS Index of Marine Industry 2018, launched at the AIMS headquarters in Townsville in March 2019 by the Hon. Karen Andrews MP, Minister for Industry, Science and Technology, identifies ocean resources as being one of the top 25 future growth sectors in the Australian economy, predicting growth forecasts of 4.4 per cent per annum.<sup>1</sup>

AIMS has a critical role in helping government and other stakeholders realise the opportunities and manage the challenges associated with the sustainable growth of Australia's blue economy. Conserving the blue economy is not just about protecting species and habitats for their own sake and for the global good. It is also about maintaining nature's capacity to deliver the goods and services needed by the community.

The AIMS Strategy 2025 outlines how AIMS will support Australia's blue economy by delivering long-term impacts that create national benefits, improve tropical marine health, and protect coral reefs from climate change.

This Corporate Plan outlines how the Institute will deliver on the long-term targets set in the AIMS Strategy 2025. The Plan focuses on quantifying and maximising the environmental, economic and social benefits (impacts) AIMS delivers. Three exciting areas of focus over the next four years are reef restoration and adaptation, embedding new technologies and the latest data science into our core capabilities to transform the way we undertake marine science, and strengthening our Indigenous partnerships to bring together Indigenous knowledge with other areas of science to create new insights into management of our marine systems.

Our research will continue to deliver the evidence that allows stakeholders to make informed decisions while incorporating a strong focus on developing solutions to the threats and opportunities within Australia's marine estate.

### AIMS COUNCIL

The Council (as at 31 August 2019) comprises the Hon Penelope Wensley AC (Chairman), Professor Sandra Harding AO, Dr Paul Hardisty (AIMS CEO), Ms Anna Matysek, Dr Stephen Morton, Mr Roy Peterson and Ms Jeanette Roberts.

<sup>1</sup> <https://www.aims.gov.au/aims-index-of-marine-industry>

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## CORPORATE STRUCTURE

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

AIMS is accountable to the Minister for Industry, Science and Technology and is governed by a Council that reports to the Minister. The Council, which meets quarterly, sets our strategic directions and oversees management of the Institute. The CEO is responsible for the day-to-day operations of the Institute.

AIMS' enabling legislation is the *Australian Institute of Marine Science Act 1972 (AIMS Act)* and the *Public Governance, Performance and Accountability Act 2013 (PGPA Act)*.

## PURPOSE

AIMS' purpose is to contribute to the economic and environmental wellbeing of Australians by conducting research into the tropical marine estate.

We have three aspirations:

- undertake research that addresses real needs
- provide impartial, authoritative advice
- support the protection, use and management of our marine assets



## 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.

## STRATEGIC OBJECTIVES

We have three key impacts and two impact targets (Table 1). These are detailed in the AIMS Strategy 2025 and the Portfolio Budget Statements 2018–19. AIMS' research portfolio is encapsulated in nine research outcomes (Table 2).

Key impacts	Impact Targets
Improve the health and resilience of marine and coastal ecosystems across northern Australia	Achieve at least \$100 million per annum in environmental, social and economic net benefits for tropical Australia  Drive net improvement in the health of marine ecosystems in 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	

Table 1: Our key impacts and targets

Research outcomes		
Comprehensive baseline, status and trends reporting systems for tropical marine ecosystems	Efficient, cost-effective delivery of information through the application of innovative, autonomous and automated marine observing technologies and assessment methods	Recovery of key threatened and endangered marine species achieved through effective conservation and management of critical habitats and populations
Enhanced management of tropical marine ecosystems informed by regional models of environmental condition and function	Improved health of tropical marine ecosystems through the development of effective solutions for the management of local, regional and cumulative pressures	Improved forecasting ability of future coral reef status based on information on the scope and rates of recovery, acclimatisation and adaptation of coral reef taxa to climate change
New tools for coral reef restoration that enhance resistance and resilience of key coral reef taxa to environmental change, particularly climate change	Enhanced understanding of tropical marine ecosystems among industry, government and the public delivered through improved data analysis workflows and knowledge delivery systems	Strengthened management and policies delivered through the development of structured decision support tools that link risk, monitoring, modelling and adaptive management

Table 2: Our desired research outcomes



Care for ourselves and others in all that we do



Together we create impact



Treat everyone with dignity, value diversity, support others



Energy that inspires excellence



Always transparent ethical and objective



Vision and creativity to solve big challenges



Minimise our footprint

## VALUES AND BEHAVIOURS

AIMS has a set of cultural traits for achieving our mission and improving our stakeholders' experience. These values inspire our employees' best efforts and guide their actions. They reinforce our role as a provider of impartial, authoritative advice on the opportunities and challenges facing Australia's marine estate.

Figure 1: How we work



## DELIVERING IMPACT

Everything we do is about improving outcomes and delivering benefits for government and community. Measuring our impact is fundamental to this. Our measures align with our strategic objectives and, by extension, with our purpose — to contribute to the economic and environmental wellbeing of Australians by conducting research into the tropical marine estate.

While the full impacts of our research become apparent only over time, we aim to ensure positive impacts on people, industries and ecosystems. Understanding and measuring these benefits requires us to remain engaged with stakeholders long after our research outputs have been delivered. This, in turn, enables us to understand better the future needs of our stakeholders in government, industry and community. We currently describe our impact through stories of the value we bring to our stakeholders. In addition, we are now developing the methods to measure and quantify our impact in triple bottom line dollar value terms, and will use them progressively over the coming years to supplement our impact stories.

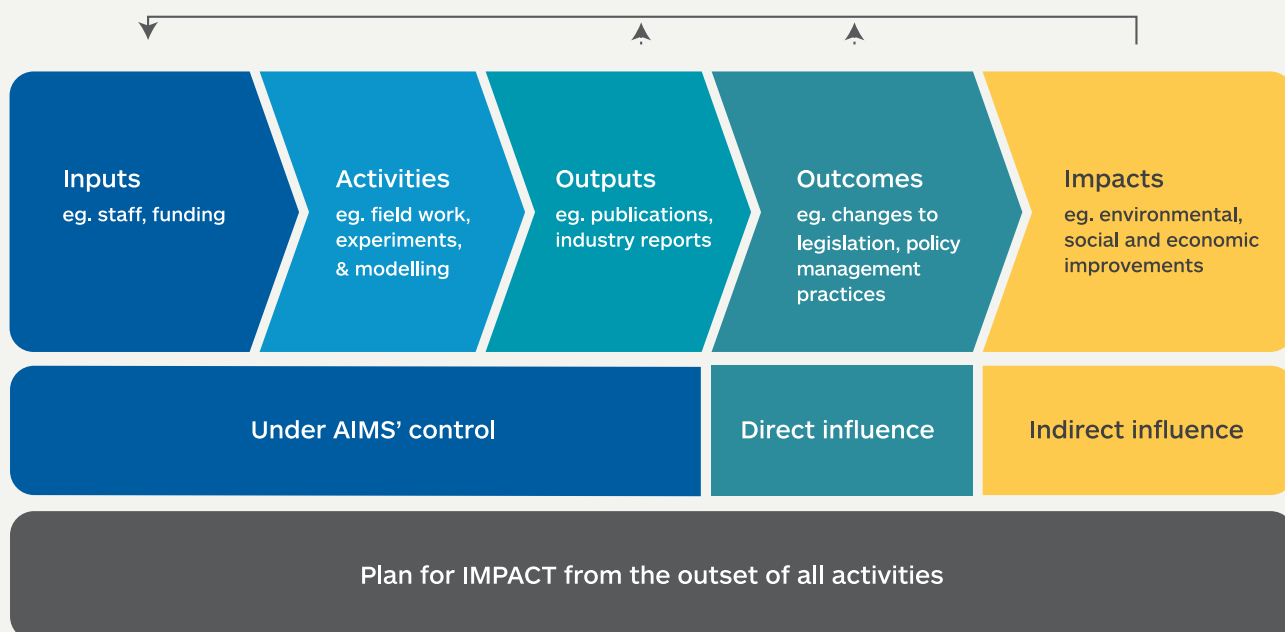


Figure 2: How we apply our impact framework

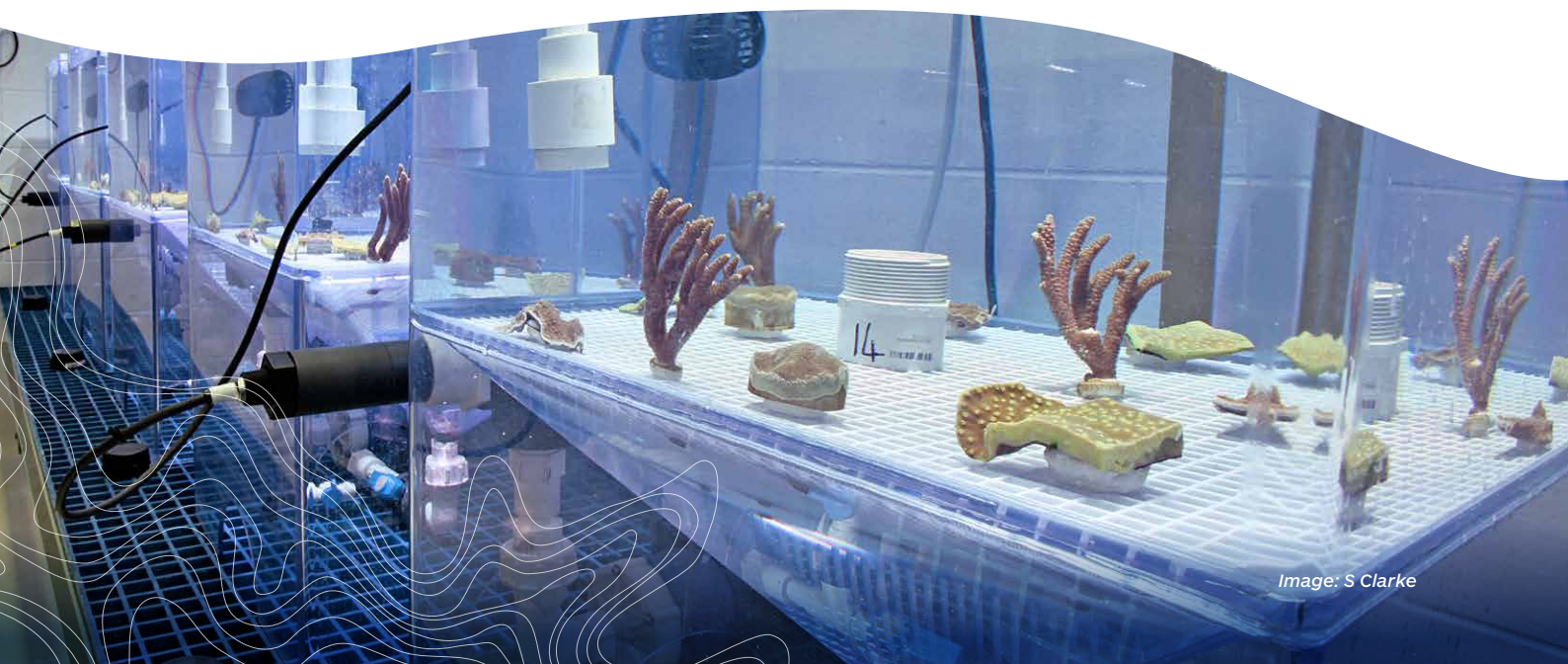


Image: S Clarke

## OPERATING ENVIRONMENT

The marine research environment is complex, globally connected and affected by climate change and emerging technologies.

### REGULATORY FACTORS

In addition to obligations under AIMS' enabling legislation, our operations are governed by a range of other Australian Government, state and territory legislation including:

- health, safety and environment obligations under the *Work Health and Safety Act 2011 (Cth)*
- environmental obligations under the *Environmental Protection and Biodiversity Conservation Act 1999 (Cth)*, the *Great Barrier Reef Marine Park Act 1975 (Cth)* and the *Fisheries Act 1994 (Qld)*
- information services obligations under the *Archives Act 1983 (Cth)* and the *Freedom of Information Act 1982 (Cth)*.

Our primary obligations under the AIMS Act are:

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

We provide fundamental knowledge of the marine environment that enables regulators and marine industries to make informed decisions and meet their regulatory requirements.

### MEETING STAKEHOLDER EXPECTATIONS

Regulators and managers that rely on our information, services and tools include:

- National Offshore Petroleum Safety and Environmental Management Authority
- Australian Maritime Safety Authority
- Great Barrier Reef Marine Park Authority
- Western Australian Environmental Protection Authority
- Queensland Department of Environment and Science
- Northern Territory Government

### MARINE SCIENCE PRIORITIES

Science and research are central to driving innovation and technology development and for enhancing productivity and ensuring a strong future for Australian industry.

AIMS has a strategy in place to align with and support Australia's marine science priorities. Building on the gains of the AIMS Strategy 2025, this Corporate Plan ensures resources are allocated to research priorities in order to optimise performance.

AIMS consults on an ongoing basis with our key stakeholders in government, industry and community. We also conduct regular surveys of the marine science and research needs of a broad range of Australian and international organisations. These inform our ongoing strategy.



The following table provides information on guidance documents and how AIMS approaches activities that deliver outcomes for government, industry and community.

Guidance documents	Requirement
Statement of Expectations	As a publicly funded research agency, AIMS is required by its Act to respond to its Portfolio Minister. <i>Our obligations are set out in a Statement of Expectations issued periodically by the Minister.</i>
National science and research priorities	The nine science and research priorities of the Australian Government are: (1) food; (2) soil and water (including marine); (3) transport; (4) cybersecurity; (5) energy; (6) resources; (7) advanced manufacturing; (8) environmental change; and (9) health. <i>Our core capability and research programs contribute strongly to the soil and water, energy, and environmental change priorities.</i>
National science agenda and strategies	We support the Australian Government's National Innovation and Science Agenda, the National Science Statement and the Innovation and Science Australia strategy document – <i>Australia 2030: Prosperity through Innovation?</i> <i>We particularly focus on fostering a strong national science and research base as the foundation for a competitive Australia.</i>
National Marine Science Plan	AIMS has been a leader and core member of the National Marine Science Committee since its inception and is a strong advocate of the national plan. <i>Through our shared understanding, we strive for an explicit focus on the blue economy throughout the marine science system.</i>
Sustainable Development Goals (SDGs)	We support the SDGs of the United Nations: (1) No poverty; (2) Zero hunger; (5) Gender equality; (8) Decent work and economic growth; (13) Climate action; and most notably (14) Life below water. <i>Our partnerships deliver breakthrough scientific solutions to support the SDGs and help secure the future of fisheries, and protect ecosystems and wildlife.</i>

Table 3: Guidance documents for delivering outcomes to government, industry and community

The AIMS Strategy 2025 is scheduled for review every three years; the next review is due in 2021, which falls within the scope of this Corporate Plan. Regular reviews ensure our directions remain clearly aligned with stakeholder needs and priorities.

## RESTORING THE REEF

The Great Barrier Reef is indisputably one of the world's most important natural assets. We work with others to protect and restore the reef, which is under severe pressure from climate change and other stressors. Cumulative impacts include rising sea temperatures, ocean acidification, pollution, declining water quality and outbreaks of the destructive crown-of-thorns starfish (CoTS).

In January 2018, the Australian Government allocated \$6 million for AIMS and joint leader CSIRO to develop a feasibility study to scope R&D into new technologies to restore the reef through a multi-year Reef Restoration and Adaptation Program (RRAP).

2 <https://www.industry.gov.au/data-and-publications/australia-2030-prosperity-through-innovation>



In May 2018, the Government announced further funding of \$100 million to ‘harness the best science to implement reef restoration and support reef resilience and adaptation’ (as part of a broader \$443 million package for the GBR). This research and development will build on the existing RRAP feasibility study. AIMS’ particular expertise in reef science and its key role in RRAP will see our involvement in further work on reef resilience and adaptation continue. The next phase of this work is expected to be a major focus area for AIMS over the next five years.

The RRAP feasibility study was completed and a draft Investment Case developed in May 2019 found:

- potential economic, social and environmental benefits of restoration valued at tens of billions of dollars
- likely delays of five to 10 years for deployment-ready techniques
- significantly more R&D work is needed to support technically feasible, affordable, safe interventions acceptable to the public
- intervention measures should be designed to work together and reinforce each other over time
- inaction will pose a significant risk which increases with time.

## GOVERNMENT STAKEHOLDERS

### Australian Government

In response to the Minister’s expectations<sup>3</sup>, the Institute’s Statement of Intent<sup>4</sup> expresses our commitment to the Government’s legislated requirements, broad policy framework and key priorities. AIMS fulfils its responsibilities through the delivery of world class R&D in relation to marine science and marine technology and the provision of impartial and accurate advice to inform decision making.

### Great Barrier Reef Marine Park Authority, and Department of the Environment and Energy

AIMS provides significant support to the Great Barrier Reef Marine Park Authority and the Department of Environment and Energy, to assist with the implementation of the Reef 2050 Long Term Sustainability Plan (Reef 2050 Plan) to protect and conserve the Great Barrier Reef. We monitor, research, report and provide advice on:

- the Reef 2050 Integrated Monitoring and Reporting Program
- tropical water quality and biodiversity research within the National Environmental Science Program (NESP)
- habitats of marine parks (status, dynamics and vulnerability).

### National Offshore Petroleum Safety and Environment Management Authority (NOPSEMA)

NOPSEMA regulates occupational health and safety, well integrity and environmental management for all offshore petroleum operations in Commonwealth waters. AIMS engages and works collaboratively with the Authority to provide advice on environmental information needs, including the appropriate scale and scope of environmental baseline studies and impact assessment of substantial oil spills.

### Department of Foreign Affairs and Trade, and Department of Industry, Innovation and Science

AIMS works closely with the Department of Foreign Affairs and the Department of Industry, Innovation and Science to help advance Australia’s trade and investment interests, particularly in marine science. We contribute research and advice on the blue economy, including coral reefs, fisheries and sustainable development. We support the strengthening of Australia’s bilateral relations, and regional and international cooperation through contribution to selected projects and the global exchange of information and knowledge.

### State and territory governments

AIMS undertakes monitoring, research and reporting, and provides advice to state and territory governments addressing the information needs of the Reef 2050 Long-term Sustainability Plan; the impacts of the development and operations of specific ports; and the impacts of contaminants introduced into marine systems through shipping, processing facilities and other sources adjacent to coastal ecosystems. Consistent with AIMS’ tropical focus, we work most closely with the Queensland, West Australia and Northern Territory Governments.

<sup>3</sup> <https://www.aims.gov.au/docs/about/corporate/corporate-profile-governance/statement-of-expectations>

<sup>4</sup> <https://www.aims.gov.au/docs/about/corporate/corporate-profile-governance/statement-of-intent>



## INDUSTRY STAKEHOLDERS

### Offshore oil and gas (and other resources) sector

We support the sustainable development of energy, minerals and other valuable resources in and under Australia's oceans. The offshore oil and gas sector is now both a major end user of our research and a contributor to its strategic directions. This is an evolving relationship, in which AIMS has been playing a progressively value-adding role. We work with the sector to provide timely and relevant information on environmental status and risk, baseline habitat mapping, monitoring and research to underpin project proposals and environmental management plans required by regulators. Targeted studies investigate the impacts of known and emerging contaminants introduced into marine systems through shipping, processing facilities and other sources.

### Ports and maritime industries

Over the past decade, AIMS has worked particularly hard and with some success to extend and deepen its relationships with ports and maritime industries. Our research makes it easier for industry to make decisions on development projects, port expansions, dredging and other investments that pose environmental risks.

### Tourism

AIMS is a key provider of research to develop science solutions that will help Australia's coral reefs survive the pressures of climate change and other environmental impacts. We conduct targeted projects focused on crown-of-thorns starfish control, marine health monitoring and advice on marine estate management strategies. This supports viable tourism and fishing industries in the future.

## TRADITIONAL OWNERS

AIMS is working to build stronger partnerships with Aboriginal and Torres Strait Islander groups and individuals across northern Australia, to achieve a strong and productive shared future in marine science and knowledge exchange. The goal is to protect and manage the sea country interests of the Traditional Owners, developing a better understanding of each other and our marine environments.

## NOT-FOR-PROFIT SECTOR

As Australia's tropical marine research agency, AIMS works with the non-profit sector, including the Great Barrier Reef Foundation (GBRF), and on the Global FinPrint project.

The Foundation is a leading charity that brings together business, science, government and philanthropy for the benefit of the reef. AIMS works in close association with the Foundation where we can deliver the most impact and has a representative on the Foundation's International Science Advisory Panel.

The Global FinPrint project is funded by Vulcan Inc., the engine behind philanthropist Paul G. Allen's network of organisations and initiatives. It brings together collaborators from around the world to assess the status of shark and ray (elasmobranchs) populations in tropical oceans. Research in Australia examines shark and ray movements to determine how far they move and where they travel to. This information can be used to help improve management in Australia by monitoring how effective management and conservation efforts are. Australia is home to over 300 shark and ray species and over half of these are found nowhere else on the planet.

The Paul G. Allen Family Foundation also funds the Australian component of AIMS' pioneering work into human-assisted evolution of corals. The goal is to develop stocks of reef corals bred to be resilient to the effects of climate change on ocean conditions (warmer, more acidic seas).





## GROWING THE BLUE ECONOMY

Originally developed for AIMS by Deloitte in 2008, the AIMS Index of Marine Industry<sup>5</sup> assesses the contribution of Australia's blue economy to the nation's economic bottom line. It shows the value of Australia's blue economy has more than doubled in the past 10 years, to a total value of \$68.1 billion.

The AIMS Index of Marine Industry has identified ocean resources as being one of the top 25 future growth sectors in the Australian economy, predicting growth forecasts of 4.4% per annum. The industries making up this sector include tourism, ports, transport, shipbuilding, mining and offshore oil and gas, aquaculture and commercial and recreational fisheries.

We have a responsibility to assist the sustainable development of this highly valuable sector.

In line with the National Marine Science Plan,<sup>6</sup> AIMS and our collaborators continue to seek solutions to several of the seven 'grand challenges', including:

- biodiversity, conservation and ecosystem health
- urban coastal environments
- climate variability and change.

## RESEARCH ENVIRONMENT

During the International Year of the Reef in 2018, the Australian Government announced the largest ever single investment in reef protection. This included a \$443.3 million partnership with the GBRF for delivery of outcomes over the following six years inclusive of 2023–24. In line with the Reef 2050 Plan, we will put our efforts into:

- improving management of the Great Barrier Reef World Heritage Area and relevant activities in adjacent catchments
- protecting species, habitats and Indigenous values
- managing key threats, including poor water quality and CoTS outbreaks.

This partnership significantly changes the research environment compared with previous years, making the GBRF a significant stakeholder of the work we undertake.

The investment included \$100 million to conduct and implement science for the Reef Restoration and Adaptation Program (RRAP), building on the feasibility study led by AIMS with CSIRO, James Cook University, the University of Queensland, Queensland University of Technology and the GBRF, under the Australian Government's initial \$6 million investment.

A further \$40 million has been allocated to complement activities implemented under the Reef Integrated Monitoring and Reporting Program (RIMReP), including eReefs and the Paddock to Reef Integrated Monitoring, Modelling and Reporting Program. RIMReP aims to provide an up-to-date understanding of the Great Barrier Reef, the values and processes that support it and the threats that affect it. This knowledge is fundamental to informing actions required to protect and improve the condition of the reef, and to drive resilience-based management. Further, RIMReP will ensure reporting is robust and investment outcomes are measurable.

During the period of this Plan, AIMS will continue to be a trusted advisor, responding to stakeholder needs, delivering science that underpins practical solutions and helping to shape the future direction of marine science in the GBR region.

<sup>5</sup> <https://www.aims.gov.au/aims-index-of-marine-industry>

<sup>6</sup> <http://www.marinescience.net.au/national-marine-science-plan/>

## GEOGRAPHIC SCOPE

AIMS operates in the geographic area across the tropical north of Australia, from the North West Cape in Western Australia to Gladstone in Queensland. This geographic specialisation is not mandated but a result of focusing efforts on key tropical marine issues and opportunities.

We recognise the competitive advantage gained from the geographic location of our various centres—our Townsville headquarters is adjacent to the Great Barrier Reef; Perth is at the hub of marine-based industries on the West Australian coast and Timor Sea; and Darwin is close to neighbouring countries and development activities in the Arafura and Timor seas.

AIMS also leverages international capability to assist with national challenges. Investment in international research is through Australian and international foundations, and directly with Australian Government departments such as the Department of Foreign Affairs and Trade and the Department of the Environment and Energy.

## SCIENTIFIC SCOPE

We foster a strong national science and research base as the foundation for a competitive Australia.

Examples of our expertise in field and experimental research include:



**Long-term ocean  
monitoring**



**Risk assessments  
of pollution**



**Predictions of  
ecosystem function**

Supporting our stakeholder needs is a primary focus of AIMS. Our expertise in molecular and microbiology, mathematical modelling, marine noise, and decision support capability align with these evolving needs – from the ocean to the laboratory, from data analysis and models, to the ultimate development of products for direct use by end users.

The success of the Institute is demonstrated by its consistently high position in relevant international rankings. AIMS has maintained its position as one of the three top-ranked research organisations in the world in the field of marine and freshwater biology<sup>7</sup> (Clarivate Analytics InCites). We are committed to excellence in science and will strive to maintain this ranking throughout the Corporate Plan period.

<sup>7</sup> Ranking based on category normalised citation impact of articles published by AIMS in journals included within the Web of Science, between 2012 and 2018, within the field of Marine and Freshwater Biology. The analysis only included research institutes that had published more than 200 papers during that period in order to benchmark AIMS against institutes with sufficiently similar publication rates



## COLLABORATION

The opportunities and challenges facing our marine systems are so complex that no single institute can provide all of the capability and science required. We play a leadership role where we can and bring partners into projects and programs as required. In other contexts, we provide specialised capability for projects led by others.

Organisations and centres that have complementary capability in tropical marine science include:

- CSIRO
- Geoscience Australia
- Australian Nuclear Science and Technology Organisation (ANSTO)
- Australian Bureau of Agricultural and Resource Economics and Sciences (ABARES)
- Australian Research Council centres of excellence (e.g. Coral Reef Studies; Mathematical and Statistical Frontiers)
- universities (including Australian National University, the University of Melbourne and Curtin University)
- state-based agencies (e.g. departments of environment, primary industries and fisheries, and natural resource management agencies).

Over the next four years, our key national research partners are expected to include the ARC Centre of Excellence in Coral Reef Studies, CSIRO, Charles Darwin University, James Cook University, Queensland University of Technology, the University of Queensland and The University of Western Australia.

## EXPANDING SCOPE AND NEW OPPORTUNITIES

Under this Plan, we will continue to expand our capability in marine science, in particular through:

- coral reef restoration and adaptation science
- integrating Indigenous science knowledge
- technology transformation.

### (1) Coral reef restoration and adaptation science

The global issue of climate change is the number one threat to coral reefs around the world. Like reefs everywhere, the Great Barrier Reef is under severe pressure from the cumulative impacts of rising sea temperatures, ocean acidification, pollution, declining water quality and CoTS outbreaks.



In the past, our research and monitoring has focused on understanding and measuring natural recovery and adaptation. However, we now recognise that active interventions need to be considered as additional management strategies.

The Reef Recovery and Adaptation Program (RRAP)<sup>8</sup> will be the key to this new approach. AIMS, CSIRO and the Great Barrier Reef Marine Park Authority have a long history of working together in the GBR World Heritage Area. The RRAP takes this historical collaboration to a new level, involving many more national and international partners. It will assess the benefits, risks and costs of existing and novel technologies to assist recovery, repair and build resilience of the reef.

In January 2018, AIMS and the CSIRO received \$6 million in Commonwealth funding to lead the concept stage of the RRAP.

8 <https://www.aims.gov.au/reef-recovery/rrap>



With a total of \$500 million in new government funding across the board, AIMS has refocused significant capability on this increasingly important area of science and engineering. The investment case for the RRAP completed in June this year:

- identified and assessed potential technologies
- outlined future research needs
- proposed a governance structure to oversee future phases of reef restoration activities.

AIMS expects to play a prominent role in the next phase of the RRAP, particularly in R&D of:

- assisted evolution (acceleration of naturally occurring processes)
- aquaculture-based interventions
- coral ecology.

We will also play an important role in assessing other possible interventions (and how these might be scaled up), and in modelling, decision support and stakeholder engagement. We expect the National Sea Simulator (SeaSim), the world's most advanced experimental aquarium, located at the AIMS headquarters near Townsville, will play a key role in accelerating the development and delivery of solutions.

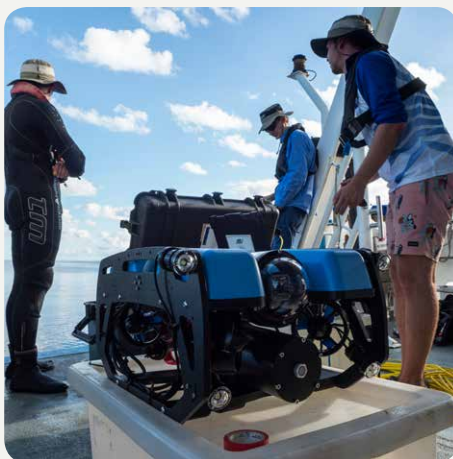
The SeaSim is available for use by external individuals and organisations working collaboratively with AIMS, an approach which sees its capabilities applied to address some of the most complex, multidisciplinary challenges facing Australia's marine estate.

As a world leading facility, the SeaSim is uniquely placed to address a number of global challenges associated with oceans in a high carbon world, and we will target collaborations with international leaders addressing these challenges.



## (2) Integrating Indigenous science knowledge

A growing awareness of the value of Indigenous knowledge has prompted calls for its use within tropical marine science. Our focus is on delivering outcomes that align to the *Northern Territory Marine Science and Coastal User Needs Analysis*<sup>9</sup> published in 2018 and the Reef 2050 Traditional Owner Aspirations Project. By the end of the period of this Corporate Plan, we aim to be a leader in working with Traditional Owners.



## (3) Technology transformation

Critical functions such as environmental monitoring require continual advances in technology. Numerous organisations are proposing and developing new technologies and methods for monitoring reefs in the long term, which is vital to safeguarding their future.

AIMS needs comprehensive new technology over the next five years to remain efficient and competitive. However, while scalable, flexible technology is needed throughout the organisation, care must be taken to ensure new technology does not compromise long-term research series. The main challenge relates to encompassing the whole pipeline, from data acquisition to knowledge delivery, in the transformation.

<sup>9</sup> <https://www.aims.gov.au/nt-end-user-needs-analysis>

## IMPLEMENTING STRATEGY

We are a strategy-led organisation. The AIMS Strategy 2025 sets out the future direction of our research and advice to government, industry and the community and articulates the long-term vision as to how AIMS will fulfil its remit under the guiding legislative and financial frameworks. The high-level directions and objectives set out in the Strategy link directly to the Institute's Corporate Plan and the over-arching budget statements, cascade down into detailed implementation plans and form the basis for our research and investment decisions (see Figure 4).

The strategy is reviewed every three years to ensure it is up to date and relevant, and progress towards targets and key performance indicators are reported yearly in AIMS' annual report.

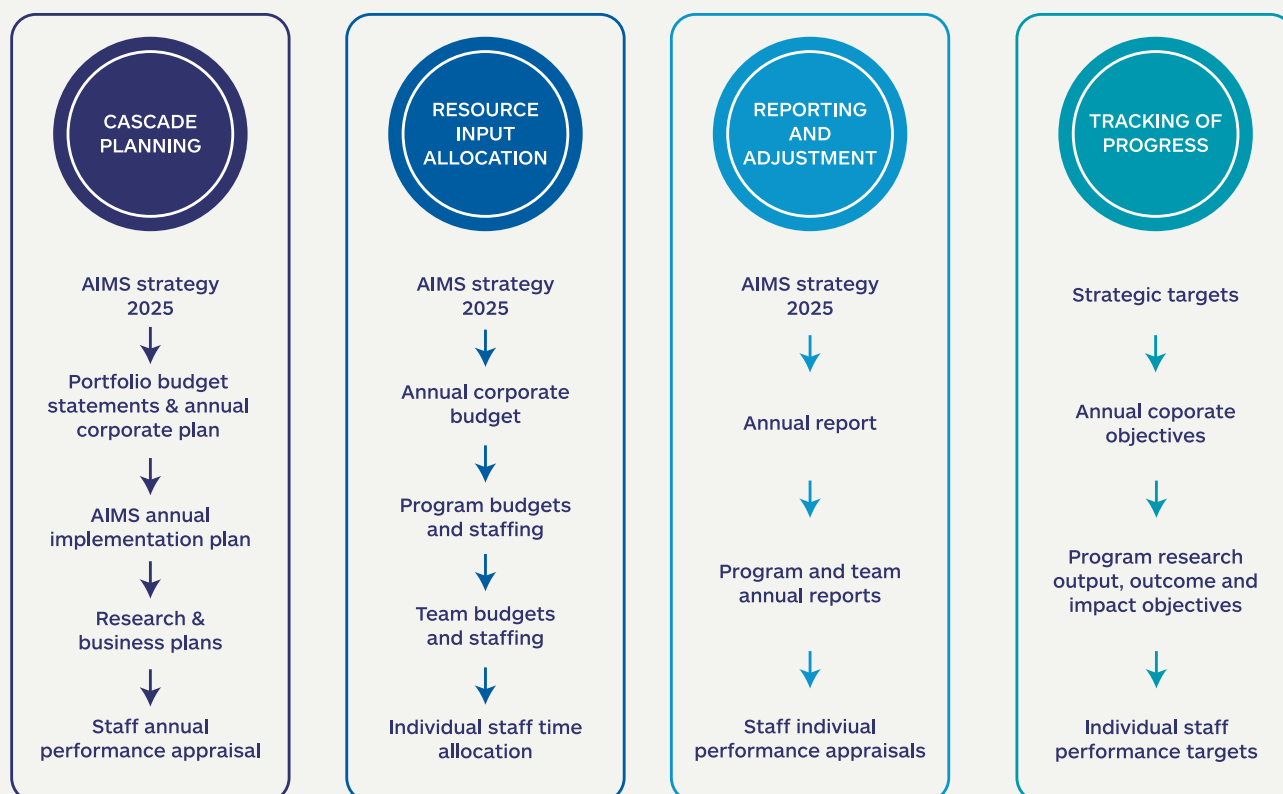
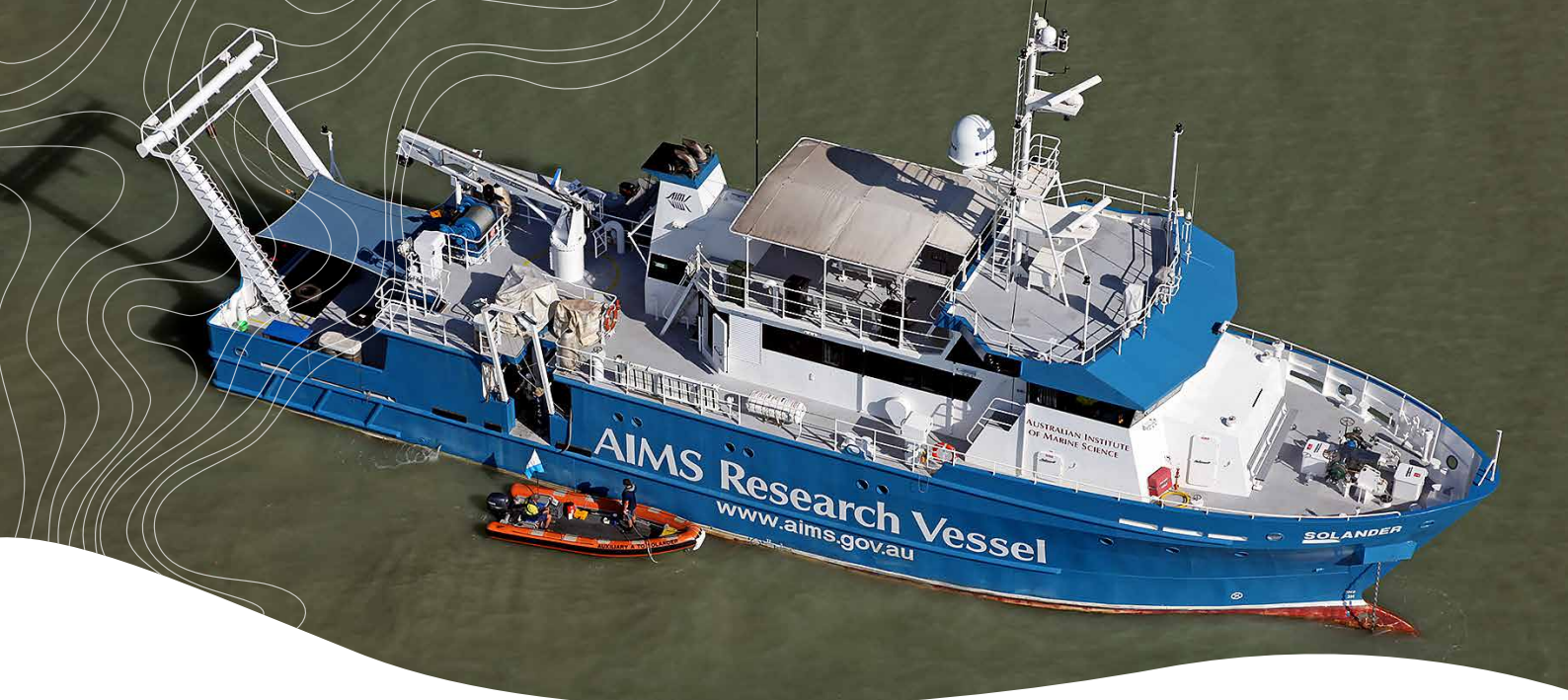


Figure 4: How the elements of our research interrelate





# RESEARCH PLANNING

To achieve the impact targets identified in the AIMS Strategy 2025, AIMS will focus on delivering the following nine research outcomes over the five-year period encompassed by the 2019–20 AIMS Corporate Plan.

## RESEARCH PRIORITIES





Delivery of longer term research outcomes will be achieved through the implementation of a number of shorter term activities described in Table 4.

### Legend

- These deliverables are ongoing and will apply in the outyears of this plan. Specific deliverables will be reviewed on an annual basis and updated as appropriate
- ▲ Complete high impact projects already underway. Complete development of automated data and image analysis pathways to enhance operational efficiencies.

Five Year Research Outcomes	Annual Deliverables (2019-20)	2022–24 (outyears)
Comprehensive baseline, status and trends reporting systems for tropical marine ecosystems	Deliver long-term coral reef and physico-chemical monitoring programs	●
	Deliver specific monitoring and baseline assessments in response to stakeholder demand Work with state and Australian Government agencies and other research organisations to implement the Reef Integrated Monitoring and Reporting Program (RIMReP)	
	Investigate and implement (as appropriate) technology to improve the efficiency and capability for marine observing and assessment methods	
Efficient, cost-effective delivery of information through the application of innovative, autonomous and automated marine observing technologies and assessment methods	Complete initial design planning, which defines the strategy and concepts underpinning a technology transformation program Progress high impact projects already underway (e.g. agile underwater vehicle development, autonomous image analysis)	▲
	Progress development of automated data and image analysis pathways to enhance operational efficiencies	



Five Year Research Outcomes	Annual Deliverables (2019-20)	2022–24 (outyears)
Recovery of key threatened and endangered marine species achieved through effective conservation and management of critical habitats and populations	Determine the status, movement and habitat use of key megafauna species, the influence exerted by coastal development and industry activities, and implications for conservation and management	
	Explore movement and population connectivity of threatened species in northern Australia Develop cumulative threat maps for threatened and exploited species in the tropics	
Enhanced management of tropical marine ecosystems informed by regional models of environmental condition and function	Maintain and improve models describing the functioning of coastal areas to support ecosystem-scale management decisions Continue to deliver regional assessments and develop specific models, in response to industry client needs	
	Develop and test predictive habitat model based on geomorphological and physical characteristics for at least one new area	
Improved health of tropical marine ecosystems through the development of effective solutions for the management of local, regional and cumulative pressures	Reconstruct marine environmental histories from analyses of coral cores	
	Determine the drivers of coral bleaching, and its spatial extent across reefs of the Great Barrier Reef (GBR) and northern Australia	
	Develop an ecologically-validated GBR-wide index based on benthic light via satellite data	
	Improve understanding of the multiple effects of terrestrial runoff on water quality and ecosystem conditions in the GBR and Torres Straits	
	Quantify cumulative effects of climate and water quality, including joint effects of ocean acidification and eutrophication, on organisms and ecosystems of GBR inshore reefs	
	Increase certainty of the link between nutrients, food sources and planktonic productivity to inform strategies that address the potential causes of crown-of-thorns starfish (CoTS) population outbreaks	
	Quantify CoTS predation by fish, invertebrates and giant triton as potential management options for control of current CoTS population outbreaks and mitigation of future outbreaks	
	Quantify through field experimentation the seismic impacts on pearl oyster and demersal fish	
	Develop stringent protocols for sampling and analyses of microplastics in marine environments, and collect baselines of contamination across northern Australia	
	Improve understanding of the sensitivity of tropical marine organisms to priority contaminants, including external influencing factors (temperature, light)	
Improved forecasting ability of future coral reef status based on information on the scope and rates of recovery, acclimatisation and adaptation of coral reef taxa to climate change	Continue to identify markers and mechanisms of adaptation	
	Progress approaches such as hybridisation and assisted gene flow to first-field estimates of survival and tolerance	
	Further improve success of recruitment and early survival of SeaSim corals	
	Develop a capability and track record in gene editing technologies	
	Develop baselines of microbial communities beneficial to the health of key coral reef organisms	

Five Year Research Outcomes	Annual Deliverables (2019-20)	2022-24 (outyears)
New tools for coral reef restoration that enhance resistance and resilience of key coral reef taxa to environmental change, particularly climate change	In conjunction with consortium partners, deliver the Reef Restoration and Adaptation Program, which examines the feasibility of options for developing and deploying coral reef recovery, restoration and adaptation technologies for reefs threatened by climate change and which will inform future approaches and investment in reef restoration and adaptation	●
Enhanced understanding of tropical marine ecosystems among industry, government and the public delivered through improved data analysis workflows and knowledge delivery systems	Modernise data systems into a coherent research data platform	●
	Continue to maintain a nationally recognised repository of research data	
	Expand the platform for web-delivery of environmental information	
	Integrate the eAtlas into national data portals	
Strengthened management and policies delivered through the development of structured decision support tools that link risk, monitoring, modelling and adaptive management	Deliver structured decision support for the finalisation of the design of RIMReP	●

Table 4: Outcomes and deliverables of research priorities, 2019-20 to 2023-24

## DECISION CRITERIA

Decision-making in marine science can be complex and seemingly intractable, principally due to the inherent existence of trade-offs between sociopolitical, environmental, and economic factors. The following key decision criteria help us evaluate our alternatives and determine priorities:

- Projects must fill important knowledge gaps and contribute to achieving longer term research outcomes.
- Project duration and schedule should be time-bound.
- Where appropriate, projects should be integrated (i.e. outputs from one project delivering to another project).
- Opportunities for collaboration should be identified.
- Stakeholder interest and availability of external funding should be identified.

## EXCELLENCE AND ASSURANCE

Science and research plays a fundamental role in Australia's economy and society. It changes lives and leads to a deeper understanding of our world. We are very conscious of our international reputation for scientific excellence and for ensuring consistent, outstanding returns on investment. Peer review gives confidence that our research is valid, significant and original.

Accordingly, we measure our impact both by the quality of our work and by the effective use of our data, information and expertise by end users. These wider effects drive the targets set out in the AIMS Strategy 2025.

We are committed to the principle of open access in our research publications as the best means to support maximum uptake and application that benefits as wide a user base as possible. All research conducted by AIMS using public funding is made publicly available, although AIMS retains the right to use all intellectual property generated through its commercial research partnerships for research purposes and to publish and publicly represent all research findings.

Currently, AIMS is the number two ranked marine science research institute in the world.<sup>10</sup>

<sup>10</sup> Ranking based on category normalised citation impact of articles published by AIMS in journals included within the Web of Science, between 2012 and 2018, within the field of Marine and Freshwater Biology. The analysis only included research institutes that had published more than 200 papers during that period in order to benchmark AIMS against institutes with sufficiently similar publication rates



## ENGAGEMENT AND COMMUNICATION

With public engagement influencing environmental performance as a whole, and biodiversity conservation in particular, our engagement with stakeholders, key policy sectors and the public must be enhanced at the highest level. In particular, the translation of research to benefit government, industry and the wider community is vital.

We publish detailed information on our website, engage with stakeholders, and use media outlets to foster community understanding of the issues. In the coming year, we will refresh our corporate branding, including our website, to build and strengthen public awareness and interest in AIMS.

To maximise return on investment, we make our research results widely available. All AIMS' research has clearly defined impact pathways for delivery to end users, including data provision, published findings, knowledge synthesis reports, data visualisation, risk assessment, decision support tools and direct engagement.

We build Australia's future capabilities in marine science by contributing to post-graduate training. We also undertake leadership roles in national and international collaborative initiatives such as membership of the National Marine Science Committee and the Integrated Marine Observing System (IMOS); and key roles in National Environmental Science Program hubs, Reef 2050 technical and advisory committees, and a number of expert panels.

Our output, including our research reports and impartial, evidence-based advice constitutes an important consideration for policy makers, managers and the public when weighing up research claims and debates about science.

While we work on ways to increase our visibility, we will continue to maintain our role as an independent trusted adviser, providing expert advice to government, industry and the public through formal and informal mechanisms, including participation on expert panels, advisory committees, boards, national and international delegations, and the media.

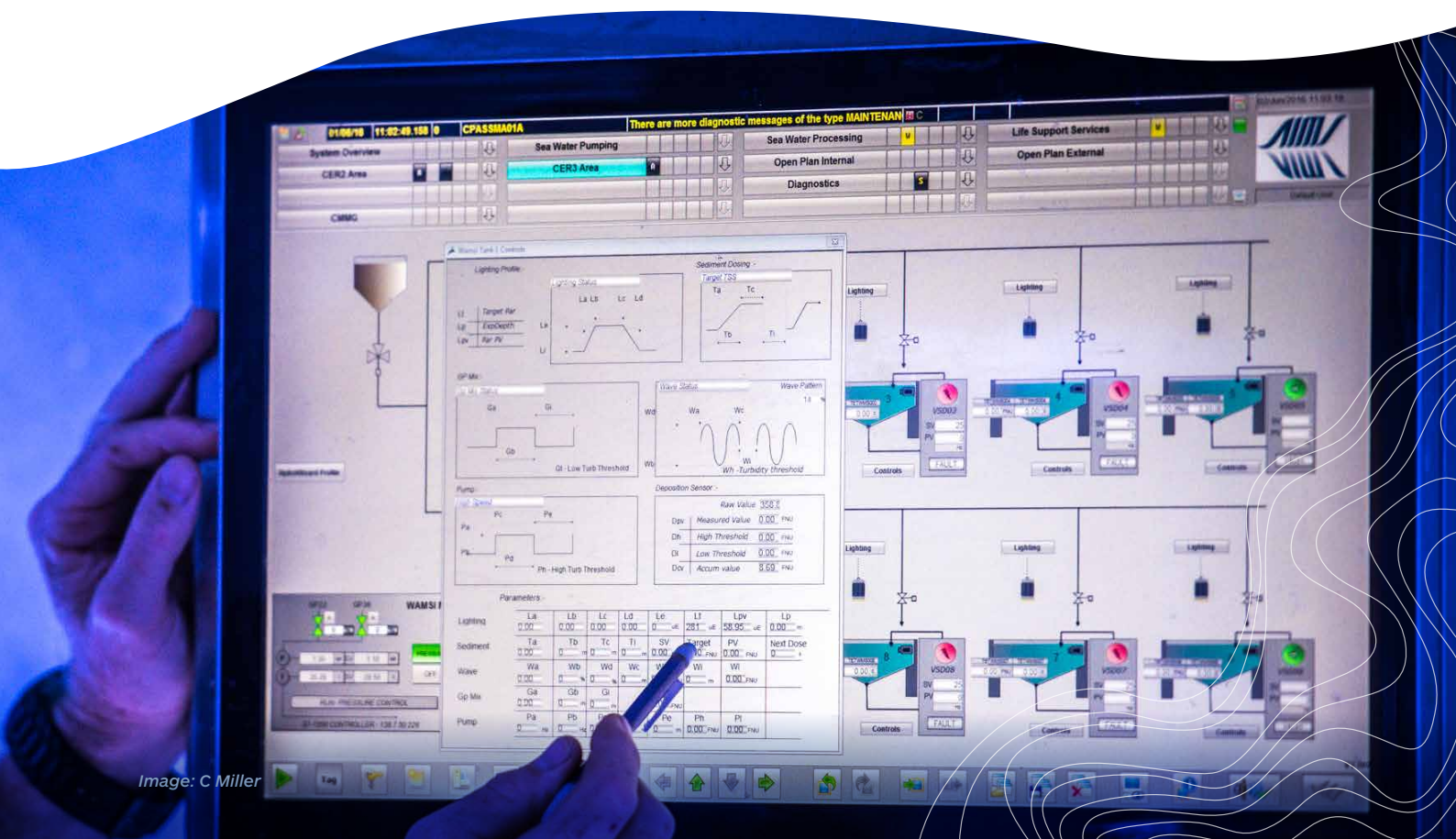


# PERFORMANCE MEASUREMENT

We monitor our performance as an organisation through eight key performance indicators.

Performance criteria	Portfolio budget statements performance targets	2019-20	2020-21	2021-22	2022-23	2023-24
Demonstrate the outcomes and impact of AIMS' work through case study impact narratives and evaluations	Minimum 2 case studies	≥ 2 case studies per year				
		<b>AIMS research:</b>				
		Demonstrate ≥ \$10m total impact value	Demonstrate ≥ \$15m total impact value	Demonstrate ≥ \$20m total impact value	Demonstrate ≥ \$60m total impact value	Demonstrate ≥ \$80m total impact value
Deliver strategic and applied research and monitoring that addresses national research priorities and stakeholder needs	Maintain or increase amount of research commissioned by stakeholders	Increase net revenue generated from stakeholder commissioned research by ≥ 2.5% per annum				
Maintain or increase current standings for scientific excellence, innovation and impact	Maintain acknowledged domestic and global high standing in relevant fields of research, and confidence of key stakeholders in research outputs	Maintain Top 3 global ranking				
		Maintain high stakeholder confidence in AIMS' scientific outputs gauged using a net promoter score				
Deliver research advice and scientific products that 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	Maintain annual journal publication rates > 200 papers per annum				
		100% of datasets collected using public monies are made publicly available within one year of collection				
Increase research capability, capacity, impact and science diplomacy through participation in formal national and international collaborations, joint ventures, partnerships and strategic alliances	Maintain or increase 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	Maintain proportion of AIMS' projects involving collaborators (≥ 70%)				
		Maintain proportion of published papers and reports that include collaborators (≥ 80%)				
		Representation on relevant advisory committees 100%				

Performance criteria	Portfolio budget statements performance targets	2019–20	2020–21	2021–22	2022–23	2023–24
Improve research outcomes and impact through increased Traditional Owner engagement in the planning and delivery of coastal research and development	Increase the percentage of projects with Indigenous engagement in the planning and delivery phases	Increase % of projects with Indigenous engagement				
Reduce AIMS' environmental footprint	10% reduction in AIMS' carbon emissions compared with 2017–18	Carbon emission reduction ≥ 10% compared with 2017-18	Carbon emission reduction ≥ 10% compared with 2017–18	To be confirmed based on Environmental Management Plan		
	Develop an environmental management plan to reduce carbon emission by 25% by 2025	Environmental Management Plan developed				
Optimise use of research infrastructure assets	Maintain or increase usage of research infrastructure	≥ 90% use of major research assets				



The *AIMS Annual Report 2019–20* will provide a comprehensive assessment of the Institute's performance for the 2019–20 financial year. Overall performance and performance against research goals will be reported in detail. This report will be available on the AIMS website<sup>11</sup> at the end of October 2020.

The links between our planning process and performance are shown in Figure 5.

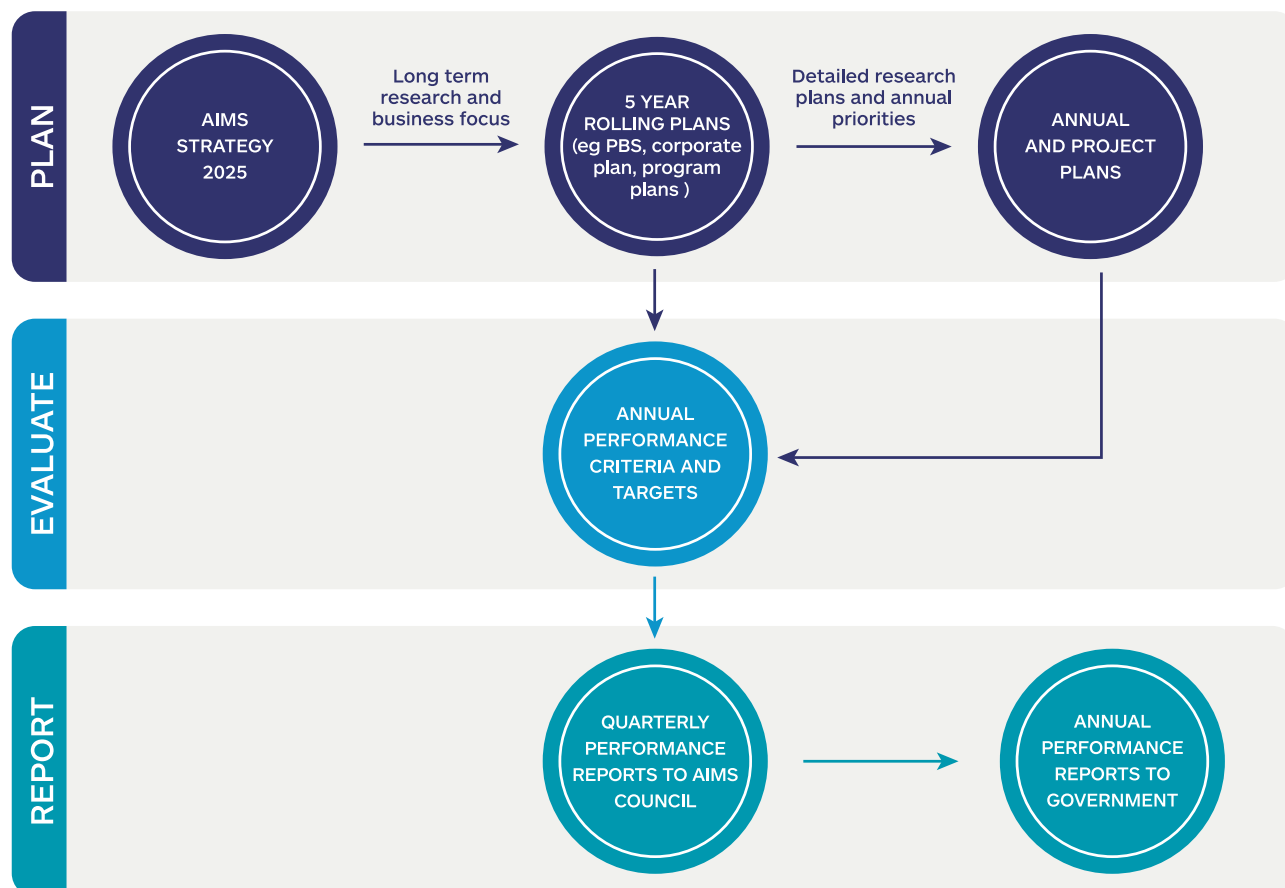


Figure 5: AIMS planning, evaluation and reporting process

<sup>11</sup> <http://www.aims.gov.au/>



# CORPORATE CAPABILITY

## HEALTH, SAFETY AND THE ENVIRONMENT

The health and safety of our people is paramount. AIMS is committed to reducing workplace risks to as low as reasonably practicable and to sustaining a positive and active safety culture. We take these obligations seriously.

AIMS has a comprehensive health and safety and environmental management system that is audited every two years against the requirements of ISO 45001 Occupational Health and Safety Management Systems and AS/NZS ISO 14001 Environmental Management Systems.

We have a range of programs in place to support a safe workplace and the elimination or minimisation of work health safety risks. Examples include a leadership and culture program (from 2018) and safety targets. By the end of this Plan, AIMS should have a total recordable injury frequency rate (TRIFR<sup>12</sup>) of less than five.

## FINANCIAL

### Core funding

Core funding for AIMS is provided through Australian Government annual appropriations. These are identified in the 2019–20 Portfolio Budget Statements, Budget Related Paper no. 1.11, Industry, Innovation and Science Portfolio, pp. 59–80<sup>13</sup>.

### External revenue

External revenue comes from industry, philanthropy and a range of state and Australian Government agencies. This external revenue stream provides essential support for AIMS' capability and extends the research outcomes we can deliver. Based on 2017–18 data, external revenue contributes about 32 per cent of our operational budget as follows



**34%** from Australian Government competitive programs such as the National Environmental Science Program, the Integrated Marine Observing System, and the Marine Monitoring Program under the Reef 2050 Plan



**55%** from industry, including key stakeholders (the North West Shelf offshore oil and gas sector and coastal industries such as the mining and ports sectors)



**2%** from state government competitive programs and issues-driven research projects (including collaboration with universities)



**9%** from foundations such as the GBRF and international philanthropic sources.

<sup>12</sup> TRIFR equals the number of recordable injuries per million worked hours, where recordable injuries include medical treatment cases, restricted work cases and lost time injuries.

<sup>13</sup> <https://www.industry.gov.au/about-us/finance-reporting/budget-statements>

In the next five years, AIMS will need to grow the amount of net external revenue it earns in order to maintain existing capabilities.

AIMS extends the breadth and impact of its research through co-investment with customers. These collaborative arrangements are typically mandated for government-funded programs, including the National Environmental Science Program (NESP) and the Integrated Marine Observing System (IMOS). We take care to ensure the arrangements, whether commercial contracts or co-funding, align with national science priorities and result in transfers and benefits back to the nation.

Our long-term approach to delivering improved research outcomes through external funding includes the following criteria:

- The research must contribute to future impact (i.e. net economic, environmental or social benefit for Australia).
- The research must advance strategic government objectives as reflected in the AIMS Strategy 2025 in addition to meeting customer needs.
- The quality of research is appropriate to achieve robust outcomes.
- AIMS retains intellectual property access.
- AIMS is not inappropriately restrained from presenting the findings to government or correcting any misrepresentation of its findings.

We charge commercial rates and decline co-investment opportunities when the research is for the direct commercial gain of an organisation or company. This shows our commitment to a high level of transparency.

## **OPERATING RESULT FORECAST**

We plan to balance our cash budget across the next four years, although annual variations in external revenue may result in annual variations in total revenue. Depreciation expenses will produce a non-cash operating loss during each year of the Corporate Plan.

## **CAPITAL INVESTMENT**

All major assets at AIMS are subject to a capital replacement program to ensure lowest life cycle cost, maximum return on investment and tight alignment with our current and future research needs. The program comprises:

- routine replacements (e.g. motor vehicles, computers and science equipment)
- ongoing facility maintenance and refurbishment
- technological development associated with new autonomous monitoring equipment
- upgrades to the enterprise resource planning (ERP) system.

Three significant capital projects are currently planned:

- The RV Cape Ferguson is almost 20 years old (commissioned in 2000) and will need replacement before 2025. Our goal is to replace the Cape Ferguson with a vessel that fully integrates new technology platforms to maximise the return from scientific field programs. Incorporating the latest green technology propulsion systems, the vessel would become the new gold standard for research vessels worldwide and be a global showpiece to demonstrate Australia's commitment to managing the Great Barrier Reef.
- Our original headquarters building near Townsville is over 40 years old, has inefficient workflows, does not meet all modern safety and environmental standards and does not adequately support our current scientific needs. The laboratory and office wings require significant investment to ensure ongoing operability. Some of the mechanical plant has reached the end of its life. Some areas of the building have been abandoned due to the inability to maintain air turnover and quality, leading to mould in office and laboratory spaces. Parts of the building are subject to water ingress during torrential rain. The estimated cost of refurbishment is \$20 million. The project is currently unfunded.
- The National Research Infrastructure Investment Plan includes an allocation for expansion of the SeaSim and funding for merit-based access for external researchers. Funds will potentially become available during the period of this Corporate Plan.

## STAFF

We take pride in the professionalism, capability and productivity of our staff. AIMS employs approximately 240 science and support staff and another 60 in outsourced functions. Our scientists are on the ground and in the water, mapping, monitoring and collecting information on our marine estate. They are in our labs, analysing data, modelling and pushing the boundaries of tropical marine science. Many of our scientists are international leaders in their field.

We also maintain a strong educational program, particularly through co-funded postdoctoral fellowships (between 10 and 20) and PhD scholarships and supervision (about 60) in partnership with some of Australia's leading universities. Core scientific expertise is supported by operational expertise. While focused on the delivery of scientific outcomes, we aim to raise foundation skills such as leadership, project management, stakeholder engagement and research communication.

Our workforce initiatives support the wider Australia Public Service undertakings on Indigenous employment, diversity and gender equity. For example, AIMS is submitting an application to the Science in Australia Gender Equity (SAGE) initiative for an Athena Swan Bronze Institution Award. This award requires us to demonstrate a solid foundation for improving gender equity and developing an inclusive culture that values all staff. This includes:

- an assessment of gender equality in the institution, including quantitative (staff data) and qualitative (policies, practices, systems and arrangements) evidence and identifying both challenges and opportunities
- a four-year plan that builds on this assessment, information on activities that are already in place and what has been learned from these
- the development of an organisational structure, including a self-assessment team, to carry proposed actions forward.

The application for the award is part of AIMS' plan to support continuous career improvement for individuals across all gender groups in higher education and research over the next four years, helping to create a more inclusive society.



Image: M Roman



## RESEARCH PARTNERSHIPS

Working with stakeholders and clients, we will continue to put our efforts into partnerships and collaborations that achieve targeted national benefits. To do this, we are continuing to engage both national and global marine science capability, offering joint ventures and strategic alliances to increase the number and scale of collaborative research projects.

We adopt a collaborative approach to R&D at the national level by ensuring the right partners are engaged at the earliest opportunity. These include the Western Australian Marine Science Institution, the National Environmental Science Program, the Integrated Marine Observing System, AIMS@JCU and the Indian Ocean Marine Research Centre.

We also have memoranda of understanding with James Cook University, Queensland University of Technology, Monash University and a number of international institutes, including the Institute of Oceanology, Chinese Academy of Sciences (China), the National Oceanic and Atmospheric Administration (US), King Abdullah University of Science and Technology (Saudi Arabia), Institut Océanographique (Monaco) and the Okinawa Institute of Science and Technology (Japan). It is expected that these partnerships will continue during the period of the Corporate Plan.

In 2019–20, AIMS will expand initiatives under its new Indigenous Partnerships Plan to build capacity (through mutually beneficial research) that will support the sustainable management of land and sea country for future generations.

Australia, in partnership with Monaco and Indonesia, will host the secretariat of the International Coral Reef Initiative (ICRI) between mid-2018 and mid-2020. ICRI's operational network (the Global Coral Reef Monitoring Network) comprises a worldwide group of coral reef scientists, managers and organisations. AIMS is currently global coordinator of the network.

The ICRI secretariat's plan of action describes activities within four broad themes:

- promote effective and adaptable solutions to improve the protection of coral reefs
- understand trends in coral reefs
- fix the poor record of sustainability and transparency in the live reef fish food trade
- reduce anthropogenic threats to coral reef, particularly those that occur at global or regional scales.

AIMS will make significant contributions to themes 1, 2 and 4 above. Our reef restoration activities will be a key contribution to delivering actions within Theme 1. As part of the delivery of this element of the plan, ICRI members have established a virtual working group, chaired by AIMS, to examine how we can coordinate activities and set priorities for R&D on reef restoration and adaptation. A key milestone will be the Status of coral reefs of the world report due to be released in mid-2020.



Image: M Roman

## RISK MANAGEMENT

Our comprehensive corporate risk management system includes processes to identify and assess new risks, together with the refinement of existing control measures. It is based on an organisational risk management framework and an associated corporate risk register and control framework. This risk framework aligns with ISO 31000 Risk Management and complies with the Australian Government's risk management policy.



The control framework includes the AIMS Audit Committee (a subcommittee of the Council), which helps us to discharge our responsibilities under the Australian Institute of Marine Science Act 1972 and the Public Governance, Performance and Accountability Act 2013 in respect of financial reporting, performance reporting, risk oversight and management, internal control and compliance with relevant laws and policies.

Our control framework is designed to ensure the following outcomes:

- Strategies and goals – our strategic targets are aligned with national priorities and the needs of stakeholders
- Plans – our plans offer viable solutions for achieving goals and objectives
- Resources – our financial and non-financial resources are sufficient to complete the research and other activities required to achieve our goals
- Delivery – our systems and processes deliver research and other activities within our annual plans in a safe and efficient manner
- Communication – our research outcomes are communicated in a manner that maximises user uptake and value
- Values – all of our activities are undertaken in a manner consistent with our organisational values.

### RISK SUMMARY

Table 6 summarises the risks associated with each outcome and proposed controls. AIMS reviews its corporate risk register every three months to ensure that risks and controls remain current. For the period of this Corporate Plan, a continuous improvement approach will be applied to ensure that all risks continue to be as low as reasonably practicable.

Aspect	Description	Controls
 <b>Workplace health and safety</b>	Ensure the health and wellbeing of our staff, collaborators, volunteers and visitors. We operate in challenging environments and undertake activities where active care is required to manage the safety of our people.	AIMS has a comprehensive safety management system to ensure that hazards are identified, and risks assessed in line with AIMS' Risk Management Framework and established operational risk management procedures. This allows effective management of the complexities of the research work and supporting functions. AIMS fosters a reporting and learning culture, working to ensure that all personnel feel empowered to delay or stop work where an unacceptable risk is identified and to report hazards and incidents. AIMS holds that 'good science must be safe science' and that safety is a shared value embedded in everything we do.
 <b>Strategic targets and outcomes</b>	Ensuring that research is aligned with national priorities and stakeholder needs and targeting the highest priority areas.	Targets are defined in the AIMS Strategy 2025, the Portfolio Budget Statements and the Corporate Plan. In developing these plans, AIMS completed a comprehensive assessment of current and future stakeholder needs. These were integrated with the knowledge of our peers as to current and emerging environmental threats and challenges to develop a set of organisational goals and objectives.

Aspect	Description	Controls
 Plans	Ensuring that all aspects required to achieve our strategic targets are considered and detailed in an appropriate set of plans. This includes research planning (which research projects are required to create the knowledge to achieve the research outcomes), capability planning, delivery and communication planning.	AIMS has a comprehensive and adaptive process to develop research programs aligned with information needs. At the highest level, targets are set within our strategic plan. These targets cascade down, through the Portfolio Budget Statements and Corporate Plan, to five-year and annual research plans. Internal assessment, approval and tracking processes then ensure that only research aligned with these plans is undertaken. Capability and communication plans support the research plans. These plans are articulated to key stakeholders via the Portfolio Budget Statements and the Corporate Plan.
 Resources	Understanding that the research outcomes articulated in this plan rely on our maintaining capabilities underpinned by achieving revenue targets. This requires government funding at current forecast levels, achieving budgeted external revenue, and the ability to manage multi-year external revenue variability.	AIMS has developed a strong business development framework to maximise the likelihood of achieving external revenue targets, along with a quantitative risk-based methodology to assess potential external revenue volatility. It uses this assessment to design and implement management strategies where feasible. Additionally, if AIMS is to respond to emerging pressures and opportunities as detailed in this plan, then capability growth will be required.
 Delivery	Delivering agreed plans in order to safely meet our targets, including research projects and the associated operational and corporate functions.	AIMS has experienced research, operational and corporate staff and well-established fit-for-purpose systems and processes. The actions detailed within the plans are within AIMS' demonstrated capabilities. AIMS has a comprehensive and high-performing safety management system and a strong organisational safety culture.
 Communication	Ensuring AIMS' research outputs and advice are in a form relevant and usable by stakeholders, readily available and clearly communicated.	<p>AIMS has a whole-of-business communication plan, which aligns with and supports the AIMS Strategy 2025. The plan adopts a four component approach:</p> <ul style="list-style-type: none"> <li>• Build the capacity of AIMS' staff to communicate our new strategic intent, to project and align with AIMS' brand.</li> <li>• Promote the value that AIMS provides, through proactive and coordinated marketing and communications.</li> <li>• Measure the effectiveness of communication, consistent with AIMS' impact framework, to ensure it supports organisational objectives.</li> <li>• Protect AIMS from reputational risk.</li> </ul> <p>Implemented in 2018, the plan includes a number of action items to be developed during the period of this Corporate Plan.</p>
 Principles and values	Adherence to AIMS' values.	AIMS' reputation is built on our values. Over time, they have become well embedded into the fabric of the organisation. They are discussed (and incorporated into systems and process where appropriate) as AIMS works to express these values in all actions.



## INFRASTRUCTURE

AIMS operates out of four locations across Australia with a research base of approximately 300 staff (including 60 outsourced functions), two major research vessels and several significant research facilities, including the world class SeaSim. This enables AIMS to deploy its marine research capability across northern Australia and during selected international engagements.

AIMS' headquarters is at Cape Ferguson, about 50 kilometres from Townsville in Queensland. Our Darwin office is located at the Arafura Timor Research Facility (ATRF) adjacent to the Charles Darwin University campus. AIMS in Perth is co-located within the Indian Ocean Marine Research Centre (IOMRC) at the University of Western Australia's Crawley campus. A small liaison office in Canberra facilitates, enables and promotes interaction with the Department of Industry, Innovation and Science, and other government departments and agencies.

A specialised research fleet, unique aquaria, sophisticated laboratories, operational workshops, extensive collections, analytical technology and an array of marine observing equipment enable our scientists to examine subjects ranging from microbiology through to broad-scale ecology and coastal oceanography, both in the laboratory and in the field. Below is a summary of our national research infrastructure:



### The SeaSim

A world class aquarium facility for tropical marine organisms where scientists can conduct cutting-edge research not previously possible. With a reliable, consistent supply of seawater, the SeaSim provides fine control over many environmental variables including light, temperature, acidity/CO<sub>2</sub>, salinity, sedimentation and contaminants



### The AIMS research fleet

Two large purpose-built ships (the research vessel RV Cape Ferguson and the RV Solander) and a number of smaller vessels—provide unique capacity for researchers to travel and conduct research in the diverse habitats that make up Australia's tropical marine environments. The major vessels are specially equipped with winches, onboard laboratories, flow-through aquaria and computing facilities. These allow scientists to sample the physical and biological characteristics of various habitats and conduct experiments at sea. Inflatable tenders and onboard compressors support diving operations from the major vessels

Other key scientific infrastructure includes:



### Analytical laboratories

(more than 20 specialised laboratories across Australia)



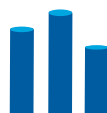
### Engineering workshops

constructing specialised equipment such as underwater sensors, data loggers, sediment traps, weather towers, coral corers and many other devices)



### Field-deployed observing and remote-sensing equipment

(including weather stations and instrument moorings)



### Coral core collection

Australia's largest and most significant coral core collection.

AIMS will continue to focus on ways to maintain and, where necessary, replace ageing infrastructure to ensure safe, fit-for-purpose platforms for conducting marine science.

As well as maximising value derived from our diverse research infrastructure for ourselves, we will ensure its high use by external collaborators in industry, universities and other research institutions.

## SYSTEMS AND PROCESSES

Our physical capabilities are supported by an array of corporate and operational systems and processes. In 2018–19, AIMS developed a new project management framework and implemented supporting systems including Microsoft Project Online and TechnologyOne CiAnywhere.

2019-20 will be a year of bedding down these new systems, with a focus on improving project management, accessibility to critical business information and corporate performance reporting.

### INTELLECTUAL ASSETS

AIMS possesses unique collections, observations and measurements containing decades' worth of information about Australia's tropical marine ecosystems, extending from the Great Barrier Reef to north-western Australia. The collection includes:

- more than two decades of water quality measurements from the Great Barrier Reef
- more than 30 years of field measurements of coral reef health from the whole of the GBR
- nearly two decades of measurements of biodiversity, ecological change and oceanography from the Browse Basin off north-western Australia, with a focus on the Scott Reef system
- two decades of biodiversity sampling from around the continent for taxonomy and biodiscovery
- integrated oceanographic models of processes ranging in scale from single reefs to entire ecosystems such as the Great Barrier Reef
- marine cultivation and husbandry techniques developed in the SeaSim
- the world's largest coral core archive, which researchers use to understand past climate conditions and how coral growth responded to environmental changes, allowing us to better understand how corals might respond to ongoing climate change.

These assets are unparalleled in Australia. The continuity of long-term and broad-scale geographic collections and information enables critical long-term analysis of natural and human-induced trends in ecosystem change. Over the period of this Corporate Plan, we will continue to leverage and develop these intellectual assets to support our research activities and plans.

### TECHNOLOGY DEVELOPMENT

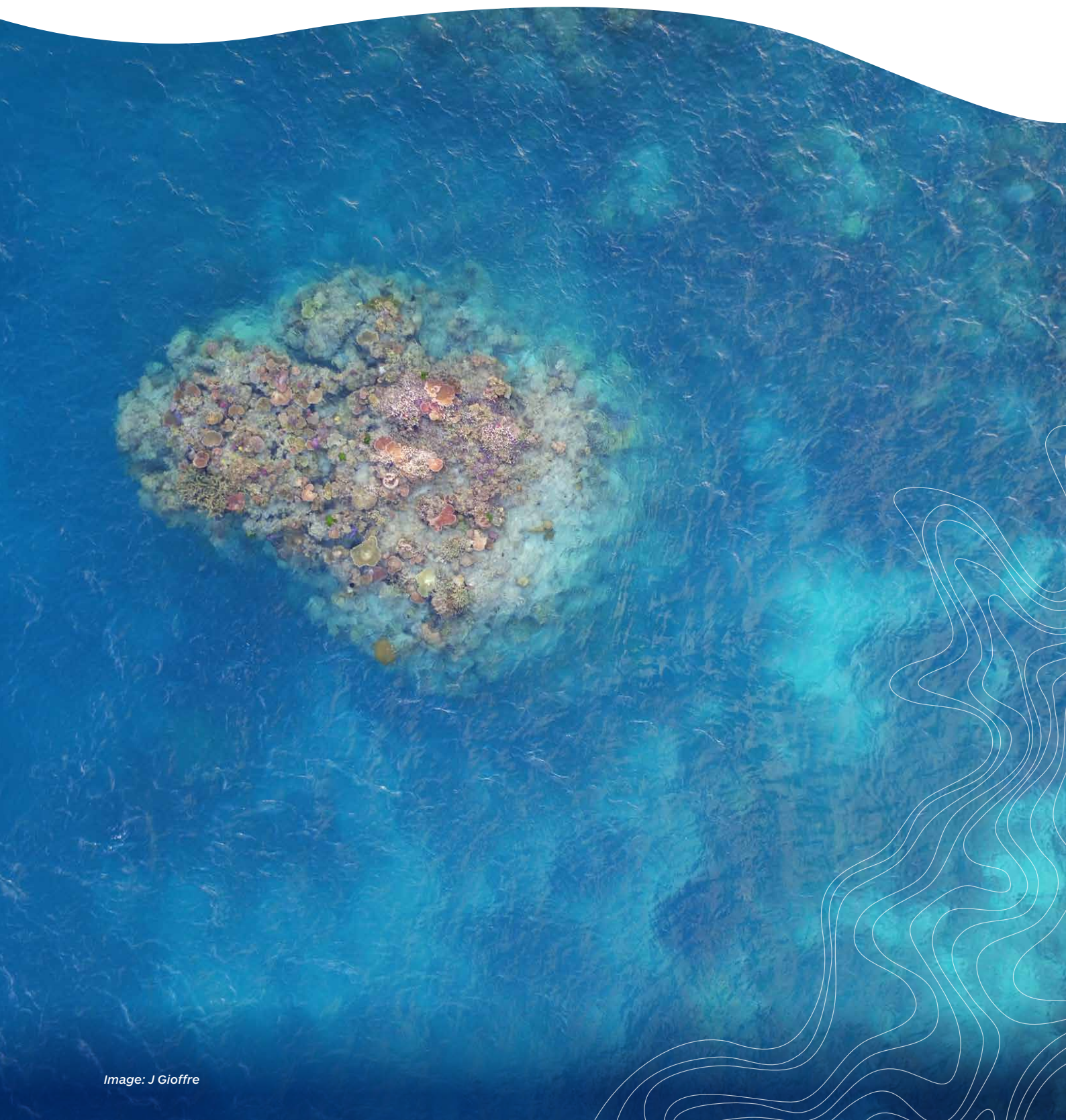
Over the next five years, AIMS will invest in a step change in the application of technology and data science across the life cycle of our activity. This will include enhancing automated data collection, data analysis, curation and storage. Big data, machine learning and artificial intelligence, and the mining of our already extensive data collections, will be a focus. In deploying new technology to increase information output and generate cross-data insights, AIMS will also improve the quality of that information and the rate of information generation, and we will work to drive down the unit cost of information.

Our in-house program of technology development will support our operations, alongside external partners where beneficial. Below are our key foci for technology development:

- complete the planning phase of a technology transformation project to increase the pace at which information is collected and turned into knowledge
- develop a coherent research data platform that supports future data collections at increased rates, promotes data re-use within AIMS and among its partners, and generates value through the development of sophisticated tools and applications associated with data science, big data, cloud infrastructure and machine learning
- continue a development program to reduce reliance on diving as a method for collecting field data. This requirement is driven primarily by internal and client concerns about the safety of diving in some environments (e.g. remote locations and in habitats where sharks and crocodiles are abundant).

Technology development has become a priority for the institute, given the growing requirement for routine monitoring, in situ observations and experimental data across tropical reef and inshore systems. At the same time, we will seek productivity improvements and cost-savings compared with current methods.

In 2019–20, we will continue a program to develop underwater and aerial platforms for the collection of visible, hyperspectral and other imagery and data from the field. This is to be supported with a collaborative research program involving selected universities, private sector and government partners to develop automated image analysis techniques.







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