

Australian Government



Report 07/08

AIMS: Australia's tropical marine research agency.

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 AIMS' research are invited to contact the CEO at the Townsville address below.

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ABN 789 61616 230

ISSN 1037-3314

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22 September 2008

Senator The Hon Kim Carr Minister for Innovation, Industry, Science and Research Parliament House Canberra ACT 2600

Dear Minister

On behalf of the Council of the Australian Institute of Marine Science, we have pleasure in presenting the Institute's 36th Annual Report for the year ended 30 June 2008. The report is forwarded in accordance with Section 9 of the *Commonwealth Authorities and Companies Act 1997* (CAC Act).

This report provides information so that you, the Parliament and users of the Institute's research output can make an informed judgment about AIMS' performance during the 2007-2008 financial year.

The report has been prepared in accordance with the *Commonwealth Authorities and Companies (Report of Operations) Orders* and the *Commonwealth Authorities and Companies (Financial Statements 2006-2007) Orders.* The Council endorsed the content of the AIMS Annual Report by a resolution at its meeting of 22 September 2008.

Yours sincerely

Dr Ian Gould Chairman Australian Institute of Marine Science

En R. Pame

Dr Ian Poiner Chief Executive Officer Australian Institute of Marine Science

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A SNAPSHOT OF THE YEAR

- AIMS entered the first year of the new Research Plan which will deliver research focused on 12 Key Result Areas.
- The Great Barrier Reef Ocean Observing System (GBROOS), a node of Australia's Integrated Marine Observing System, was launched by the Minister for Innovation, Industry, Science and Research, Senator the Hon Kim Carr.
- Senator Carr also launched the Scott Reef Research Project, co-funded by the Browse Joint Venture Partners, which will be the flagship project of the Institute's expanded research portfolio in north Western Australia.
- The RV Lady Basten was retired and replaced with a 35m vessel, RV Solander, launched in Fremantle by the former Minister for Education, Science and Training, the Hon Julie Bishop. The maiden voyage of the new vessel supported a multi-agency expedition to the oceanic Rowley Shoals of Western Australia.
- AIMS conducted unique and comprehensive biodiversity surveys of coral reefs in the Great Barrier Reef and Western Australia as the multi-year project, CReefs, co-funded by BHP Billiton and sponsored by the international Census of Marine Life (CoML), got underway.
- AIMS CEO, Dr Ian Poiner, was appointed to head the Scientific Steering Committee of CoML.
- AIMS issued a comprehensive status report on the health of the GBR based on its long-term monitoring program and uncovered a recent decline in reef building activity from its coral core drilling program..
- AIMS researchers found that corals in one part of the GBR adjusted their symbiosis to include higher proportions of more thermally tolerant strains of zooxanthellae after coral bleaching, indicating some adaptation of regional coral populations to rising sea temperatures at the expense of growth.
- AIMS researchers determined the natural diet of tropical rock lobster larvae as part of developing an optimal artificial diet for lobster aquaculture.
- AIMS researchers built a prototype Great Barrier Reef Atlas as a publicdomain platform for sharing knowledge about the risk and resilience of tropical marine systems among researchers and natural resource managers.
- The Institute maintained its position in the top one per cent for both "ecology and environment" and "plant and animal science", based on independent assessment of AIMS citation impact by Thomson ISI.
- AIMS broke through the ceiling of 100 peer reviewed publications in 2007, with credit to the postgraduate students who contributed to about a quarter of them.
- AIMS convened an international forum in Townsville as a step towards developing a research program into the impacts of ocean acidification on tropical marine ecosystems.

Brain coral (*Platyra dadaelia).* Image: Ray Berkelmans.

ABOUT AIMS



Our mission: "To generate and transfer knowledge to support the sustainable use and protection of the marine environment through innovative, world class scientific and technological research."

AIMS is a Commonwealth statutory authority established by the *Australian Institute* of *Marine Science Act 1972*. The Institute has highly developed capabilities in marine biodiversity, water quality and ecosystem health and impacts and adaptation to climate change, and has established a new research theme in marine microbiology and symbiosis.

AIMS' research is designed to ensure that it is meeting the challenges facing marine ecosystems and the requirements of its stakeholders.

To do this, AIMS surveys and documents marine life from microbes to whole-ofecosystems, and the processes that sustain them; monitors changes and identifies trends in the marine environment; and develops molecular tools and ocean technologies.

Fisheries, offshore oil and gas, mining, reef tourism and aquaculture industries have all benefited from AIMS research that is geared towards the protection and sustainable development of marine resources. These benefits will underwrite protection of Australia's marine biodiversity and new areas of the economy into the future.

The Institute maintains specialised, world class marine research facilities in support of its objectives. Among these are its two major vessels, the RV *Cape Ferguson* and the RV *Solander* (launched in October 2007), which support access to ecosystems across the continental shelf and a fleet of smaller vessels that supports fieldwork near-shore.

OUR PEOPLE

AIMS employs 180 science and support staff to deliver 12 Key Result Areas (KRAs). Many of our scientists are world authorities in their field and have achieved international acclaim for their research. Support staff provide specialised skills in data management, information technology, engineering, field operations, information services, science communication and corporate services. A variety of AIMS services, such as vessel crewing, catering, cleaning and maintenance are carried out by contractors. AIMS maintains a strong educational program, particularly through the AIMS@JCU joint venture and co-funded postdoctoral positions at three universities.

OUR RESEARCH

The Institute's expertise in tropical marine ecosystems, combined with a multidisciplinary capability, makes possible the full spectrum of scientific investigation from the seafloor to the lab bench. National and international research partnerships and collaborations enhance AIMS' capacity to improve understanding of complex marine ecosystems. AIMS research is focused in the broad areas of marine biodiversity, impacts and adaptation to climate change, water quality and ecosystem health, tropical aquaculture and the emerging area of marine microbiology.

OUR LOCATION

AIMS' headquarters outside Townsville is adjacent to the centre of the Great Barrier Reef and surrounded by a 207 hectare national park and marine reserve, is free from development, biosecure and has access to clean seawater and a protected harbour. AIMS' researchers in Darwin are based at the Arafura Timor Research Facility (ATRF) adjacent to Charles Darwin University. Darwin was chosen as the site for this Major National Research Facility because of its national and international scientific and commercial advantages for marine and coastal research. AIMS' researchers in Perth are co-located with the Western Australian Marine Science Institution (WAMSI), in which AIMS is a partner, on the campus of the University of Western Australia.

OUR FACILITIES

AIMS' Townsville headquarters features modern research laboratories, a state-ofthe-art biomolecular analysis facility, a bioresource library, an aquaculture centre, seawater aquaria and controlled environment rooms, a new facility for microbiological and genetic research, a new X-band satellite receiver, and engineering workshops for the development of instrumentation required for research activities.

The research fleet, RV *Solander* and RV *Cape Ferguson* and several smaller boats, provides access to all marine environments in tropical Australia. The larger vessels have winches, laboratories and computing networks supporting a broad range of physical and biological oceanographic studies. The RV *Solander* has a decompression chamber to support remote area diving. During 2007–2008, the ships (including RV *Lady Basten* which was decommissioned in September 2007 and RV *Solander* which joined the fleet in October 2007) supported 82 research expeditions totalling 542 days at sea covering 21,119 nautical miles. The AIMS Field Operations team also oversaw 3,434 dives, of which 2,600 were staff dives.

HIGHLIGHTS

A GBROOS environmental sensor being deployed at Davies Reef on the GBR. Image: Scott Bainbridge.



GBROOS: the future of reef science arrives at the Great Barrier Reef

The Great Barrier Reef will be the most monitored reef in the world with the application of a "digital skin" of sensors that will make possible the finest resolution picture ever of the region's dynamic systems.

In May 2008, the Minister for Innovation, Industry, Science and Research, Senator the Hon Kim Carr, announced the Great Barrier Reef Ocean Observing System (GBROOS), a regional ocean observation network covering the eastern Coral Sea and GBR.

GBROOS is a multidisciplinary infrastructure project led by AIMS on behalf of a consortium of agencies including three universities (James Cook University, University of Queensland and University of Sydney), the Australian Museum, the ARC Research Network for Intelligent Sensors, Sensors Networks and Information Processing (ISSNIP) and the Queensland Cyber-Infrastructure Foundation (QCIF).

AIMS is harnessing its leading capabilities in data management, as well as its extensive national and international collaborations, to move Australian reef science to a new level.

The project is jointly funded by the Federal and Queensland governments and is part of the Integrated Marine Observing System (IMOS), a national collaborative program managed by the University of Tasmania to observe the oceans around Australia. IMOS is an initiative of the Australian Government being conducted as part of the National Collaborative Research Infrastructure Strategy (NCRIS).

Like the methods used to assess the performance of elite athletes or racehorses by applying a network of monitors to skin, this system will cover the GBR in a variety of sensors to pick up real-time information on how the reef is travelling.

This is especially crucial as the GBR faces its biggest threat, global climate change. Being able to see changes on the reef, both subtle and dramatic, in real time will allow researchers and environmental managers to ensure that they are doing everything possible to preserve this environmentally and economically important asset.

With IMOS funds, AIMS has upgraded its satellite receiving facility at its headquarters outside Townsville to gather remotely sensed data on sea surface temperature and ocean colour over an area of ocean reaching to Fiji and the Solomon Islands. These data will be sent daily to the Bureau of Meteorology and CSIRO to update computer models for ocean circulation and climate prediction.

The resulting models will give us a better understanding of what is happening on the Great Barrier Reef, what conditions are likely in the future and how scientists and reef managers should respond to an ever-changing climate.



AIMS Research Director Dr Peter Doherty at the GBROOS launch, May 2008. Image: John de Rooy.

AIMS takes on baseline environmental study of WA's Scott Reef



Anemone fish (Amphiprion sp.). Image: Jamie Colquhoun.

AIMS is undertaking a baseline environmental study of Scott Reef, off Western Australia's Kimberley coast about 430 kilometres north of Broome, in a project co-funded by the oil and gas industry (Browse Joint Venture).

The Scott Reef Research Project (SRRP), worth at least \$30 million over four years, will provide a comprehensive understanding of biodiversity, oceanography and ecosystems on and around Scott Reef. It was announced in April 2008 by the Federal Minister for Industry, Innovation, Science and Research, Senator the Hon Kim Carr.

It will provide an excellent opportunity to greatly improve scientific understanding of Scott Reef, a remote atoll system in the Timor Sea region, on the edge of Australia's continental shelf but also part of WA's state jurisdiction.

Much of Australia's ocean territory remains unexplored and poorly understood and this is especially true for northern and northwest Australia. Our marine ecosystems face a number of real and imminent challenges from human pressures like fishing, pollution and the impacts of global warming due to enhanced greenhouse effect. Marine environmental issues associated with coastal and offshore development require independent scientific advice to inform regulators about risks and resilience in order to assess applications for environmental permissions.

There are three main scientific projects. In shallow water, divers will monitor changes in the coral and fish communities in a range of reef habitats, continuing a time series that AIMS started in 1993. Data on the replenishment, growth and survival of corals will be used to predict their resilience and recovery from disturbance. Genetic data will be used to test whether the coral and fish populations on Scott Reef are regionally significant sources of replenishment for other isolated reefs in the region such as the Ashmore-Cartier Reefs and the downstream Rowley Shoals.

A second project will map coral communities in the South Scott Reef Lagoon, collect data on the life habits and sensitivities of deep water corals and place these deep coral communities into a regional biodiversity context.

A third project will measure water currents and food chains in the ocean ecosystem around Scott Reef, tracing the movement of nutrients through the system. It will show how biological patterns on and around the reef are dependent upon oceanographic processes.

Mangroves in the firing line

Just how resilient and protective are mangroves, particularly in the face of tsunamis and global climate change? The way these complex, hardy ecosystems react to major disturbances has been analysed by AIMS mangrove researcher Dr Dan Alongi, in his paper, "Mangrove forests: resilience, protection from tsunamis and responses to global climate change" in *Estuarine, Coastal and Shelf Science*.

Mangroves grow fast in a naturally harsh environment and have unique physiology. But are they tough enough for the really big challenges that nature is throwing them at present? There have been few more devastating than the event of 26 December 2004 when a magnitude 9 earthquake produced a tsunami that killed more than 283,000 people in the Indian Ocean region.

In the wake of the Boxing Day 2004 tsunami, it had been suggested in scientific circles that mangroves had saved lives in some areas by absorbing the force of the in-rushing water. Soon after that suggestion had been made in *Estuarine, Coastal and Shelf Science*, a contradictory paper was submitted suggesting that this was not possible.

Dr Alongi was called upon to adjudicate by reviewing the existing evidence. He concluded that mangroves are only protective when certain geographic conditions are in place. For example, villagers living behind a wide expanse of mangroves may receive some protection but those at the funnel end of a river were not protected at all.

The evidence does show that mangroves can "attenuate" (weaken) wave energy, but this was strongly dependent upon forest density, the diameter of the stems and roots, the shape of the forest floor and other physical characteristics.

As for sea level rise caused by climate change, mangroves are meeting the current rate of rise, although that cannot continue indefinitely, and some species are more adept than others at dealing with flooding.

Not enough is known yet about the effect of rises in atmospheric carbon dioxide. Experiments to date are pointing to species-specific responses among mangrove plants, with predictions somewhat confounded by the many variables that affect the process, such as salinity, nutrient availability and water-use efficiency.

While the Inter-governmental Panel on Climate Change (IPCC) is predicting a global loss of coastal wetlands, including mangroves, of around 30 per cent by 2100, Dr Alongi's research indicates that it is more likely to be in the order of 10 to 15 per cent.

Port Hurd on Bathurst Island (Tiwi Islands), north of Darwin. Image: Lindsay Trott.



Reef fish lose their way as environment turns hostile



Ambon damselfish (Pomacentrus amboinensis). Image: Monica Gagliano.

Environmental stresses, including warmer and more acidic seawater, may be affecting the development of the ear bones in young reef fish, causing the fish to get lost at sea during a crucial stage of their development.

Research by AIMS fish ecologists has found that fish with asymmetrical ear bones struggle to return to the reef. The stresses causing asymmetry may be closely linked to a combination of rising sea surface temperature and acidity, both caused by high atmospheric carbon dioxide levels, along with a range of more localised stresses.

Abnormalities in fish hearing structures may be interfering with a vital part of the animals' life cycle. Most reef fish spend some time in the open ocean after hatching, before finding a place on the reef to settle and breed. Researchers have only recently established how important sound is in guiding young fish to their homes; fish at the end of their ocean stage "home in" on reef-associated sounds, such as the gurgling of fish and the snapping of crustaceans. A sophisticated hearing system that enables fine distinction between frequencies is needed by young fish to determine where to go.

The scientists collected damselfish hatchlings at their reef of origin and later traced fish from the same cohort arriving on the reefs after the ocean phase, attracting them to traps broadcasting various sound frequencies.

At hatching, 41 per cent had symmetrical ear bones (otoliths) and 59 per cent asymmetrical. When the team examined the otoliths of the returning fish a few weeks later, far fewer asymmetrical individuals were found to have made their way back to a reef. The scientists also found that those with asymmetrical ear bones that did make it to the reef took longer to do so than their symmetrical counterparts.

In the future, this problem may be aggravated by ocean acidification. Fish ear bones, like their skeletons, are made from calcium carbonate. When seawater becomes more acidic, there is less calcium carbonate available for building calcium-based structures, including ear bones. Apart from the direct impact upon fish development, acidity may also reduce their available food sources, as many of the creatures that larval fish eat are also dependent on calcium.

Mixed news about the GBR from monitoring team

AIMS' Long Term Monitoring Program (LTMP) has found that the third recorded crown-of-thorns starfish (COTS) outbreak on the Great Barrier Reef is waning after more than 14 years. The outbreak has worked its way down the Reef since the early 1990s. COTS outbreaks account for the largest proportion of coral mortality detected by the AIMS surveys.

Fewer starfish were seen in AIMS' surveys of GBR reefs in 2007 than in any year for the past two decades and it was the first since 1985 in which there were no outbreaks of the starfish in the Swain Reefs off Yeppoon.

But the LTMP team has also detected a rise in coral disease in some parts of the Reef, notably those areas where hard coral cover is high.

Head of the LTMP, Dr Hugh Sweatman, said that Status Report No.8, released in June 2008, on the state of the Great Barrier Reef represented a synthesis of monitoring data collected up to the 2007 field season.

It shows that the percentage of reefs with outbreaks of COTS has fluctuated but has been declining as the third recorded wave of outbreak fades. There were outbreaks on six per cent of the 104 reefs surveyed in 2006, and on just four per cent of the reefs surveyed in 2007. At the peak of this third recorded outbreak, up to 17 per cent of the GBR's reefs were afflicted by COTS. This figure was recorded in 1999 and 2000. Reefs that were afflicted lost nearly all of their coral.

COTS remains a mysterious phenomenon and it is not known when the next wave will begin. The LTMP team is continuing to conduct intensive surveys in the area where the waves of outbreaks start, to detect them in the early stages. AIMS staff have monitored COTS populations since 1986, when the second recorded COTS wave was underway, and have been at the forefront of scientific investigation of this phenomenon. The first recorded wave took place during the 1960s and 1970s and little is known about it.

The LTMP status report also found falls in coral cover on the outer Barrier Reef near Lizard Island because of outbreaks of coral diseases, including a suite of diseases known as White Syndrome. White Syndrome causes massive tissue loss among the large table corals and was first documented in Australia in 1999.

The trends in occurrence of coral diseases have been uneven. White syndrome declined in most sub-regions after a peak in 2003, but then returned to intermediate levels in 2006 and 2007. This occurred particularly in the Cooktown-Lizard Island sector in the north of the GBR and on outer shelf reefs in the Cairns, Townsville and Capricorn-Bunker sectors further south. The disease is found particularly on otherwise healthy reefs with lots of coral cover.

First two Australian CReefs expeditions successfully completed



The first two Australian CReefs expeditions, to Lizard Island on the Great Barrier Reef in April 2008 and Ningaloo Reef in Western Australia in June 2008, have significantly raised our knowledge of what lives on coral reefs.

CReefs Australia, funded by \$3.4 million over four years by BHP Billiton in a deal brokered by the Great Barrier Reef Foundation, is addressing important questions about the diversity of coral reef associated species including how many species live on reefs, how many of these only live in this habitat, and how this diversity responds to human induced disturbance.

AIMS is leading the Australian node of the international CReefs project. The consortium includes scientists from the Australian Museum, the Museum and Art Gallery of the Northern Territory, Museum Victoria, the Queensland Museum, the South Australian Museum and the Western Australian Museum, as well as the University of Adelaide, Murdoch University, the South Australian Herbarium and the Smithsonian Institution.

CReefs is the coral reef component of the Census of Marine Life (CoML), a global network of hundreds of researchers in more than 80 nations engaged in a 10-year scientific initiative to assess and explain the diversity, distribution and abundance of life in the oceans.

Each of CReefs' three Australian locations – Lizard Island, Ningaloo Reef and Heron Island – will be visited three times over the next four years.

As well as being a concerted effort to get the reefs to yield their secrets to scientists, the CReefs expeditions are boosting the venerable science of taxonomy. Taxonomy – the science of identifying and describing species – is indispensable but has been in serious decline worldwide for years, threatening our capacity to fully understand natural systems. The CReefs project is playing a leading role in reversing this decline, and will leave a lasting legacy in Australia's museums of natural history.

Each CReef expedition uses a variety of methods to sample diverse habitats in order to collect as much biodiversity as possible. The answer to how many species live on coral reefs will not be known until the end of the project, but current estimates vary from one to nine million species. Specimens from these expeditions are being distributed to a broad network of taxonomic experts across Australia's natural history museums and herbaria, who will describe and name new species, publishing their results in publicly-available global databases and scientific publications.



RV Solander's maiden voyage spotlights Western Australia's Rowley Shoals



The RV Solander at Mermaid Reef, Western Australia. Image: Eric Matson.

AIMS' new 35m research vessel, *RV Solander*, got her first big workout in December 2007 with a 17-day scientific survey of three atolls in the Rowley Shoals Marine Park, including Mermaid Reef National Marine Nature Reserve, about 260km west-north-west of Broome. The project was in collaboration with the Department of Environment and Conservation (DEC) Western Australia and Charles Darwin University, Darwin.

The Rowley Shoals is the southern-most group of oceanic atolls off the Australian northwest coast. They are special due to their pristine condition, preserved by their remote location and marine park status. Reefs further north, although protected, have all suffered some level of impact through fishing. Scott and Seringapatam Reefs are fished legally by traditional Indonesian fishermen under a memorandum of understanding between Australia and Indonesia, but the concentrated fishing has had a heavy impact.

The pristine condition of the Rowley Shoals provides the best comparison with which to judge the degree of impact on other reefs in the region and to assist in their management. For example, sharks were found to be very abundant around all reefs in the Rowley Shoals in contrast to their near total absence around similar reefs open to traditional fishermen. Similar differences were found in the stocks of important invertebrates like sea cucumbers, green lip snails and giant clams.

Solander's maiden voyage confirmed the Rowley Shoals as a global benchmark for coral reef conservation. After the surveys, the DEC marine parks managers expressed confidence that the Shoals will continue to tell them what a pristine reef atoll is supposed to look like in this bioregion.

Protected fish stage a comeback

Marine scientists working on the Great Barrier Reef have found evidence that protected fish populations can bounce back rapidly from the impact of years of heavy fishing.

They have documented a spectacular recovery in coral trout numbers on unfished reefs following the imposition of a strict no-fishing policy across 33 per cent of the GBR in 2004, to form the world's largest network of no-take reserves.

A team led by Professor Garry Russ of the ARC Centre of Excellence for Coral Reef Studies at James Cook University and Dr Hugh Sweatman of AIMS, supported by the Australian Government's Marine and Tropical Sciences Research Facility (MTSRF), found coral trout numbers rebounded by 31 to 75 per cent on most of the reefs that had been closed to fishing for 1.5 to 2 years.

Closing reefs to fishing has been controversial, both politically and socially, and there has been much public interest in the outcome, making accurate assessment of the effects of closure essential.

Closed inshore reefs in the Palm and Whitsunday islands showed increases in coral trout population densities of 65 and 75 per cent respectively compared with paired reefs left open to fishing. Closed reefs offshore of the cities of Townsville (64 per cent), Cairns (53 per cent) and Mackay (57 per cent) also showed marked improvements.

Densities of coral trout on the reefs left open to fishers showed little or no change in fish density after the rezoning, suggesting that these fish stocks were not impacted by fishing effort displaced from the reefs that were closed to fishing. Only one recently closed reef area showed a decline in the abundance of coral trout after the rezoning but this was attributed to widespread coral bleaching experienced in the Keppel Islands.

In time, the higher fish populations on closed reefs may lead to improvements in fish numbers on open reefs, as juveniles from closed areas settle on open ones.



An acid test for future research plans



Respirometer. Image: Ray Berkelmans.

Ocean acidification is a predicted consequence of climate change, in which large quantities of carbon dioxide from the atmosphere dissolve in the oceans, causing their alkaline/acid balance (their "pH") to shift towards acidic. If projected trends towards acidification continue, the consequences are likely to be dire for all the world's oceans.

As Australia's leader in tropical marine science, AIMS will be at the forefront of a research response to the challenge of ocean acidification and the threat it poses to the health and integrity of tropical marine ecosystems. In March 2008 a number of domestic and international experts were invited to AIMS' Townsville headquarters for a forum on the science of acidification and a planning meeting to advise the Institute on a future ocean acidification research strategy that will build on AIMS' strengths and complement other national and international activities.

Key participants were AIMS senior scientists Drs Janice Lough, Britta Schaffelke, Lyndon Llewellyn and Miles Furnas and scientists leading acidification research in other countries: Dr Joanie Kleypas of the Institute for Study of Society and Environment National Center for Atmospheric Research in Boulder, Colorado; Dr Chris Langdon of the Rosenstiel School of Marine and Atmospheric Science, National Center for Atmospheric Research, University of Miami; Dr Jean-Pierre Gattuso of the Observatoire Oceanologique Laboratoire d'Oceanographie, France; Dr Bronte Tilbrook, CSIRO Marine and Atmospheric Research, Hobart; and Dr Ken Anthony, Centre for Marine Studies, University of Queensland.

A series of recommendations emerged from this workshop to direct AIMS' acidification research effort into the future.

A well-attended public forum on the issue in Townsville on 14 March provided an opportunity for the scientists to brief interested members of the public. This event was booked out and there was a shared perception that ocean acidification is a sleeping issue of huge importance for all marine ecosystems and for all nations.

First field-based evidence of symbiont shuffling comes to light in the Keppels

A coral community in the southern inshore region of the Great Barrier Reef is showing signs of adjusting to higher sea surface temperature by quickly changing its main algal partners to types that can better cope with the heat.

This provides the first field evidence to support earlier theoretical and laboratory based research at AIMS that had suggested diversity within corals could be their salvation in the event of higher sea surface temperatures causing widespread coral bleaching.

An AIMS field study near Miall Island, part of the Keppel group of 15 islands on the southern Great Barrier Reef off the Queensland coast near Rockhampton, has revealed a remarkable feat of acclimatisation; the only time such an event has been observed in natural conditions on a coral reef.

The work, published in the Proceedings of the Royal Society, has shown that "symbiont shuffling" took place after a bleaching event in 2006 in the Acropora millepora coral population studied.

Corals obtain much of their energy by hosting single-celled algae known as zooxanthellae in their tissues. This partnership of animal and plant is an example of symbiosis; two organisms living together for mutual advantage. This symbiosis becomes unstable at sea water temperatures much above normal when the zooxanthellae are expelled from the coral's tissues in a process known as coral bleaching. There is no one trigger temperature for bleaching because the heat tolerance of the coral-algal symbiosis varies among different strains of zooxanthellae.

The AIMS researchers found that the corals in the Keppel area now have a much higher proportion of two more thermally tolerant strains of zooxanthellae living in them than they did before the 2006 bleaching event, and therefore they are better able to cope with higher sea surface temperatures.

While this was good news for the Keppel Island reefs, it has yet to be detected on a broader scale. The strains of zooxanthellae in this study are common on inshore reefs such as the Keppels they are rare so far in the same corals elsewhere on the GBR.



Bleached Acropora millepora. Image: Ray Berkelmans

AIMS closes the gap on lobster farming



Rock lobster larvae. Image: Greg Smith.

For the first time, scientists at AIMS have uncovered the natural diet of tropical rock lobster larvae, in work that is expected to lead to advances in the development of artificial feeds for sustainable farming of the high-value species.

Lobsters are a luxury seafood and there are concerns that the wild harvest will not be able to keep up with growing global demand, particularly with strong growth in the Chinese market.

Commercial hatchery propagation of rock lobsters has become one of the holy grails for the aquaculture industry but has not been achieved yet because of the mystery surrounding aspects of their complex larval development and natural food. The lobster's larval life is up to six times longer than that of farmed prawns. They are very delicate and, in the wild, live in oceanic waters over 2,000 metres deep and far removed from the habitats of well studied crustaceans.

Because lobster larvae are translucent and occur in pristine oceanic waters well off the coast, their natural ecology is difficult to study. This is compounded by their vertical movement through the water column in response to light, food availability and moon phases. Their food is also translucent and until now little has been known about what they eat.

AIMS researchers solved this problem by taking lobster larvae grown in the AIMS hatchery out into the Coral Sea in special tanks aboard the RV *Cape Ferguson* and exposing them to a range of potential prey items harvested from their natural habitat. The researchers found that the larvae preferred soft bodied zooplankton and this knowledge will now be used to make a better artificial diet for hatchery-reared larvae.

This work shows how AIMS researchers have used a unique mix of skills and capabilities to fill the knowledge gaps and move rock lobster aquaculture closer to being realised.

Reef Atlas: risk, resilience and response

Effective management and conservation of the Great Barrier Reef World Heritage Area requires detailed knowledge of its biodiversity, environmental conditions, principal stressors and factors that are important for recovery after disturbance. Decades of research on the GBR have generated a huge amount of descriptive data about spatial patterns in biodiversity and the environment. Longterm monitoring has shown how the Reef changes over time through natural variability, how quickly reefs recover from disturbances such as cyclones and outbreaks of crown-of-thorns starfish and what factors determine recovery rates. To date, most of this information has been under-used in informing natural resource managers and influencing policy decisions.

The Reef Atlas is a new collaborative initiative, jointly funded by AIMS, the Marine and Tropical Science Research Facility, the GBR Foundation, the Great Barrier Reef Marine Park Authority and EDS (Electronic Data Systems). The vision for the Atlas is that it will be a knowledge repository containing data, maps and information on topics relevant to the GBR and its catchments. It will include statistical models to interpret data, produce new syntheses and explore alternative management scenarios. It will evolve as new information and more powerful analytical tools become available.

In 2007/08, a small team led by Drs Katharina Fabricius and Glenn De'ath produced a prototype Atlas that contained:

- a searchable repository for data and meta-data;
- a geographic information system to find, explore and map spatial and temporal data;
- a library of publications and unpublished technical reports; and
- a website linking the data repository, mapping tools and publications.

The prototype was shown to a well-attended workshop of potential Atlas clients in conjunction with the 2008 MTSRF Annual Conference and received strong endorsement. As a result, the Atlas will receive further investment from AIMS and external sources to move it towards public release.



Tracking a whale shark tag into a West Timor village

Sometimes tracking marine creatures can take some unexpected twists and turns. AIMS scientist Dr Mark Meekan and PhD student Conrad Speed from Charles Darwin University tagged the world's largest fish, whale sharks, off Christmas Island in January 2008. The creatures were visiting the Indian Ocean island, as they do every year, to partake in the annual feast of red crab larvae. When the crab season was over, one of the tagged whale sharks travelled 4,000 kilometres over four months to Java, Scott Reef, the Kimberley Coast, Banda Sea and the top of Irian Jaya before heading back towards Australian waters. The animal made many deep dives to over 1,000 metres in the Banda Sea. Whale sharks are known to travel about 30km a day, so they can cover huge distances in four months.

Then the satellite tag from this whale shark made a sudden trek inland. Reconstructing what is likely to have happened, Dr Meekan speculates that the tag was probably ripped from the gentle whale shark by a big predator like a shark not far from the West Timor coast. The tag was found by a villager collecting turtle eggs on a beach and taken back to the village. Dr Meekan was tracking the whale shark using Google Earth and noticed that it seemed to be an awfully long way inland for a sea creature. Calling upon local contacts and Charles Darwin University colleagues, Dr Meekan was able to organise for Mr Speed to get to the village and negotiate for the return of the tag, which was duly handed over with some ceremony. The scientists were very happy to get the tag back as it contains a unique record of information on the movement and diving behaviour by the tagged animal. Data downloaded from it are being prepared for publication.

Whale sharks are mysterious animals and much more needs to be known about their lives. AIMS research on whale sharks is adding to knowledge about the movements of sharks in the Indian Ocean after they visit well-known aggregation sites in Australian waters like Ningaloo Reef and Christmas Island and defining their habitat in relation to physical and biological oceanography. AIMS work on tagging, photo-identification and genetics contributes to international efforts to learn more about these rare and endangered animals so that they can be better protected.

Recovered whale shark tag, showing teeth marks from the large creature that stripped it from the whale shark. This tag was recovered from a West Timor village. Image: Conrad Speed.



Diverse inshore coral reef community, Wallis Islet - Far Northern Section, GBR. Image: Ray Berkelmans. iii in

REPORT OF OPERATIONS

- Certification of Report of Operations
- Report from AIMS Chair, Dr Ian Gould
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- Introduction
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CERTIFICATION OF REPORT OF OPERATIONS

The Council of the Australian Institute of Marine Science is responsible under Section 9 of the *Commonwealth Authorities and Companies Act 1997* (CAC Act) for the preparation and content of the Australian Institute of Marine Science's Report of Operations, in accordance with the Finance Minister's Orders.

Council endorsed the content of the Report of Operations by a resolution at its meeting of 22 September 2008.

Dr Ian Gould Chairman Australian Institute of Marine Science

En R. Famer

Dr Ian Poiner Chief Executive Officer Australian Institute of Marine Science

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REPORT FROM AIMS CHAIR, DR IAN GOULD



Dr Ian Gould. Image: Paul Rumens Photo-Graphic Co.

THE FUTURE OF THE MARINE ESTATE

Australia is presently facing important decisions about its future as environmental, economic and security issues dominate political and community debate. The right decisions in Australia's interests must be knowledge-based. AIMS has positioned itself to take a prominent role in the innovation needed to ensure that this nation strengthens its foundations and makes the most of its advantages. Now more than ever, Australia is a marine nation. In April 2008, the United Nations Convention on the Law of the Sea (UNCLOS) extended Australia's continental shelf by an additional 2.5 million km², giving this country jurisdiction over an area almost five times the size of France, 10 times the size of New Zealand and 20 times the size of the United Kingdom. This is the third largest marine jurisdiction in the world and the marine part of the territory is twice the size of the terrestrial part. With this huge extension of Australia's territory, the potential for new wealth from its resources has grown enormously, as has the responsibility to protect and sustainably use this valuable asset and ensure this country's ongoing security. What we do over the next decade will determine the future of our magnificent marine estate.

The importance of the marine sphere to this nation's future has a number of facets. The impact of climate change on the marine environment and infrastructure; new oil, gas and mineral resources; the need to protect marine ecosystems and biodiversity and the opportunity for new marine biotechnology industries; rapid population growth and environmental pressure on Australia's seaboard including the forecast shift of agriculture to the wetter north; and the

critical role of our oceans in influencing our climate and in terms of national security are all issues of central importance to our growth, safety, prosperity and well being.

CREATING WEALTH

Wealth from Australia's ocean resources can only be captured if it is underpinned by first class targeted and integrated marine research and development. This represents a significant responsibility and a major opportunity for marine R&D providers such as AIMS. AIMS commissioned an analysis by Deloitte to quantify the value of Australia's marine industries. Until now, the marine sector has been fragmented and not considered as a single category. Drawing together data on wealth from Australia's seas is providing an emerging picture of its high value to the nation. The Deloitte analysis shows the following values for selected sectors of the marine industry:

Commercial fishing (wild capture)	Gross value 2006-07 \$1.14 billion
LPG	Export value 2007 \$0.93 billion
Marine based aquaculture:	Gross value 2006-07 \$0.67 billion
Natural gas	Export value 2007 \$5.22 billion
Oil	Value of production 2007 \$9.23 billion
Oil and Gas	Investment in Offshore exploration
	2006-07 \$1.7 billion

BARRIERS TO MAXIMUM GROWTH

One of the barriers to maximising growth in this field is the fact that currently the responsibility for marine and coastal zone policy and administration is spread across all levels of government, including many departments and administrations. Australia's Marine Science and Technology Plan is over 10 years old, largely out of date and was not acted on. Much has changed, and the need for discovery and process understanding, risk assessment, management tools and routine monitoring as a base for sound policy development and resource management is starkly obvious. Now is the time for a co-ordinated approach.

REVIEW OF NATIONAL INNOVATION SYSTEM

The Federal Government's review of the National Innovation System seeks to provide a strong foundation for innovative decision making on issues of national significance. Among these, the review has identified climate change and future energy needs as requiring news ways of thinking based on research.

In AIMS' view, Australia must design a future that captures the opportunities provided by its marine territories, supports the protection of its environmental assets and, in doing so, delivers economic, environmental and social benefits to the community. For this reason, the Institute has participated strongly in the innovation review, and continues to play a leading role in advising government on the big-picture, long-term requirements in marine science and innovation. No other Australian research agency is better placed to advise on the potential of Australia's tropical waters, and their inherent challenges.

TAKING ON THE CHALLENGES

AIMS is tackling the challenges using a flexible approach that includes expanding our geographic focus to include the northwest and deeper waters, and developing strategically important new capabilities such as marine microbiology, developing and applying new technologies such as genomics and sensor networks and finding new ways to support access, data collection, analysis and synthesis and making the knowledge generated freely available. AIMS is advocating a whole-of-sector approach covering all research disciplines, governments and industry sectors to maximise efficiency and effectiveness.

In our view, the need for strong action now in the marine domain is being driven by a range of factors:

- Declaration of Australia's Exclusive Economic Zone (EEZ), which (among other things) gives Australia rights to what exists on and under the seabed, including oil, gas and biological resources;
- **Global climate change**, whose effects are likely to include sea level rise, increasing sea temperatures, acidification and extreme weather;
- Pressure on marine resources, including rising energy demands that will need innovative methods of exploring and recovering marine oil and gas reserves;
- Preserving marine biodiversity, a major issue as much of our natural marine resources remain unexplored and the processes that sustain them poorly understood;
- **Coastal zone development**, with rapid population growth (the "sea change" phenomenon) combined with agriculture, tourism, aquaculture, marine industries and shipping putting pressures on biodiversity;
- Novel tools for exploring, monitoring, visualising and managing, with the rise of new technology and its increasing exploitation by marine scientists who need to access some of the harshest environments on the planet; and
- Security, given the vastness, remoteness and importance of our northern region and the need to ensure protection of resources and the support of our defence forces.

All these factors strengthen the case for an expanded but concerted national effort in marine research and make imperative the need to examine what's there and find out how best to use and protect it.

AIMS GOVERNANCE

During the reporting period changes were made to the AIMS Act to enhance corporate governance arrangements. These changes implemented recommendations made by the Uhrig Review and were part of the Governance Review Implementation (Science Research Agencies) Act 2007. The amendments provided suitable freedom for the Council to act in terms of appointment, termination of appointment and responsibility for performance of the CEO. The amendments also removed the limitation on contracts. Under the CAC Act, AIMS still keeps the Minister informed of significant events.

The AIMS Council has worked hard with management during the year and I publicly acknowledge Council members for their contribution to the Institute's strategic governance. During the year we welcomed a new Council member, Dr Brian Fisher, who began on 26 September 2007. Dr Fisher is a former Executive Director of the Australian Bureau of Agricultural and Resource Economics (ABARE) and is currently Executive Director, Concept Economics.

Our staff, as always, have contributed their expertise, commitment and leadership in carrying out AIMS' mission efficiently and effectively for the benefit of all Australians and the wider marine science community. Thanks and congratulations to all AIMS staff for their efforts in scientific research, community consultation, training, communication and transfer of results, science support and administration. AIMS is in a growth phase at present, and staff numbers this year are significantly higher than last year. We expect this trend to continue until we reach a staffing base in the near future of around 200. During the timeframe of the new Research Plan, the Institute's research effort will be bolstered by a growing postdoctoral fellows program that allows for at least 10 postdocs funded from AIMS resources at any given time. This will augment AIMS' long history of providing quality postgraduate training to the next generation of Australia's marine scientists.

REPORT FROM AIMS CEO, DR IAN POINER



THE AIMS RESEARCH PROGRAM

During the reporting period AIMS strengthened its research activities in recognition of the marine science component of current national priorities. While retaining a strong and growing interest in the Great Barrier Reef and its land catchments, AIMS has a broader base than ever before across the north.

The start of the 2007–2008 reporting period marked the beginning of the new quadrennial funding cycle and associated shifts in emphasis in the AIMS research program. AIMS has embarked on this new cycle with a renewed commitment to providing practical answers to high priority issues and capturing opportunities that will benefit all Australians. In the first year of the quadrennium, the Federal Government has backed the imperative to understand much more about northwest Australia by providing \$5 million over four years in additional funding to AIMS to scope new research specific to that region.

AIMS' expansion in the northwest matches its commitment to Australia's north and northeast waters. AIMS was set up to provide a scientific underpinning for the protection of the Great Barrier Reef, and that commitment continues to grow and strengthen. Coastal population pressures, water quality and climate change and the impacts these have on the ecosystems in the Great Barrier Reef continue to dictate many of AIMS' research activities. There is much at stake as the Great Barrier Reef contributes some \$5.8 billion each year to Australia's economy in terms of tourism, agriculture, minerals, fishing and shipping. Added to that is its immeasurable cultural significance and central role in this nation's identity. AIMS' interest in the continuing health and wellbeing of the Great Barrier Reef is reflected in a number of new and ongoing projects, including the Great Barrier Reef Ocean Observing System (see over page), which is also raising the Institute's technological capabilities to unprecedented levels, as well as the landmark new MTSRF Reef Atlas providing ready access to decades of research on the Reef. The central importance of AIMS' Long Term Monitoring Program to the Great Barrier Reef was again confirmed during the reporting period with new data on the effect of recently-proclaimed no-take zones, as well as on the crown-of-thorns starfish and on outbreaks of coral disease.

The Institute's role in the northwest has been greatly boosted by the signing, during the reporting period, of a major agreement with the Browse Joint Venture Partners represented by Woodside Energy, worth at least \$30 million over four years, to provide a baseline environmental study of Scott Reef and its surrounding waters, a large biodiverse reef system (550 km²) about 430 kilometres north of Broome, half way between Australia and Indonesia in the Timor Sea. The Scott Reef Research Project (SRRP) is important for AIMS and for Australia generally. The Kimberley coast and Browse Basin region is emerging as a frontier of huge importance to this nation's future. This region, stretching alongshore from Eighty Mile Beach south of Broome to Joseph Bonaparte Gulf and offshore encompassing two offshore bioregions - Northwest Shelf and Oceanic Shoals - includes the Scott Reef system and other important coral reefs. It has significant indigenous populations and is the site of rapid expansion of the offshore LNG industry requiring onshore supporting infrastructure, an industry likely to generate significant wealth for the nation. It also subject to national and international assessments of its heritage status. Many of the issues confronting the northwest region require rigorous and independent scientific advice. AIMS has more than 10 years' experience working in the marine ecosystems of the region and a depth of understanding about its longterm scientific needs.

In consultation with the regulatory agencies and through co-investing with the offshore oil and gas industry, AIMS has already provided new information on the region's biodiversity and the environmental factors sustaining these ecosystems. This experience has helped us build relevant research and infrastructure capabilities and to develop strong links with industry and other stakeholders in the region. The SRRP will enable AIMS to respond to urgent user needs in northwest Australia as gas production expands.

The SRRP is complemented by other AIMS research activities in the northwest, notably the new Kimberley Coast fringing reef study which is designed to describe the coral biodiversity on the Kimberley fringing reefs and contribute to a theoretical framework for understanding the patterns and most likely controls of the biodiversity observed. The project will also contribute to strategic planning by AIMS and its collaborator, the Western Australian Marine Science Institution (WAMSI).

The Institute's three strategic directions sum up how AIMS organises itself to meet the challenges facing Australia's marine ecosystems:

- Understanding tropical marine ecosystems and processes;
- Understanding the effects of global environmental changes upon tropical marine systems; and
- Supporting the sustainable development of tropical marine based industries.

These strategic directions, together with input from stakeholders, an analysis of forward commitments to contracted research and a review of emerging opportunities, were used to develop the Institute's Research Plan 2007–2011, under which the Institute is now operating. This plan is positioning the Institute for continued growth by expanding the range of disciplines in which we operate, building our technological capability, broadening our user base and extending the geographical application of our science.

Much of the Institute's operational and financial planning is, and has always been, influenced by the need to respond to the changing needs of our stakeholders and new opportunities identified while working at the forefront of scientific research. While the Institute is working to a strategically relevant and achievable research plan for 2007–2011, the delivery of much of the plan relies heavily on collaboration and co-investment by research partners. Financial forecasts for the current quadrennium include external revenue and cost recovery targets based on known and expected income streams. Management is well aware of the risks and has included flexibility in the budget strategy should external contracts not eventuate. While a continued commitment to co-investment in research projects with federal and state government departments and research agencies, universities and industry stakeholders ensures maximum leverage for AIMS' capital and inkind investments, AIMS' new commitment to the SRRP means that its flexibility to engage in new work is restricted as it is co-invested to capacity. This highlights the need for increased investment in tropical marine science.

MINISTER LAUNCHES GBROOS

The Minister for Innovation, Industry, Science and Research, Senator the Hon Kim Carr, came to AIMS on 9 May 2008 to launch the Great Barrier Reef Ocean Observing System (GBROOS). AIMS management took the opportunity to show the Minister around the Institute and update him on current research activities across all research teams.



In his speech to the gathered dignitaries, AIMS personnel and media, Senator Carr said that GBROOS would help us understand and manage one of Australia's iconic natural assets, the Great Barrier Reef, as well as helping cement Australia's international leadership in tropical marine science.

SOME KEY SCIENCE ACHIEVEMENTS FOR THE YEAR

Launch of the Great Barrier Reef Ocean Observing System (GBROOS)

GBROOS, an ocean observation network covering the eastern Coral Sea, is the most significant development in regional ocean observation since the launch of Earth-orbiting satellites, providing real-time data on current conditions throughout the Great Barrier Reef and Coral Sea region. These data will help drive multi-scale ecological and physical models, making possible more accurate forecasting. The GBROOS project, led by AIMS, will provide a set of managed infrastructure and networks to facilitate current and future scientific work. The deployment of GBROOS infrastructure is well underway (see Highlight, p 5).

Release of Great Barrier Reef Status Report No.8

The AIMS Long Term Monitoring Program (LTMP) Status Report No.8 is a summary of monitoring surveys, including results from 2006 and 2007 that have not been reported previously. This year's Status Report showed a decline in the third known wave of crown-of-thorns starfish infestation on the Great Barrier Reef but a rise in the incidence of the coral disease White Syndrome. The LTMP provides information on population trends in key groups of organisms, particularly crown-of-thorns starfish, corals and reef fishes, over the length and breadth of the Great Barrier Reef World Heritage Area. It is the world's longest continuous temporal record of change in coral reef communities over such a large scale, with standardised observations beginning in 1993 (see Highlight, p 10).

Positive results from the no-take zones

The LTMP has been monitoring changes in reef biodiversity arising from the rezoning of the GBR Marine Park in 2004 and confirmed earlier results that protected fish populations can bounce back rapidly from the impact of years of fishing. Closing reefs to fishing has been controversial, both politically and socially, and there has been much public interest in the outcome, making accurate assessment of the effects of closure essential. In time, the higher fish populations on closed reefs may lead to improvements in fish numbers on open reefs, as juveniles from closed areas settle on open ones (see Highlights, p 10 and p 14).

Move into ocean acidification research

Global climate is changing due to human enhancement of atmospheric greenhouse gas concentrations, particularly carbon dioxide (CO²). Progressive ocean acidification due to absorption of CO² is now considered likely to have a major impact on ocean and coastal ecosystems. Recognising the significant implications for tropical marine ecosystems, AIMS hosted a workshop with national and international experts to develop an optimal acidification research strategy for AIMS (see Highlight, p 15).

Publication achievements

Publication output by AIMS scientists and associated students has been prodigious, with the 100 peer reviewed publications milestone reached and exceeded during the reporting period for the first time. There were many notable papers during the year. Three that stand out are the Proceedings of the Royal Society B paper by AIMS scientists Alison Jones, Ray Berkelmans, Madeleine van Oppen and Jos Mieog, with William Sinclair from Central Queensland University, titled "A community change in the algal endosymbionts of a scleractinian coral following a natural bleaching event: field evidence of acclimatization" (Volume 275: 1359-1365). This paper reported the first field observations of symbiont shuffling, an important confirmation of theoretical and laboratory work reported earlier. Another paper, published in Global Change Biology and written by AIMS scientists Timothy Cooper, Katharina Fabricius, Glenn De'ath and Janice Lough, titled "Declining coral calcification in massive Porites in two nearshore regions of the northern Great Barrier Reef" (Volume 14 Issue 3, pp 529-538), rang alarm bells about the possible first signs of reduced calcification caused by ocean acidification at two sites on the Great Barrier Reef. Another paper won the Award for Best Paper of 2007 appearing in the journal Coral Reefs: J.C. Mieog, M.J.H. van Oppen, N.E. Cantin, W.T. Stam, J.L. Olsen (2007) "Real-time PCR reveals a high incidence of Symbiodinium clade D at low levels in four scleractinian corals across the Great Barrier Reef: implications for symbiont shuffling." Coral Reefs 26:449-457. The lead author, Jos Mieog, was a PhD student supervised by co-author and AIMS Principal Research Scientist Dr Madeleine van Oppen.

An Atlas for the Great Barrier Reef

The task of drawing together decades of research on the Great Barrier Reef to create the Reef Atlas moved towards completion during the reporting period. The Reef Atlas is being developed collaboratively through the federally-funded Marine and Tropical Sciences Research Facility (MTSRF), by scientists from AIMS and the Reef and Rainforest Research Centre (RRRC). The Reef Atlas will be a one-stop shop on the web for data, information and analyses on contemporary environmental issues facing the Great Barrier Reef and its catchments. The Atlas website is expected to go live late in 2008 (see Highlight, p 18).

Australian CReefs expeditions get underway

The first two of nine planned biodiversity expeditions to Australian coral reefs were successfully completed during the reporting period. The Australian CReefs Project has been made possible by a partnership between BHP Billiton, the Great Barrier Reef Foundation, the international Census of Marine Life and AIMS to allow Australian reef sites to be included in the Census of Marine Life's global CReefs Program. AIMS is leading a consortium that includes scientists from the Australian Museum, the Museum and Art Gallery of the Northern Territory, Museum Victoria, the Queensland Museum, the South Australian Museum and the Western Australian Museum, as well as the University of Adelaide, Murdoch University, the South Australian Herbarium and the Smithsonian Institution. Gary Cranitch, a photographer from the Queensland Museum, was awarded the 2008 Professional Science, Environment and Nature Photographer of the Year award by the Australian Institute of Professional Photography (AIPP) for images taken during the Lizard Island trip (see Highlight, p 11).

A COMMITMENT TO COLLABORATION AND CO-INVESTMENT

AIMS is deeply committed to collaborative and co-invested research, ensuring the best return on investment for all parties. The Institute maintains the following relationships:

Collaborative networks such as:

- AIMS@JCU;
- Australian Research Council Centre of Excellence for Coral Reef Studies (AIMS, ANU, JCU, University of Queensland);
- Arafura Timor Research Facility (AIMS, ANU, Charles Darwin University);
- Census of Marine Life (CoML) 80 countries, 3,000 scientists;
- Oceans Policy Scientific Advisory Group (OPSAG) (Peak body); and
- Western Australian Marine Science Institution (WAMSI), involving AIMS, CSIRO, WA Government, WA Universities and Marine Industry.

Co-investment activities such as:

- Aquaculture industry (e.g. Bluewater Barramundi);
- Federal and State Governments (e.g. Department of Environment, Water, Heritage and the Arts, Western Australian Department of Environment and Conservation);
- Foundations (e.g. Alfred P Sloan Foundation, BHP B Foundation, GBR Foundation);
- Mining Industry (e.g. Alcan Gove);
 - Natural Resource Management Agencies (e.g. Great Barrier Reef Marine Park Authority, Queensland Department of Primary Industries and Fisheries);
- Oil and gas industry (e.g. Woodside Energy); and
- Tourism Industry (e.g. Association of Marine Park Tourism Operators).

THE YEAR AHEAD

In 2008–2009, AIMS will continue implementing its Research Plan 2007–2011 and expanding its capabilities to deliver high quality research, respond to emerging marine science needs in northwest Australia, build critical mass in marine microbiology, address the urgent need for understanding the impacts of climate change on tropical marine systems and their responses, and increase our ability to collaborate in tropical marine science and training with leading universities and other research agencies. In doing so, we will ensure that AIMS continues to rank in the top one per cent of the world's research institutions in the fields of environment and ecology and plant and animal science, a ranking that was maintained during the reporting period.

We will continue to take a leadership role in the Oceans Policy Scientific Advisory Group in the development of the 2020 Research and Development Framework for Australian marine science on behalf of the Australian marine science community. We will maintain and build on our existing partnerships through AIMS@JCU, the Arafura Timor Research Facility in Darwin, WAMSI and the ARC Centre of Excellence for Coral Reef Studies. These collaborations and joint ventures will enhance the ability of AIMS' science teams to continue their research in the Great Barrier Reef World Heritage Area and Ningaloo Reef Marine Park, and increase our research in northwest Australia.
During the year ahead we expect to see major scientific results emerging from the Scott Reef Research Project and the Kimberley Coast fringing reef study. WAMSI will finalise the Kimberley Browse Marine Science Case and Business Case for presentation to government. The goal is for WAMSI to seamlessly move into a second phase based largely around the Kimberley Coast Browse Basin regional marine science activity. We expect to be able to launch the new MTSRF Great Barrier Reef Atlas and open the new Centre for Marine Microbiology and Genetics (CMMG) at our Townsville headquarters. The CMMG, which is a co-investment with the Queensland Government, will be the vehicle for a major new research effort in marine microbiology under the leadership of Professor Linda Blackall, who heads a new AIMS research team, "Understanding Marine Microbes and Symbioses".

In addition, AIMS expects to begin new research into ocean acidification, following the development of a set of future directions provided by the ocean acidification workshop held in March 2008. AIMS will also continue the roll-out of GBROOS infrastructure, implementing the new observing system for the Great Barrier Reef that will make it the most monitored reef system in the world.

DEVELOPMENTS SINCE 30 JUNE 2008

AIMS scientists attended the 11th International Coral Reef Society (ICRS) meeting *en masse* in Fort Lauderdale, Florida in July. Also, an equally large AIMS contingent attended the 12th conference of the International Society for Microbial Ecology held in Cairns in August.

On 25 July the Prime Minister, the Hon Kevin Rudd, and the Climate Change Minister, Senator the Hon Penny Wong, visited the Great Barrier Reef off Port Douglas and met with representatives from the Reef and Rainforest Research Centre, AIMS and the Great Barrier Reef Marine Park Authority. Mr Rudd and Senator Wong announced the Reef Atlas initiative and were briefed on this major new development and on current Great Barrier Reef issues, including climate change.

In September, AIMS launched the AIMS Index of Marine Industries, based on an analysis by Deloitte that quantifies the value of Australia's marine industries. The analysis provides a conservative estimate of current value of \$37.7 billion. The inclusion of trend data in the report confirms significant growth (42 per cent) in the sector since 2000-01. On 2 October, the Queensland Minister for State Development, Desley Boyle, officially opened the new AIMS Centre for Marine Microbiology and Genetics building, marking a new era for AIMS in microbial research.



INTRODUCTION



Australia lays claim to the third largest marine jurisdiction of any nation on Earth. At over 14 million km², it is nearly twice the surface area of the Australian continent. The marine sector contributes significantly to our national economy (at least eight per cent of GDP and growing faster than other sectors), through food and energy production, recreation and tourism.

Australia's oceans have iconic environmental significance and stunning biodiversity, much of it endemic to our region. Our oceans also have great social value, holding a special place in the national psyche, particularly since 85 per cent of our population lives within 50km of the coast.

AIMS provides research capacity that is directly relevant to the protection and sustainable use of this enormous, valuable and complex territory. Much of Australia's ocean territory remains unexplored and poorly understood. Robust legislative and regulatory requirements at both Commonwealth and State level govern how users interact with marine ecosystems. However, an underpinning understanding of the ocean's complex environmental settings and the drivers of pattern and change in its ecological communities is often lacking.

Through investing in expertise and infrastructure at AIMS, the Australian Government is supporting the development and application of new knowledge for sustainable use of marine resources while safeguarding those resources and the marine environment into the future. The Institute adds value to this investment through national and international collaborations, strategic alliances and strong links to industry and community.

AIMS consults with key users of marine science and technology to develop its research program, which is prioritised within the framework established by our

resources and capabilities, user needs, the *National Research Priorities* and *Australia's Oceans Policy*. This research, the goals of which are described in the 2007-2011 Research Plan, is delivered through multidisciplinary research teams working in: biodiversity assessment; environmental change and impacts; status and trends of marine ecosystems; sustainable coastal development; water quality of the Great Barrier Reef World Heritage Area (GBRWHA); tropical aquaculture; and marine microbiology.

The Institute produces research outcomes relevant to both national (e.g. water quality of the Great Barrier Reef, performance of the Great Barrier Reef and Ningaloo Marine Park Zoning Plans) and global problems (e.g. impacts of fishing, pollution, and climate change on coral reefs).

CONTRIBUTION TO NATIONAL **RESEARCH PRIORITY GOALS**



Ningaloo Reef. Image: Gary Cranitch.

> AIMS' mission aligns strongly with the National Research Priorities and most of the AIMS budget is dedicated to research supporting the National Priority of achieving "An Environmentally Sustainable Australia". Within this Priority, seven goals have been articulated (see below) and the Institute's research portfolio matches four of them. We also recognise secondary delivery to some of the NRP Goals required to transform Australian industry and society.

The National Priorities and their subordinate but enabling goals are shown here. Below them, a table maps connections between our 07/08 Research Teams and the relevant Goals, with the strength of the match shown as highly relevant (), very relevant (
) or relevant (). Finally, we illustrate our delivery to the NRP through examples.

NATIONAL RESEARCH PRIORITY GOALS

(for detail see Appendix 2)

A. An Environmentally Sustainable Australia

- 1. Water a critical resource
- 2. Transforming existing industries
- 3. Overcoming soil loss, salinity and acidity
- 4. Reducing and capturing emissions in transport and energy generation
- 5. Sustainable use of Australia's biodiversity
- 6. Developing deep earth resources
- Responding to climate change and variability 7.

- 1. A healthy start to life
- 2. Ageing well, ageing productively
- 3. Preventive healthcare
- 4. Strengthening Australia's social and economic fabric

C. Frontier Technologies for Building and Transforming Australian Industries

- 1. Breakthrough science
- 2. Frontier technologies
- 3. Advanced materials
- 4. Smart information use
- 5. Promoting an innovation culture and economy

D. Safeguarding Australia

- 1. Critical infrastructure
- 2. Understanding our region and the world
- 3. Protecting Australia from invasive diseases and pests
- 4. Protecting Australia from terrorism and crime
- 5. Transformational defence technologies

National Priority	V	n Environmentally	/ Sustainable Austr	alia	Frontier Technolog Au	gies for Building a Istralian Industrie	nd Transforming s
Priority Goal	Al Water a critical resource	A2 Transforming existing industries	A5 Sustainable use of Australia's biodiversity	A7 Responding to climate change and variability	C1 Breakthrough Science	C2 Frontier technologies	C4 Smart information use
Research Teams (2007-2011)							
Assessing & Using Marine Biodiversity							
Measuring Water Quality & Ecosystem Health							
Responding to Climate Change							
Understanding Marine Microbes & Symbioses							

Key

Very Relevant - intended outcomes and activity closely related to priority goals, but also focused in related areas. Highly Relevant - intended outcomes and planned activity directly focused on priority goals.

Relevant - intended outcomes and planned activity related and likely to contribute to priority goals.

Note: Table includes only NRP Goals relevant to the expertise of, and addressed by, AIMS. A full list of NRP Goals is provided on pages 135-136.

EXAMPLES OF NATIONAL RESEARCH PRIORITY OUTCOMES

Great Barrier Reef Water Quality Protection Plan - Marine Monitoring Program (MMP)

Output

The Great Barrier Reef Water Quality Protection Plan is a joint Commonwealth -Queensland initiative to halt and reverse the decline of water quality in inshore sections of the GBR Marine Park. In 07/08, AIMS completed a third year of measuring water quality parameters and reef health along the far northern Queensland coast to support this 10-year program with a solid baseline against which to assess future change. During this year, researchers were at sea when the Fitzroy River experienced its first major flood since 1991 and were able to sample inside and outside the flood plume. They returned six weeks later to assess impacts on reefs exposed to flood waters from this rare event.

Outcome 1

The MMP has established that levels of turbidity, dissolved phosphorus and chlorophyll are indicators of water quality most likely to impact on reef health. AIMS has now deployed a network of autonomous samplers at 14 coastal sites to measure responses in these variables as land management practices are changed in the coastal catchments as part of the new Commonwealth "Reef Rescue Plan". The network provides a way to test the performance of the management actions in an adaptive framework.

Outcome 2

Ultimately, adaptive management of coastal catchments adjacent to the Great Barrier Reef is expected to decrease the loads of sediments, nutrients and organic contaminants in terrestrial runoff, which should improve the resilience of inshore coral reefs to other stressors like fishing and climate change.



Seabed surveys for the Kimberley Coast

Output

AIMS and CSIRO jointly surveyed over 600km² of the seabed off the southern Kimberley Coast of north Western Australia at the request of the WA Department of Environment and Conservation charged with informing the Northern Development Taskforce. The NDT was commissioned by the WA Government to recommend a preferred site for a regional hub to process Liquid Natural Gas from multiple developments coming "on stream" in the Kimberley Browse Basin.

Outcome

The assessment of habitat and biodiversity values provided by the benthic surveys became one significant input to a public decision-making chain seeking to minimise the environmental footprint of a key industry operating in a sensitive section of the Australian coastline through integrated regional planning.

A2 A5

Domestication of tropical rock lobsters

Output

During 07/08, AIMS scientists showed that tropical rock lobsters can be made to spawn on demand by manipulating the holding conditions of mature brood stock and raised several cohorts of larvae through the entire early life history to produce a handful of brightly coloured juvenile lobsters.

Outcome

Until recently, lobsters were considered too difficult to domesticate because of their very lengthy larval period with many moults. The demonstration that the full life cycle can be closed in a research setting with quite modest resources now shifts the focus of the problem to reliable production at a commercial scale. The successful pilot demonstration has been a critical and confidence-boosting step on the pathway to development of an entirely new aquaculture industry with great potential to supply high value products into export markets.

A2 A5 C1

Coral growth slowing on the Great Barrier Reef

Output

Research has shown that massive corals deposit annual growth bands in their skeletons, providing a record of their ages and preserving information about the ambient water quality in each year. The width, density and inorganic content of annual bands from the largest living corals can provide proxy records of environmental conditions over the past 1000 years. Counting back from the present, coral proxies have been used to date changes in seawater temperature, exposure to freshwater, exposure to oceanic upwelling, changes in terrestrial erosion and episodes coral bleaching. In 07/08, analysis of recently-collected cores has revealed a steady decline of coral calcification rates in massive corals throughout the length and breadth of the Great Barrier Reef that started in the 1980s.

Outcome 1

As sea temperatures have been rising over the past 100 years as a result of climate change, coral growth rates were predicted to increase and they did so through the middle of century until the tipping point about 25 years ago. This reveals that some new constraint has overwhelmed the positive effect of temperature upon coral growth and the most likely factor is acidification (changing pH), which makes it more difficult to extract calcium ions from the seawater. This effect has been predicted for a while but is still little researched. The detection of changes consistent with this hypothesis is likely to bring sharper focus and more resources to this potentially critical problem.

Outcome 2

While the decline in calcification rates has been observed in most sections of the GBR Marine Park and is consistent among most cores taken from a single reef, there are some places where calcification has shown little or no change. This suggests that there may be locally protective factors and that some parts of the GBR may be naturally more resilient. If the scales are appropriate, this may be a new factor that should be reflected in the next GBR Zoning Plan.

Biodiversity assessments test effectiveness of Marine Protected Areas

Output

During 07/08, AIMS scientists continued to monitor coral reefs and seabed shoals for changes arising from the Great Barrier Reef Zoning Plan (2003), which greatly increased the proportion of 'no take' areas in the GBR Marine Park. Surveys of 26 matched reef pairs representing five geographic regions adjacent to coastal cities (Cairns, Townsville, Mackay, Rockhampton, Gladstone) confirmed the rising abundance of iconic fish species, such as coral trout, on reefs closed to fishing in July 2004. On southern reefs, where these apex predators are naturally more common, the biomass of coral trouts in 07/08 on reefs closed to fishing for less than four years was almost double that on neighbouring reefs that remained open to fishing. In contrast, surveys from submerged shoals returned mixed results. While comparisons between open and closed pairs of large banks in the southern GBR showed similar impacts of fishing upon deep-living species like Red Emperor and Red-Throat Emperor, assessments of popular fishing grounds off Townsville found no difference between the fish populations living on shoals open and closed to fishing. This result was explained by the different nature of the habitat in this sector where low-relief features act as focal points for mobile fish but do not provide enough resources to permanently capture any benefit from differential zoning. This includes fish migrating from inshore nursery grounds to deepwater spawning grounds as well as roving predators both of which are likely to move across zone boundaries.

Outcome

This complex result informs natural resource managers about the benefits of fisheries closures but alerts them to situations where this strategy may be less than effective. This advances local marine conservation planning to a step beyond simple lines on a map and requires that managers know more about what lies below the surface in order to make the best decisions.

A5

Great Barrier Reef Atlas

Output

In 07/08, AIMS scientists built a working demonstration model of a Great Barrier Reef Atlas that is intended to capture as much knowledge as possible about large-scales patterns, processes and interventions affecting GBR ecosystems. The Atlas is aimed at providing diverse users with spatial information about relative risks to, and potential resilience of, natural systems from a variety of pressures. The Atlas is also intended to capture past human interventions and to inform future actions; hence its colloquial name as the "Risk, Resilience and Response Atlas".

Outcome

The pilot product was developed both with resources volunteered by external parties (e.g. Great Barrier Reef Foundation supported by corporate donors, Marine and Tropical Sciences Research Facility funded by the Commonwealth) and substantial co-investment from AIMS to make the archives of historical research from AIMS and other data-collecting organisations available to those who will synthesise historical information into new understanding and to enable others who will incorporate this new understanding into future management choices. At the very least, it will increase the return on public funds invested in past research and prevent any duplication; in all probability, it will lead to more sophisticated and better informed decisions by those with access to the Atlas.



Great Barrier Reef Ocean Observing System (GBROOS)

Output

In 07/08, AIMS started to roll out major infrastructure along the Great Barrier Reef to create the backbone for the densest marine observing system in Australia. While AIMS had built and maintained a rudimentary observing network over the past 20 years based upon a small number of weather towers, augmented in the past decade by numerous diver-deployed temperature loggers, investment of more than \$5 million from the Commonwealth National Collaborative Research Infrastructure Strategy (http://ncris.innovation.gov.au/) and more than \$4 million from the Queensland Government signals a scaling up of observing effort that is appropriate to modern concerns about significant human-induced climate change. GBROOS is a geographic Node in Australia's Integrated Marine Observing System (http://ncris.innovation.gov.au/capabilities/integrated marine observing system.htm). Its mission is to link the changing dynamics and chemistry of oceanic water in the Western Pacific, especially the Coral Sea basin, with the structure and dynamics of GBR ecosystems. Already there is evidence that oceanic waters affect the productivity of regional ecosystems on the outer continental shelf, and influence the risk of bleaching and disease for GBR corals. On the one hand, the new GBROOS network can be seen as a long overdue catch up with where the Bureau of Meteorology was 50 years ago. On the other hand, the GBROOS network has learned from the BOM experience and has access to modern equipment ranging from satellite remote sensing to continuous recording instruments that can be located on static (e.g. moorings) and mobile platforms (e.g. research vessels and ships of opportunity). The most novel aspect of GBROOS will be the creation of wireless sensor networks covering the reef space around four island research stations owned and operated by third parties* that are partners in the joint venture. These "plug and play" wireless networks will allow visitors to the four research stations to collect continuous observations in "real time" from potentially dense arrays of customised sensors at one or more reefs according to the investigator's budget.

* (One Tree Island – U.Syd.; Heron Island – UQ; Orpheus Island – JCU; Lizard Island – Aust. Museum)

Outcome 1

GBROOS will monitor interactions between marginal oceanic waters in the Coral Sea basin and shallow waters over the outer half of the continental shelf, making all of its observations freely available soon after collection. This will provide all researchers with a broad scale physical context for their studies.

Outcome 2

Real-time reporting from the GBROOS investments in particular regions will allow researchers to study transient processes like upwelling at the shelf break and its impact on the productivity of outer shelf ecosystems.

Outcome 3

Wireless sensor networks around island research stations spread along two-thirds of the Great Barrier Reef will offer unprecedented support and opportunity for researchers (including postgraduate students) to study the effects of climate change upon GBR ecosystems.





THE 2007-2011 RESEARCH PLAN



on North Direction Is Reef. Image: AIMS Longterm Monitoring Program.

> July 2007 marked the start of the AIMS Research Plan 2007-2011. This Plan is the outcome of an extensive set of external performance reviews of the quality and impact of AIMS' research, conducted during the previous funding period and reported in the 2006-2007 Annual Report.

The Plan is based in large part upon continuing three core strengths of AIMS' research identified by the external Review Panels as having superior quality and impact: the assessment and monitoring of biodiversity values, the measurement of water quality and environmental health, and the understanding of ecological impacts of climate change.

In 2006-2007, the Institute created an internal AIMS Strategic Science Team independent of management and charged it with reviewing and recommending revision of our Strategic Directions. The outcome was validated through consultations with key stakeholders. This process confirmed the assessments of the independent review panels about enduring core strengths but also identified new needs and opportunity for research into marine microbiology, which included deeper understanding of the symbiosis between corals and their microbial symbionts. On this basis, our marine biotechnology area continued a change started by an external review in late 2005 and was transformed into a fourth research team delivering research into marine microbes and symbioses.

Marine microbes are the ultimate drivers of many processes in marine and terrestrial ecosystems. Despite their microscopic size, these unseen organisms have the greatest biomass and diversity of all organisms on the Earth, with estimates of almost 40,000 types (equivalent to species) in a litre of seawater.

These simple bugs are central to transforming and recycling nutrients within ecosystems, which makes them sensitive indicators of water quality. They are responsible for ecological processes like facilitating the settlement of marine invertebrates and causing disease. The latter has obvious implications for balancing animal health in land-based hatchery systems for aquaculture. Microorganisms are central to the stability of symbioses in reef organisms like corals and sponges and will be a key part of the risk to these systems posed by climate change. At another level, microbes are likely to be our most sensitive indicators of change in ecosystems driven by external factors ranging from pollution to climate change.

In a break with the past, the 2007-2011 Research Plan is not described by Research Team but by the following 12 Key Result Areas (KRAs):

- 1.1: Assessments of tropical marine biodiversity
- 1.2: Accurate and timely information on issues and threats to coral reefs
- 1.3: Sustainable tropical aquaculture
- 1.4: Sustainable supply of bioresources
- 2.1: Human impacts on tropical water quality and ecosystem health
- 2.2: Tropical marine ecosystem processes and land-sea interactions
- 3.1: Marine climate history of northern Australia
- 3.2: Resilience and risk mapping in space and time
- 3.3: Ecological responses to climate change
- 3.4: Ocean observing systems to monitor the physical environment
- 4.1: Understand and predict the responses of reef symbioses to environmental change
- 4.2: Understand the role of microbes in the functioning of healthy and stressed reefs

The first number in the KRA index indicates a high level theme like biodiversity or water quality. The second number in the index indicates a significant stream of related research questions within the theme. The 12 KRAs are expected to cover AIMS research for the 2007-2011 period and will be the unit of review at the end of the Quadrennium. This will provide more continuity with fine-scale change between future Research Plans. It will give more stability to the Research Plan during the Quadrennium while allowing more flexibility to reassemble appropriate teams to deliver the Plan as resources and priorities change on a short-term basis.

PERFORMANCE MEASUREMENT

AIMS provides relevant, high quality research in support of the protection and sustainable use of Australia's marine territory. This research directly supports Australian and State Government initiatives (such as *Australia's Oceans Policy*, the *National Research Priorities*, the *Reef Water Quality Protection Plan*, the *Ningaloo Marine Park Management Plans*, the development of State and Commonwealth access and benefit-sharing policies and the sustainable development of northern Australia's coastal resources), the needs and priorities of industry (such as reduced risk, identification of new marine resource opportunities for industry and tropical aquaculture), and community aspirations (including the identification and protection of Australia's marine biodiversity).

The Institute continues to measure its performance against indicators (described in Appendix 3). This report documents AIMS' performance in the first year of the 2007-2011 Research Plan. Regular review of performance and capabilities is a critical component of planning and continuous improvement at AIMS. The Institute's reporting framework sets goals for performance against a range of research and organisational criteria. Performance against agreed targets (AIMS Key Performance Goals) is reviewed regularly by the Management Group and Council and is reported annually to Parliament.

AIMS has established a number of performance indicators that are intended to maximise quality, efficiency, delivery and effectiveness of our science. This section of the report describes our achievements against those indicators (see Appendix 3) and demonstrates contributions to the AIMS Outcome which is agreed with the Australian Government as part of the outcome-output framework (see figure below).



NEW KNOWLEDGE AND COLLABORATIVE R&D

Shift of resources to priority areas

A new four-year Research Plan began in July 2007. This quadrennial plan was the culmination of a lengthy planning exercise and extensive consultation with stakeholders and users of AIMS science.

Our scientific efforts in climate change, biodiversity and coastal water quality have been consolidated and a new team has emerged dedicated to marine microbiology. The first three build upon core strengths and demonstrate AIMS' commitment to long term fundamental science in areas validated by our stakeholders. Robust identification of natural patterns and detection of human impacts in marine ecosystems typically need broad-scale observations on lengthy time horizons. Long term datasets also enable us to estimate the resilience of ecosystems confronted by climate change. In preparing for the current Research Plan, marine microbiology was identified as a significant knowledge gap for AIMS, and an area where Australia lags behind other developed countries. Researching the microbial world will not only complement our existing knowledge base, providing more sensitive indicators of water quality and climate change, but also answer novel questions. As part of this new direction, we have partnered with the Queensland Government to build a "state of the art" Centre for Marine Microbiology and Genetics (CMMG) at our Townsville headquarters.

Our successful New Policy Proposal from 2007 to increase investment in our Western Australia research base has already stimulated significant growth. The three-year Scott Reef Research Project contracted with Woodside Energy Limited on behalf of the Browse Joint Venture Partners will enable us to study a broad range of ecosystem processes on an oceanic coral reef in the Indian Ocean and to build knowledge of regional patterns and processes. Similarly, our partnership in the Western Australian Marine Science Institution (WAMSI) has allowed us to expand our studies on the Ningaloo Reef Tract and to make preliminary surveys of habitats and biodiversity along the Kimberley Coast. The latter has emerged as the focus for renewal of the partnership by the Western Australian Government.

In addition to the growth in Western Australia, additional resources have been invested to recruit staff with quantitative skills (GIS, statistics, modelling) and to expand the AIMS Data Centre. AIMS recognises that its data are national assets and that 30 years of systematic observations in tropical marine environments are a unique resource for current management actions and policy developments in areas of biodiversity conservation, environmental health, sustainable development and adaptation to climate change. An important vehicle for delivering information from the AIMS Data Centre to external users will be the Great Barrier Reef Atlas; a new initiative commissioned by the Marine and Tropical Sciences Research Facility, which has delivered resources for the Atlas from the Commonwealth and from private sector sources via the actions of the Great Barrier Reef Foundation. The Atlas will be an open knowledge repository that seeks to summarise current knowledge relevant to the determination of risks, resilience and responses of GBR systems to current and long-term pressures.

Climate change will be the ultimate challenge to the resilience of the Great Barrier Reef. In 2007-2008, AIMS deployed the first elements of a Great Barrier Reef Ocean Observing System that will monitor changes in the currents, temperature and chemistry of the Coral Sea (bounded by Queensland, PNG, Vanuatu and New Caledonia) and connect the behaviour of coastal boundary currents along the Queensland shelf margin with the performance of GBR ecosystems. This is intended to be the start of a long-term observation program and not only because of the linkages with the health and performance of the Great Barrier Reef. The Coral Sea Basin is the crucible of the East Australian Current that affects ecosystem performance, fisheries production and local weather patterns down the eastern seaboard of Australia as far south as Tasmania. As the world moves into a period of sustained climate change, GBROOS will be a very significant node in Australia's Integrated Marine Observing System (http://www.imos.org.au/) because of its strategic placement upstream of the nation's most important coastal current.

Scientific Publications

Our scientific publication output has not only returned to historical levels after a decrease in 2005 but surpassed annual publication numbers from the past decade. A total of 101 articles in scholarly journals were published in 2007, along with almost 20 book chapters and books. This arises from projects completed during the previous research plan and an increase in publications by students associated with AIMS, many of whom are supported through the AIMS@JCU joint venture. Student contributions can also be seen in the continued growth in submission of higher degree research theses, which increased dramatically in 2005. The research described in these theses is converted into scientific publications, so boosting our total output. The 50 per cent increase in numbers of technical reports and reports to clients in 2006, which continued in 2007, flows from our strategic decision to





focus our efforts on large co-invested collaborative projects. In addition, our strategic decision to target increased postdoctoral fellows has contributed to an increase in publications. We anticipate our high output to continue in future due to an increase in our scientific staff numbers and continued focus upon training and postdoctoral programs.

Our peer-reviewed publications appeared in almost 50 different journals across many scientific disciplines, reflecting our ability to undertake science on scales ranging from microorganisms to ecosystems to coastal oceanography. A number of these journals used photographic images from AIMS staff to highlight particular scientific articles.

AIMS researchers continue to contribute within our core areas of biodiversity, water quality and climate change. Our publication portfolio also reflects the increased focus and investment in marine microbiology, which is also beginning to contribute to our increased knowledge in the aforementioned core areas as can be seen in the examples over the page: (full list in Appendix 4):

Fabricius KE, Uthicke S, Cooper T, Humphrey C, De'ath G, Mellors J (2007) Candidate bioindicator measures to monitor exposure to changing water quality on the Great Barrier Reef. Interim Corals, microorganisms and seagrasses were assessed as potential tools to measure responses to changing water quality on the Great Barrier Reef

Report. Catchment to Reef Research Program - CRC Reef and Rainforest CRC and Australian Institute of Marine Science. 225 pp.

- AIMS staff contributed to seven chapters in the book published by GBRMPA "The ecological vulnerability of the Great Barrier Reef to Climate Change".
- Janice Lough was one of the 13 lead authors who produced the report by the Scientific Expert Group on Climate Change (SEG) (2007) Confronting climate change: Avoiding the unmanageable and managing the unavoidable. In: Rosina M, Bierbaum JP, Holdren JP, MacCracken MC, Moss RH, Raven PH (eds) Report prepared for the United Nations Commission on Sustainable Development. Sigma Xi, Research Triangle Park, NC and the United Nations Foundation, Washington DC. 144 pp
- Janice Lough "10th Anniversary Review: A changing climate for coral reefs" was in the Top 10 accessed articles on the Journal of Environmental Monitoring website in March and April 2008.

One of 2008 research papers (Lough JM, 2008, Shifting climate zones for Australia's tropical marine ecosystems Geophysical Research Letters, 35: L14708, has been selected as an American Geophysical Union Journal Highlight.

This work has shown that since the 1950s, average sea surface temperatures in northeast and northwest tropical Australian waters have increased steadily, causing a 200km shift southwards of climate zones along the northeast coast and an expansion in the area that can be designated "the tropics".

- Mieog JC, van Oppen MJH, Cantin NE, Stam WT, Olsen JL (2007) Real-time PCR reveals a high incidence of *Symbiodinium* clade D at low levels in four Scleractinian corals across the Great Barrier Reef: implications for symbiont shuffling. Coral Reefs 26: 449-457.
- Payne M, Hall MR, Sly L, Bourne DG (2007) Microbial diversity within early-stage cultured *Panulirus ornatus* phyllosomas. Applied and Environmental Microbiology 73: 1940-1951.
- Dr Eric Wolanksi, retired AIMS Senior Principal Research Scientist and AIMS Associate, published the book *Estuarine Ecohydrology* (Elsevier, 2007). This book draws on many years of research at AIMS and covers topics ranging from oceanography, coastal

High-powered genetic tools which increase sensitivity more than 100-fold reveal corals have many more strains of microscopic algae than previously thought which may enable them to better respond to climate change

Tropical rock lobster has extraordinary commercial potential if it can be farmed, but disease is currently a stumbling block. Understanding what is killing larval lobsters is the first step in overcoming this hurdle to enable disease management.

management and engineering, estuarine fisheries, coastal development, sustainable development and resource management.

"...a brilliant synthesis of the state of the art in estuarine ecohydrology ... it opens the perspective for new solutions toward achieving restoration and sustainable development of habitats most intensively used by humanity."

--Maciej Zalewski, Director, UNESCO's European Regional Centre for Ecohydrology

AIMS researchers delivered over 100 oral presentations to stakeholders, as well as to scientific and industry conferences held in Australia and overseas. Almost 20 of these presentations were at the 83rd Annual Meeting of the Australian Coral Reef Society in Fremantle in October 2007. The substantial AIMS presence at this meeting demonstrates our leadership in Australian coral reef science as well as our increased investment and presence in Western Australia. Our leadership in coral reef science will again be demonstrated in July 2008 with many of our scientists giving oral presentations at the International Coral Reef Symposium in Florida, a scientific event held every four years with an anticipated attendance of over 3,000 scientists.

Citation Analysis

Based upon citation data, our peer-reviewed scientific publication quality and relevance remains high, with AIMS remaining in the top one per cent of institutions in the world for the fields of 1) ecology and environment, and 2) plant and animal science (Essential Science Indicators, Thomson Scientific). AIMS is in the top three Australian organisations based on citations per paper in both of these fields, with a citation rate twice the global average in the field of ecology and environment and 60 per cent higher than the world average in the field of plant and animal science.

Recognition by Peers (Prizes and Invitations)

Awards and Prizes to staff, students and associates

- Dr Line Bay, a postdoctoral fellow co-funded by AIMS with the ARC Centre of Excellence for Coral Reef Studies, began a Queensland Smart State Fellowship which she received in 2006 to continue her research into climate change and coral bleaching
- Jim Underwood won the Vicki Harriot Student Prize for Best Oral Presentation at the 2007 Conference of the Australian Coral Reef Society. His presentation was entitled "Ecologically and evolutionarily relevant connectivity in corals of NW Australia"
- The Prize for Best Paper of 2007 appearing in the journal *Coral Reefs* was awarded to Jos Mieog for his paper "Real-time PCR reveals a high incidence of *Symbiodinium* clade D at low levels in four Scleractinian corals across the Great Barrier Reef: implications for symbiont shuffling" which was co-authored with his colleagues Madeleine van Oppen (AIMS), Neal Cantin (AIMS@JCU), Wytze Stam (University of Groningen) and Jeanine Olsen (University of Groningen)
- AIMS Associate Dr Charlie Veron was one of three finalists in the Individual Section for the 2008 World Environment Day Awards given by the United Nations Association of Australia
- Gary Cranitch, Queensland Museum, was awarded the 2008 Photographer of the Year in the Professional Science, Environment and Nature category by the Australian Institute of Professional Photography (AIPP) for his images from the first CReefs expedition to Lizard Island. The winning entries were chosen from over 2,500 submissions. They will be included in a touring exhibition and a hard cover book
- Eneour Puill-Stephan won the prize for the Best Oral Presentation at the AIMS@JCU Student Presentation Day
- PhD student Emily Howells has won a Smart State scholarship for the project *Genetic resilience of zooxanthellae populations: The role of coral symbionts in reef adaptation to climate change*, and began her PhD in early 2008

Awards enabling individuals to join the AIMS Research Staff

AIMS is a sought-after destination for top-performing young scientists who have received awards to enable them to join research teams.

- Dr Bryan Wilson was one of six recipients of a Queensland Smart State Fellowship for a project aimed at developing diagnostic tools for coral disease. This project will have implications for the conservation of the Great Barrier Reef, helping in the early detection of disease outbreaks. Dr Wilson moved from the United Kingdom to take up his Fellowship in mid-June 2008
- Joe Pollock was one of only 12 recipients of a Fulbright Scholarship to Australia. He will develop real-time molecular assays for coral disease diagnostics after moving from the US to begin his Fulbright Scholarship in August 2008

Invited Lectures

AIMS researchers were invited to address 12 domestic or international audiences:

- Peter Doherty Forum entitled "The Great Barrier Reef in 2050" held during Science in Parliament, Canberra, March 2008 - "Zoning and the values of Marine Protected Areas to the future of the Reef"
- Ian Poiner Australian Academy of Technological Sciences and Engineering 30th National Symposium *Resources Boom: Opportunities & Consequences* "Impact of Resources Development on Marine Ecological Systems"
- Miles Furnas American Geophysical Union Conference on Long Time Series Observations in Coastal Ecosystems, Croatia, 2007 – "Regional-scale Temporal and Spatial Variability of Phytoplankton Biomass (Chlorophyll) and Nutrients in the Great Barrier Reef lagoon, Australia (1989-2007)"
- Ray Berkelmans American Association of Science 2008 Annual Meeting, Boston 2007 - "Coral adaptation to climate change"
- Janice Lough Joint Australian Research Council Commonwealth Working Group Workshop Connectivity and population resilience - sustaining coral reefs during the coming century, Townsville, October, 2007 - "A changing climate for coral reefs"
- Janice Lough NOAA, Meteo France and Medias France *Workshop on Reconciling ENSO chronologies for the past 500 years*, Moorea, French Polynesia, April, 2008 - "Intimations of ENSO from northeastern Australia"
- Janice Lough Antarctic Climate and Ecosystems CRC Workshop Ocean acidification: Australian impacts in the global context, Hobart, June 2008 - "Massive coral growth histories: potential records of ocean acidification impacts?"
- Sue Codi King APEC Marine Environmental Training and Education Centre Symposium on Modern Agriculture and Environment: Issues, Impact and the Way Forward, Malaysia, 2007 - "Biological monitoring of agricultural and urban chemicals in marine organisms as indicators of sublethal stress along the Great Barrier Reef
- Chris Battershill PacRIM Industrial and Environmental Biotechnology Conference, Hawaii 15 November 2007 – "Australia's role and opportunity in marine biodiscovery"
- Chris Battershill Northern Territory BioIndustry Forum, 20 November, 2007
 "Marine Biodiversity"
- Luke Smith, James Gilmour and Jim Underwood Royal Society of Western Australia 2007 Leeuwin Current Symposium, Perth, September 2007 - "Coral communities off far north-western Australia and the influence of the Leeuwin current"

Plenaries

AIMS researchers delivered the following keynote and plenary addresses:

- Nicole Webster 83rd Annual Australian Coral Reef Society Conference, October, 2007 "Microbes and climate change: the meek shall inherit the seas"
- Walt Dunlap 16th Microbial Resource Workshop, 26-27 October 2007 Mt Fuji, Japan - "Chondropsin vacuolar H(+)-ATPase inhibitors for osteospecific treatment of bone disease: metabolites from the microbial symbionts of Australian marine sponges"
- Chris Battershill *AusBiotech 2007*, 10 October 2007 Brisbane "Drugs from the Sea"
- Peter Doherty CSIRO Sensors & Sensor Networks Workshop, Sydney 2007 "Smart sensing of the marine environment"

AIMS CHIEF HEADS UP CENSUS OF MARINE LIFE GOVERNING BODY

The CEO of AIMS, Dr Ian Poiner, has been appointed Chair of the international Scientific Steering Committee (SSC) of the Census of Marine Life (www.coml.org).

The Census of Marine Life, which began in 2000 and whose secretariat is based in Washington DC, is a growing global network of researchers in more than 70 nations engaged in a 10-year initiative to assess and explain the diversity, distribution and abundance of marine life in the world's oceans, past, present and future.

Support for the Census comes from the Alfred P. Sloan Foundation, government agencies concerned with science, environment and fisheries in a growing list of nations as well as from private foundations and companies including Australia's BHP Billiton.



The Steering Committee is made up of scientists from around the world who provide conceptual guidance, determine scientific goals and oversee the progress and direction of the program.

Expert Committees

AIMS provided expert advice to many State, Commonwealth and international Standing Committees or Working Groups (full list at Appendix 5) including:

- Ian Poiner, Chair Census of Marine Life (CoML) International Scientific Steering Committee
- Ian Poiner, Great Barrier Reef Foundation International Scientific Advisory Committee
- Katharina Fabricius, Palau International Coral Reef Center Scientific Advisory Committee
- Sven Uthicke, Member FAO Holothurian Fishing Steering Committee
- Janice Lough was an invited participant in Australian Academy of Science workshop "Enhancing the quality of the experience of postdocs and early career researchers", AAS, Canberra Feb 2008
- Linda Blackall, member of the South East Queensland Expert Advisory Committee on Water Recycling
- Linda Blackall, member of both the Australian and Queensland Biotechnology Advisory Committees
- Linda Blackall, Chair of the Antarctic Science Advisory Committee
- Andrew Heyward, appointed by the WA Minister for the Environment to the Pluto LNG Dredge Environmental Management Group (DEMG) as an expert adviser with specialist knowledge in marine ecology, especially of corals

In addition, advice was shared through the following actions:

Katharina Fabricius briefed the Parliamentary Standing Committee on Climate Change, Water, Environment and the Arts about implications of changing water quality and acidification (Cairns, April 2008)

- Janice Lough contributed to AIMS' submission to the House of Representatives Standing Committee on Climate Change, Water, Environment and the Arts inquiry into climate change and environmental impacts on coastal communities, May 2008
- Janice Lough provided advice to Ross Allen, Australian Strategic Policy Institute, regarding security implications for Australia of ocean acidification
- Richard Brinkman with others provided a gap analysis to the CSIRO Water for a Healthy Country Flagship with respect to receiving-water water quality modelling in the Great Barrier Reef
- Richard Brinkman provided advice and gave evidence to the coronial inquiry into a dive death at the Yongala Dive site
- Scott Wooldridge briefed GBRMPA research managers about linking water quality and climate change predictions to aid the identification of vulnerable areas of the GBR
- Sven Uthicke was a member of the steering committee for FAO workshop on holothurian fishing
- Chris Battershill and Libby Evans-Illidge participated in the Biodiscovery Industry Panel for the Genetic Resources Management Group of the then Department of Environment, Water, Heritage and the Arts
- Libby Evans-Illidge provided input to the biodiscovery working group of the Biotechnology Liaison Committee (Biotechnology Australia)
- Several staff were interviewed as part of a national review of biodiscovery being conducted by the Commonwealth Department of the Environment, Water, Heritage and the Arts
- A number of AIMS research staff have been deemed "Expert Assessors of International Standing" and provide peer-review of grant applications for the Australian Research Council

Other Outreach

- Professor Lyn Beazley (Chief Scientist WA) and Ambassador Bill Tweddell (Australian Ambassador to Vietnam) visited AIMS in Townsville
- Presentations were made to Mr Robert McCallum Jr, the US Ambassador to Australia, on AIMS' research and engagement with industry and universities (Townsville 5-6 June 2008)
- Janice Lough gave a Public Discussion Session at the ARC Centre of Excellence Coral Reef Futures Forum entitled "A changing climate for coral reefs", hosted by ABC Science Show presenter Robyn Williams, Australian Academy of Sciences, Canberra, October 2007
- Public lectures were given by several AIMS scientists to regional Local Marine Advisory Committees, the mechanism by which communities provide input into management of the Great Barrier Reef Marine Park
- On 14 March 2008, AIMS held a well-attended public forum in Townsville on the issue of ocean acidification. This was held at the conclusion of a workshop at which national and international experts on the subject conferred with AIMS scientists on future research directions
- In a new science communication initiative for AIMS, two freelance journalists (Claudia Reidy and Susan Graham) were engaged to prepare on-location reports from, respectively, Lizard Island and Ningaloo Reef, the first two Australian CReefs expeditions. The blogs containing their stories may be viewed at: http://www.aims.gov.au/creefs/latest-field-trip.html
- AIMS is working with TAFE Queensland to develop a training plan and

work experience for four sponge farm trainees from the Palm Island Sponge Aquaculture Research project

- The June 2008 edition of the Institute's external newsletter, *Waypoint*, was redesigned as part of our ongoing process to ensure this publication is meeting the needs of its readership. This is an important vehicle through which AIMS communicates with its stakeholders and users
- On 3 June 2008, the Chair of the Review of the National Innovation Systems, Dr Terry Cutler, visited AIMS as part of the review process. AIMS made a submission to the Innovation Review and also played a major role in the preparation of the Ocean Policy Scientific Advisory Group (OPSAG) and Integrated Marine Observing System (IMOS) submissions
- AIMS scientists hosted the Townsville chapter of the Marine Science Teachers Association to demonstrate techniques and resources that may be used in high school classrooms
- AIMS continued to run its popular public tours at the Townsville site, made possible through the invaluable work of a team of committed volunteer guides. The Institute also facilitates specialised tour group visits. During the reporting period, AIMS hosted a total of 66 tour groups

Research Partnerships

AIMS made a strategic decision in 2004 to focus on increased science delivery through joint ventures, strategic alliances and significant collaborations. Investing AIMS resources in collaborative projects with willing partners increases the return yielded from every dollar expended. More importantly, it increases critical mass and broadens the skill base required to address the complex questions of sustainable use and protection of marine resources. In 2007-08, almost all of AIMS' scientific tasks received co-investment from partner organisations.

Joint Ventures

AIMS and James Cook University created **AIMS@JCU** to facilitate infrastructure sharing and to provide opportunities for training postgraduate students in tropical marine sciences. AIMS@JCU is now in its fourth year and continues to foster joint research and student collaboration. In 2007-08 the joint venture funded three postdoctoral fellows and provided six scholarships for new PhD students. One student also received funds to support an Honours research project and a substantial number of travel support grants were awarded to enable students to present their research at the 11th International Coral Reef Symposium in Florida in 2008. This adds to an already substantial number of scholarships awarded in previous years. The first PhD graduates from among AIMS@JCU scholarship holders are now emerging, increasing our national capacity in marine science.

In early 2008 Professor Rhondda Jones completed her term as the Chair of the AIMS@JCU Board. At that time the decision was made to simplify the joint venture and reduce overhead costs by replacing the Board with a Management Committee. The committee retains representatives from both AIMS and JCU and is led by the newly appointed AIMS@JCU Research Director, Dr Michelle Heupel.

Further details may be found at http://aims.jcu.edu.au/aims-jcu/home.html

The Australian Research Council awarded five years of funding (2005-09) to establish the **ARC Centre of Excellence for Coral Reef Studies**, headquartered at JCU. The core partners are JCU, AIMS, ANU, GBRMPA and UQ, with links to 24 other leading institutions in nine countries.

The CEO of AIMS is a member of the Centre Advisory Board and three of our scientists (Dr Janice Lough, Dr Madeleine Van Oppen and Dr Mark Meekan) are sponsored Investigators within the Centre's research program. AIMS also co-invests in postdoctoral fellowship appointments. This partnership has resulted in numerous high profile collaborative manuscripts. AIMS scientists participated in the Centre's National Forum on Coral Reef Futures held at the Academy of Science in Canberra, including a featured presenter in a public discussion on coral reef science, conservation and management.

Further details may be found at http://www.coralcoe.org.au/

The Arafura Timor Research Facility (ATRF) is a joint venture between AIMS and the Australian National University (ANU) that was enabled by an Australian Government Major National Research Facility infrastructure grant. The ATRF was created to support world class scientific research into the resources and peoples of the Arafura and Timor seas region through the provision of infrastructure and the constructive engagement of national, Territory and State departments, industry sectors and overseas northern neighbours. AIMS researchers at the ATRF have established strong collaborations with staff and students at the adjacent Charles Darwin University and the University is now providing a range of services to the ATRF.

The award-winning facility is fully tenanted and supports a range of collaborative and/or co-invested projects, including:

- Satellite tracking of whale shark migration;
- Environmental monitoring; and
- Illegal, Unreported and Unregulated fishing which primarily targets shark fin fisheries.

The ATRF is also home to Biosciences North Australia (BNA), a facility dedicated to research training and consultancy services in molecular and environmental ecology, biodiversity assessment, phylogeny and diagnostics. BNA is a partnership between AIMS, CDU and the Northern Territory Government and is managed by the BNA Advisory Group with representatives from each of the partners.

Further details at http://www.atrf.org.au/ and http://www.cdu.edu.au/ehs/bna/index.html

Western Australian Marine Science Institution (WAMSI). This joint venture was established in May 2007 with a \$21 million grant from the Western Australian Government. This funding was augmented by the partner research providers to provide an investment of more than \$80 million over five years. The goal of WAMSI is to conduct marine science to underpin the conservation and sustainable management of Western Australia's marine environment and resources.

The WAMSI partnership comprises AIMS, CSIRO, Bureau of Meteorology, WA State Government Departments of Environment and Conservation, Fisheries, and Industry and Resources, WA Museum, Perth universities and the Western Australian Global Ocean Observing Systems (WAGOOS). The AIMS CEO is a member of the WAMSI Board and the WAMSI R&D Committee that approves and oversees the research program.

AIMS provides expertise and knowledge in coral reef systems and oceanography, along with access to our research vessels and their capabilities. These capabilities were critical to a major collaborative project with CSIRO and WA DEC under

the WAMSI umbrella to conduct benthic habitat surveys of potential LNG hub locations in the Kimberley region. This project was a rapid response to a request from the Northern Development Taskforce (NDT), a whole-of-government initiative to coordinate issues relating to the development of Browse Basin gas in the Kimberley, and the National Heritage Listing of the Burrup Peninsula.

Further details may be found at http://www.wamsi.org.au/

Strategic Alliances

Strategic alliances enable AIMS to expand its research capacity and critical mass to deliver strategic research. Major alliances during the reporting period were:

- CReefs, a collaboration between AIMS, Scripps Institution of Oceanography and the National Oceanic and Atmospheric Administration (NOAA), to conduct a global census of coral reefs. CReefs Australia is a component of the global CReefs program focusing on understudied taxonomic groups. Microbial diversity will be assayed using a molecular "bar-coding" approach in collaboration with the International Census of Marine Microbes which is a component of the global Census of Marine Life.
- The Great Barrier Reef Observing System (GBROOS) is a multidisciplinary infrastructure project led by AIMS on behalf of a consortium of agencies. The Great Barrier Reef marine tourism industry is participating by including ship board sensors on some of their vessels. Funding comes from the Australian and Queensland governments and is part of the Integrated Marine Observing System (IMOS), a national collaborative program managed by the University of Tasmania to observe the oceans around Australia. GBROOS will use a powerful blend of technologies to transmit data from multiple sensors along the Great Barrier Reef from Cooktown to Gladstone.
- In addition to leading GBROOS, AIMS is a collaborator in another IMOS facility: the Australian Acoustic Tagging and Monitoring System (AATAMS), which is administered by the Sydney Institute of Marine Science and Macquarie University. On behalf of the Facility, AIMS deployed 40 acoustic noise receivers in cross-shelf lines across narrow regions of the Ningaloo Marine Park to develop the Ningaloo Reef Environmental Tracking Array (NRETA). These acoustic curtains will log the alongshore movements of large animals (sharks, rays, fish) tagged with sonic transmitters to reveal information such as movement between fished and reserve areas.
- The Marine Monitoring Program of the Reef Water Quality Protection Plan (Reef Plan) is delivered by a consortium of agencies for GBRMPA (AIMS, University of Queensland, Queensland Department of Primary Industries & Fisheries, CSIRO, Queensland Department of Natural Resources, Mines & Water, Queensland Environmental Protection Agency, Sea Research). The Reef Plan was established by the Commonwealth and Queensland governments for catchments adjacent to the GBR World Heritage Area with the goal of halting and reversing the decline in the quality of water entering the reef within 10 years. The Marine Monitoring Program is measuring water quality in the GBR lagoon and adjacent river catchments to assess the effectiveness of the Reef Plan's implementation.
- The Marine and Tropical Sciences Research Facility is a multi-agency research program coordinated by the Reef and Rainforest Research

Centre Limited (RRRC) under the Commonwealth Environment Research Facilities program of the Department of Environment, Water, Heritage and the Arts. Its aim is to ensure the health of North Queensland's publicly owned environmental assets like the Great Barrier Reef and its catchments, tropical rainforests including the Wet Tropics World Heritage Area and the Torres Strait by generating world-class research and sharing knowledge between research providers and users of that knowledge.

- The Marine Biodiversity Research Hub is another CERF program that is a multi-agency research program involving the University of Tasmania, CSIRO, Geoscience Australia, AIMS and Museum Victoria. The Hub will analyse the patterns and dynamic of marine biodiversity to determine the appropriate units and models for effectively predicting Australia's marine biodiversity. It will develop and deliver the tools needed to manage Australia's marine biodiversity.
- AIMS continues to coordinate research on seawater temperature and coral bleaching events as part of a consortium with the National Oceanic and Atmospheric Administration (NOAA), GBRMPA and the UQ. Coral bleaching is an important indicator of environmental stress and is predicted to increase as a result of climate change. Robust monitoring coupled with rapid response to coral bleaching events to document the extent and severity of a bleaching has improved our understanding of the link between climate change and this phenomenon as well as the ability of coral populations to survive bleaching.

NUMBER OF COLLABORATIONS

Collaboration is central to our organisational culture and in magnifying our science capabilities and capacity. This is apparent from the fact that only 20 per cent of our 2007 publications were authored solely by AIMS staff. Of the remaining collaborative peer-reviewed papers, 36 per cent were with collaborators located only in Australia, 22 per cent were with international collaborators, while the remaining 22 per cent involved collaborators from both Australia and overseas.



Collaborative scholarly publications 2007



Collaborations are critical not only for our peer-reviewed scholarly publications; one-third of our technical reports submitted to clients were also co-authored with collaborators at other organisations.

AIMS actively collaborates with 76 organisations from 11 countries. While the majority of these collaborations were within Australia, 34 were with colleagues overseas.

Contracts Successfully Completed

During the reporting period, AIMS successfully completed 29 contracts and began 46 new research contracts. The Institute provided 120 client reports to external contract clients, with the majority being completed on schedule. These included milestone reports as well as final reports. AIMS' performance for external clients is reflected in the high percentage of repeat business.

RESEARCH SERVICES, SPECIALISED CONSULTING

AIMS performs strategic basic research to build Australia's capacity to solve or manage existing and future problems involving tropical marine environments. AIMS does little tactical research and does not compete in the commercial consulting sector; only undertaking fee-for-service research when alternative commercial providers do not exist because of the scale of the problem and when the research needs fall within our chosen strategic directions and capabilities. Our funding base includes substantial income from other organisations for coinvestment activities of mutual interest. This enables AIMS to maintain the research portfolio needed for informed decision-making by the public and private sector when sustainably developing Australian tropical marine resources.

REVENUE FROM CO-INVESTMENT

Last year we forecast that revenue from partner co-investment would exceed \$7 million. We realised \$13.25 million for 2007-08, representing 29 per cent of AIMS' total revenue for the year. The dramatic rise in external earnings was due to new projects associated with the oil and gas industry together with \$1 million of revenue from projects deferred from 2006-07 due to circumstances beyond the Institute's control. The new projects will provide the fundamental information about key patterns and processes of marine systems in northwest Australia to meet the needs of regulators and industry clients. The Scott Reef Research Project off Western Australia's Kimberley coast is a major example.

The first figure below shows the growth in AIMS' external revenue compared with the previous four years. The second figure shows the breakdown of government and industry funding for the reporting period. The amount of coinvestment we received from Australian industry has greatly increased and reflects a continued focus on diversifying our revenue sources to enable future growth.



Sources of funding



ADOPTION BY USERS OF PRACTICES, INSTRUMENTS AND PROCESSES

- The report by Katharina Fabricius and Glenn De'ath to GBRMPA entitled "Water quality on the Great Barrier Reef: distributions, effects on reef biota and trigger values for conservation of ecosystem health" was used to formulate major sections of the GBRMPA Water Quality Guideline for the Great Barrier Reef Marine Park which is now available in draft form and will be going to a public consultation phase.
- A report to Alcan Gove P/L by Richard Brinkman and Simon Spagnol, "Final Report: Development of a hydrodynamic model for Southern Melville Bay" and the associated hydrodynamic model, are now being applied by Rio Tinto Alcan for discharge modelling. The transfer included training sessions to Rio Tinto Alcan staff by AIMS scientists.
- David McKinnon and Halmar Halide convened a workshop for industry and regulators in Lampung, Indonesia, as part of their Australian Centre for International Agricultural Research (ACIAR)-funded task. The decision support system developed by Dr Halide was adopted as the working model for calculating the environmental carrying capacity for finfish aquaculture in the region. An online tool that enables delivery of this knowledge to aquaculture managers has been accessed since by scientists in Australia, Indonesia, Malaysia, Singapore and the US, with 400 accessions per month.
- A report co-authored by Richard Brinkman, "Review and gap analysis of receiving-water water quality modelling in the Great Barrier Reef" (Webster IT, Brinkman RM, Parslow J, Prange J, Stevens ADL, Waterhouse J. CSIRO Water for a Health Country Flagship), has been acknowledged by GBRMPA and the Reef Partnership as a roadmap for research to monitor responses to the implementation of the Commonwealth-State sponsored Reef Protection Plan.
- AIMS Automated Weather Stations and temperature data logger data are made available to the general public through our website. The data are accessed primarily from Australia but also by organisations from the US, United Kingdom and Japan. Improvements in our external website and online data delivery have resulted in the number of monthly accessions growing to over 6,000.
- The Advanced TIROS Operational Vertical Sounder (ATOVS) from the AIMS Satellite Reception Facility is now being put into operational production with the Bureau of Meteorology. This will improve forecasts locally and internationally. The data provides atmospheric temperature, water vapour profiles and total ozone content from northeastern Australia.

CONTRIBUTION TO AUSTRALIA'S RESEARCH FUTURE THROUGH TEACHING AND TRAINING

AIMS has many links with Australian universities ranging from institutional arrangements to peer-to-peer collaborations. In 2007-08, 15 AIMS staff held adjunct appointments at James Cook University, the University of Queensland, University of Western Australia and Charles Darwin University. Most of these adjunct positions reflect a large personal contribution to postgraduate supervision, so that collectively AIMS is a significant provider of research training in the marine sciences.

During 2007–2008, AIMS scientists supervised 76 postgraduate students and 17 students undertaking an Honours year at the end of their undergraduate degrees. Half of these students used AIMS facilities to gain their experience. AIMS research teams also hosted 14 occupational trainees from foreign universities. Previous supervision by AIMS scientists contributed to the success of 14 research theses, including four submitted by Honours degree students, during the reporting period.

	2004-05	2005-06	2006-07	2007-08
AIMS staff enrolled in postgraduate studies	8	6	8	7
Students working at AIMS (Townsville) supervised by AIMS staff	24	34	34	38
Students working externally supervised by AIMS staff	37	25	25	38
Occupational trainees (Australia and overseas)	17	17	13	14

In addition to a large number of research students, AIMS has committed to a target of having at least 10 postdoctoral scientists associated with its research programs. During 2007-08, AIMS supported 14 early career researchers, some of whom moved to other organisations within the year and were replaced by new starters. These postdoctoral positions are funded wholly by AIMS or by partnering with entities such as the ARC Centre of Excellence, CERF Marine Biodiversity Hub and AIMS@JCU.

MILESTONE COMPLETION

AIMS maintains a centralised Milestone Reporting System to track progress of projects. Milestones are agreed between AIMS and external clients and partners. Potential delays are identified early to ensure measures such as resource reallocation can be implemented to maximise likelihood of timely delivery. If all reasonable efforts have been undertaken and delay will still result beyond the control of all parties concerned, the milestone is renegotiated with external clients and partners.

During the reporting year, 92 per cent of our milestones were completed as contracted. The remaining milestones were delayed by bad weather, infrastructure constraints not under staff control, and failure of collaborators and/or suppliers to deliver on schedule. In all cases, acceptable alternative arrangements were successfully negotiated with the external party.

POLICY INPUT

AIMS continually provides strategic input to policy development directly by submission to key reviews and indirectly through provision of expert advice. The latter is facilitated through effective networks with state and federal regulatory bodies and membership of key committees and working groups. As a portfolio agency, we are often asked for advice on matters forwarded by our Department (previously Education, Science and Training; now Innovation, Industry, Science and Research), such as preparing Australian responses and policy positions on matters like marine and coastal biodiversity for the Convention on Biological Diversity and OECD projects under the Committee for Science and Technology Policy. Other examples of advice to Government include public submissions during 2007-08 to:

- the Review of the National Innovation System;
- the Senate Standing Committee report "Conserving Australia";
- Public Support for Science and Innovation (Productivity Commission workshop);
- Development of national marine research strategies;
- the Council of Australian Governments (COAG) Review of Hazardous Materials in response to their report on chemicals of security concern; and
- the development of national innovation programs such as measures for research excellence and new fellowship programs.

AIMS plays a significant and continuing role in policy development around the issue of access and benefit sharing of marine biodiversity. The Institute also provided input to the development of national innovation programs such as measures for research excellence and new fellowship programs.

In addition, individuals provided expert advice on important matters requiring professional and technical expertise (see Expert Committees), with strong examples in the areas of climate change impacts, access and benefit sharing arrangements for marine genetic resources, biosecurity, and fisheries management arrangements. AIMS CEO Dr Ian Poiner was a member of the Working Group for an Environmentally Sustainable Australia that contributed to the 2008 Review of the NCRIS Roadmap.

PARTNER AND CLIENT FEEDBACK

AIMS proactively seeks feedback from research partners and contractual clients to identify opportunities for improved performance and greater science delivery. Close engagement between project managers and clients and collaborators identifies issues, enabling us to reinforce successful effort and rectify problems. Feedback to date is mostly positive. An example of its incorporation into our operations is the continued improvement and emphasis on internet delivery of our data and data products.

OPERATIONAL EFFICIENCY (KPA EFFECTIVE USE OF RESOURCES)

During the year AIMS maintained its commitment to continuous improvement in the delivery of its research program. This included ongoing effort in developing electronic systems to enhance management processes. Examples are: improved systems to streamline the process of data handling, reducing errors and supporting scientific analysis and reporting; a system to support planning for capital expenditure; and a system to support credit card acquittal.

ENHANCE CORE CAPABILITIES (KPA ORGANISATIONAL GROWTH)

During the reporting period AIMS implemented its new Annual Performance Agreement (APA) process with staff. The modified process assists in identification of any training or additional resources needed to achieve agreed work objectives. Development of a capability matrix to support workforce planning for medium to long-term skillset requirements and succession planning moved forward during the reporting period.

DEVELOP STAFF (KPA ORGANISATIONAL GROWTH)

AIMS is committed to staff development to support effective delivery of its research program and associated activities. In addition to individual training needs that are identified through the APA, AIMS provided on-site training for middle managers (Diploma of Business, "Frontline Management" through the Barrier Reef TAFE. A priority in 2008/09 will be finalising a learning and development strategy, and leadership training and development.

HEALTH, SAFETY AND THE ENVIRONMENT (KPA HEALTH, SAFETY AND ENVIRONMENTAL PERFORMANCE)

OH&S

A major effort during the reporting period has been the development of the AIMS HSE Management Plan for the Scott Reef Research Project (SRRP). The plan aligns AIMS' practices and standards with the offshore oil and gas industry.

A review of incidents reported from 2003 to 2008 has been undertaken to improve identification of health and safety risks at AIMS. The review identified manual handling as a significant risk, leading to new preventative actions and strategies to minimise these risks.

A detailed OH&S report is provided on page 80.

Environment

AIMS has an ongoing program to monitor energy and water usage and actively seek mechanisms to reduce the energy needs of its operations. During the year this included setting up solar tubing to heat large volumes of seawater and instigating a program for future planning. A level 3 energy audit and carbon account audit will be completed by the end of 2008 to support planning for the next five years.

Further details relating to environment, energy usage and water are provided on pages 81-82.



ROLE, LEGISLATION AND MINISTER

Dr Vanessa **Guthrie**, Vice President Sustainable Energy, Woodside Energy, Senator the Hon Kim Carr and CEO of AIMS, Dr lan Poiner, at the launch of the Scott Reef **Research Project.** Image: Australian Convention Photography.



AIMS' role is to carry out research and development in marine science and technology and to encourage and facilitate the application and use of the results of these activities.

The Australian Institute of Marine Science is a Commonwealth Statutory Authority established by the Australian Institute of Marine Science Act 1972. The Commonwealth Authorities and Companies Act 1997 sets out reporting, accountability and other rules for AIMS Operations.

AIMS' functions and powers are set out in Sections 9 and 10 of the Act (see Appendix 1, p 131). During the first part of the 2007–2008 reporting period, the Minister responsible for AIMS was the Hon Julie Bishop MP, Minister for Education, Science and Training. After the November 2007 federal election the Minister responsible is Senator the Hon Kim Carr, Minister for Innovation, Industry, Science and Research.


STAFFING AND STRUCTURE



The total number of staff employed by the Institute at 30 June 2008 was 180 (by head count). When taking into account hours worked over the reporting period, the full-time equivalent value is 176.5. All members of staff are employed under the *Australian Institute of Marine Science Act 1972* (amended 2002). In addition to those paid from Australian Government appropriation, the Institute periodically employs staff to work on projects funded from external sources.

Staff numbers in 2007-08 have grown, particularly in two key areas. Firstly, new work in partnership with Woodside Energy in Western Australia has meant a rise from eight to 17 staff at AIMS WA. Also, the number of new postdoctoral staff has increased by four, with a further six jointly funded positions.

The following tables provide a breakdown of staff numbers and EEO status by headcount as at 30 June 2008 (prior year figures have been bracketed):

	Female	Male	Total
Research Scientists	(7) 10	(25) 23	(32) 33
Research Projects	(24) 28	(38) 44	(62) 72
Other (Research and Corporate Services)	(31) 31	(37) 44	(68) 75
Total Staff	(62) 69	(100) 111	(162) 180

Aboriginal and Torres Strait Islander	(1.23%)	1.67%
Non English speaking Background	(6.75%)	9.44%
Staff with Disability	(2.45%)	2.22%
Women	(38.00%)	38.89%

The work of the research staff is supported by a variety of professional research support staff skilled in data management, commercial services, intellectual property portfolio management, engineering services, field operations, information technology, information services and science communication. Corporate Service Groups deliver financial, human resource, supply and property, and general management services to all AIMS Staff.

The Management Group is made up of the Chief Executive Officer, General Manager, Research Director and Chief Finance Officer.



CORPORATE GOVERNANCE

The AIMS Council: Mr Nicholas Mathiou, Dr Brian Fisher, Professor Sandra Harding, Dr Ian Gould, Ms Elizabeth Montano, Mr John Grace and Dr Ian Poiner. Image: John de Rooy.



AIMS has in place a comprehensive system of corporate governance practices designed to provide control, disclosure and accountability for the Institute's activities.

RESPONSIBLE MINISTER

The Institute meets its responsibilities to the Australian Government through the Minister for Innovation, Industry, Science and Research, Senator the Hon Kim Carr.

Under Section 28 of the CAC Act, the Minister may, after consultation with the Council, notify the Council of a general policy of the Australian Government that is to apply to AIMS.

THE COUNCIL

Under the AIMS Act, the Council (or Board) of the Institute comprises a nonexecutive chairperson, the Institute's CEO and five non-executive members. Dr Brian Fisher, Executive Director, Economic Analysis, was appointed as a nonexecutive member of the AIMS Council on 26 September 2007.

Council members are appointed by the Governor General, at least three members must possess scientific qualifications and one member is nominated by James Cook University. Appointments can be up to five years and reappointment is permissible. The members of Council (see details on following pages) bring complementary skills and experience to governance of the Institute. The Remuneration Tribunal determines the level of remuneration and allowances paid to part-time Council members. The CEO is an *ex officio* member of Council. The CEO is appointed on the recommendation of the Council for a period not exceeding seven years and is eligible for re-appointment.

ROLE OF THE COUNCIL

The AIMS Council sets the Institute's key objectives and research strategies. Progress against the four-year *Research Plan 2007-2011* is reported to the Council, on a continuous basis, by the Institute. The Minister is also provided with advice on developments of significance, as appropriate.

The Commonwealth Authorities and Companies Act 1997 (CAC Act) requires that the Council to complies with certain accountability and corporate governance principles, including:

- the maintenance of the Audit Committee;
- specific financial and reporting provisions;
- disclosure of Board Members' personal interests; and
- provision of indemnities and indemnity insurance in certain circumstances.

From October 2007, AIMS has been required to complete an Annual Compliance Report to the Government regarding the Institute's compliance with the CAC Act and its financial sustainability. Internal procedures are in place to support this declaration.

During the reporting period changes were made to the AIMS Act as part of the *Governance Review Implementation (Science Research Agencies) Act 2007.* The amendments remove the requirement for Ministerial approval of contracts of \$1 million, and also to enable AIMS Council to appoint and remove the Chief Executive Officer.

During 2007-2008 all CAC Act requirements were met.

COUNCIL MEMBERS

Dr Ian Gould BSc (Hons), PhD (Geology), FAusIMM, FTSE Term as Chairman: 01/01/2005 – 31/12/2009 Term as Council Member: 01/07/2002 – 31/12/2004

Dr Ian Gould brings to AIMS high-level business, research and policy expertise, as well as involvement with environmental matters. He has over 40 years' experience in the minerals industry, mainly with the Rio Tinto group and Normandy Mining Ltd, from which he retired as managing director. He is currently Chancellor of the University of South Australia and Chair of St Andrews Hospital, CSIRO Minerals and Energy Sector Advisory Committee, South Australian Minerals and Petroleum Expert Group and Toro Energy Ltd.

Dr Gould is a member of the Royal Flying Doctor Service (Central Operations), and the South Australian Resources Industry Development Boards and the South Australian Premier's Science and Research Council.

Mr John Grace BSc (Applied Chemistry), FTSE, FAICD Term as Council Member: 16/12/2004 – 15/12/2009

Mr Grace has worked for 37 years in the biotechnology industry, 20 years of which he was a CEO. He has applied this experience in organisations ranging from Burns Philp to CSIRO and AMRAD. In the latter company, he served as Managing Director for 11 years. Mr Grace is an experienced director of listed and private companies. He operates a consulting business in biotechnology, iBIO Pty Ltd. He is the honorary treasurer of the Academy of Technological Sciences and Engineering and in recent times he has been the acting CEO.

Mr Grace is a past member of the Australian Research Council where he continues an association as Chair of the Selection Panel for the College of Experts, and Chair of the Review of the Federation Fellowship scheme. He was formerly a member of the Victorian Premier's Knowledge Innovation Science and Engineering Task Force, a member of the Industry Research and Development Board and President/Director of the Australian Biotechnology Association.

Ms Elizabeth Montano BA LLB Term as Council Member: 16/12/2004 – 15/12/2009

Ms Montano has worked in senior positions in both the private and public sectors for over 20 years. She has been a member of various public sector boards and conducts a consulting business primarily providing advice and services to the public sector relating to corporate governance, strategy, corporate planning and audit. She was Chairman of the Board of Management of Centrelink, Board Member and Chairman of Centrelink's Audit and Risk Committee. Her consulting assignments have included providing strategic advice to the Chief Federal Magistrate of the Federal Magistrates Court of Australia; being an independent member of the Executive Management Board and Strategic Leadership Group of the Australian Federal Police and independent member of its Security and Audit Committee; and member of the Advisory Committee of the Transnational Crime Centre at the University of Wollongong. She was formerly Director (CEO) of the Australian Transaction Reports and Analysis Centre (AUSTRAC), Australia's anti-money-laundering regulator and financial intelligence unit; Head of Australia's Delegation to the Organisation for Economic Co-operation and Development (OECD) based Financial Action Task Force on Money Laundering; a member of the board of CrimTrac; a member of the Heads of Commonwealth Operational Law Enforcement Agencies group (HOCOLEA); chairman of various HOCOLEA groups, including the Action Group on the Law Enforcement Implications of Electronic Commerce; the director responsible for corporate and fundraising regulatory policy with the Australian Securities Commission (now the Australian Securities and Investments Commission) and a senior banking and finance consultant and solicitor with Mallesons Stephen Jaques.

Mr Nicholas Mathiou B Com (Hons), LLB, MMktg Term as Council Member: 01/09/2005 – 31/08/2010

Mr Mathiou has over 20 years of professional investment, transaction and corporate advisory experience, with particular emphasis on private equity investment in emerging enterprises.

His current role is Director of Griffith Enterprise, which is responsible for adding value to Griffith University's knowledge base and commercialising its intellectual property. He is also a co-founder and non-executive Director of Investment Capital Partners (ICP), an Australian investment management firm. Previously Mr Mathiou was a co-founder, Finance Director and Company Secretary of Medica Holdings Limited (MCA), an Australian Stock Exchange (ASX) listed company specialising in venture capital investment in biomedical ventures. He was jointly responsible for all investment and divestment decisions, as well as the strategic direction of Medica. He also held senior non-executive positions in portfolio companies.

Before co-founding Medica, Mr Mathiou advised senior management and boards of directors of a large number of corporations on acquisition and investment appraisals; corporate funding and implementation; business valuations; strategic and business planning; commercialisation strategies and planning; and business process re-engineering in executive roles with Invetech (Business Strategy and Technology Group) and Coopers & Lybrand (Corporate Services Division).

He is a fellow of the Financial Services Institute of Australasia, a barrister of the Supreme Court of Queensland, a barrister and solicitor of the Supreme Court of Victoria, a member of Chartered Secretaries Australia and an associate member of the Australian Society of Certified Practising Accountants (ASA).

Professor Sandra Harding BSc (Hons) ANU, M.Pub.Admin UQ, PhD NCSU, FAICD, FAIM

Term as Council Member: 10/05/2007 - 09/05/2010

Professor Harding has extensive academic and academic leadership experience. Since January 2007 she has been the Vice Chancellor and President of James Cook University and prior to this held a number of senior executive roles at Queensland University of Technology including Deputy Vice-Chancellor (International and Development) and (executive) Dean of the Business Faculty.

Professor Harding has undertaken a wide variety of external roles. She was the Inaugural President of the Australian Business Deans Council and Vice-President of the Australian Universities Community Engagement Alliance. She has also served on a number of review panels and accreditation committees within the Higher Education Sector.

From 2001 to 2006 Professor Harding was Chair of the Australian Statistics Advisory Council, providing advice to the Federal Government and the Australian Statistician on Australia's national statistical priorities. During the period 2001 to 2008, she was also a member of the HIH Assessment Review Panel, another federal government appointment. She has been a member of the Queensland Education and Training Export Board, the Queensland Small Business Advisory Council and a member of the judging panels for the Queensland Export Awards and the Premier's Awards for Public Sector Excellence.

Professor Harding is currently a Director of the Australian Institute of Commercialisation Pty Ltd, the Port of Townsville Pty Ltd, Townsville Enterprise Limited, Advance Cairns and a Board member of the Business/Higher Education Round Table. She is also a non-executive Director of the Global Foundation for Management Education Ltd (Montreal).

Dr Brian Fisher, BscAgr (Hons 1), PhD *Term as Council Member: 26/09/2007 – 25/09/2010*

Dr Fisher is one of Australia's most respected advisers on climate change, emissions trading and the economic impact of current and future climate and energy policies. He is a well known commentator on Australian agricultural, minerals and energy commodities. He previously held the position of Executive Director of the Australian Bureau of Agricultural and Resource Economics (ABARE). He was first appointed Executive Director of ABARE in 1988. He left the Bureau briefly for a senior position in the Federal Department of Primary Industries and Energy before returning to ABARE as Executive Director in 1995.

Before heading up ABARE, Dr Fisher was Professor of Agricultural Economics at the University of Sydney and became Dean of the Faculty of Agriculture at the University in 1987. He was appointed Adjunct Professor of Sustainable Resources Development in 2003. Concurrently with his position at ABARE, in 1993 Dr Fisher was appointed one of the experts completing the socioeconomic assessment of climate change for the United Nation's Intergovernmental Panel on Climate Change (IPCC) Second Assessment Report. He played an integral role in the international climate change negotiations as economic adviser to Australia's negotiating team in the lead up to, and at, the third Conference of the Parties in Kyoto. He again fulfilled that role at the fourth, fifth and sixth Conferences of the Parties of the UNFCCC and was engaged as one of the experts completing the IPCC's Third Assessment Report. He recently completed an assignment as convening lead author for the IPCC's Fourth Assessment Report. Dr Fisher is also approached by government departments and private enterprises to advise on climate change, emissions trading and the economic impact of current and future climate and energy policies.

Dr Fisher has been the government board member on a number of statutory corporations and has published over 250 papers and monographs. In addition to his position with ABARE, he was recently an Associate Commissioner of the Productivity Commission and the Chairman of the Prime Minister's Exports and Infrastructure Taskforce. He received the Farrer Memorial Medal in August 1994, became a fellow of the Academy of Social Sciences in Australia in November 1995, was awarded the Public Service Medal in 2002 and received an Order of Australia in the Queen's Birthday Honours List in 2007. He holds a PhD in agricultural economics from the University of Sydney.

Dr Ian R. Poiner BSc (Hon), PhD Term as Council Member: 12/07/2004 – 11/07/2009

Dr Ian Poiner is the Chief Executive Officer of AIMS. Dr Poiner has significant experience in strategic development and planning of science, both as a practising scientist and at the organisational level. This is reflected in his successful large-scale, multi-disciplinary research projects and his establishment of national and international research programs to support the sustainable use, conservation and management of marine ecosystems. Dr Poiner's scientific background is research into tropical fisheries and ecological systems, including those in Australia's northern Great Barrier Reef, Torres Strait and the Gulf of Carpentaria. He has also worked in Jamaica, Papua New Guinea and Southeast Asia. Dr Poiner serves on a number of national and international committees. He is Chair of the International Scientific Steering Committee of the Census of Marine Life, a 10-year international research program to assess and explain the diversity, distribution and abundance of marine organisms throughout the world's oceans. As CEO of AIMS, he is responsible for managing the day-to-day affairs of the Institute.

	24 Aug 07 Teleconference	24 Sep 07 Teleconference	8-9 Oct 07 Perth	10-11 Dec 07 Townsville	8 Feb 08 Teleconference	29-30 March 08 Townsville	18-19 June 08 Townsville
Dr I Gould	~	~	~	~	~	~	~
Mr J Grace	✓	~	~	~	~	~	~
Ms E Montano	✓	~	~	~	~	~	~
Mr N Mathiou	✓	~	~	~	~	~	~
Prof S Harding	Х	~	X	~	~	~	~
Dr B Fisher	N/A	N/A	X	~	~	~	~
Dr I Poiner	~	~	~	~	~	~	~

AUDIT COMMITTEE

The Audit Committee is a formal sub-committee of the Council and it meets quarterly or as required. The Audit Committee members during the reporting period were Mr Nicholas Mathiou (Chair), Ms Elizabeth Montano and Mr Roy Peterson. The Chief Executive Officer, the Chief Finance Officer, representatives of the Australian National Audit Office and Internal Auditor and External Auditor attend all meetings, or relevant parts of all meetings, by invitation.

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

The Audit Committee responsibility is to provide independent assurance and assistance to Council in the following areas:

- Financial Risk Management
- Control Framework
- External Accountability
- Legislative Compliance
- Internal Audit
- External Audit

MEETINGS – AUDIT COMMITTEE

Member	Held	Attended
Mr Nicholas Mathiou (Council member and Chairman)	6	6
Ms Elizabeth Montano (Council member)	6	6
Mr Roy Peterson (External member)	6	6
Invitees		
Dr Ian Poiner (Chief Executive Officer)	6	4
Mr John Zabala (Internal Auditor)	6	5
Mr Victor Bayer (Chief Finance Officer)	6	6
Ms P Dash (Australian National Audit Office)	6	1
Ms C Sturgess (HLB Mann Judd)	6	1

FRAUD CONTROL

AIMS remains committed to the Commonwealth Fraud Control Guidelines as set out by the Attorney-General's Department, Criminal Justice Division.

FINANCIAL RISK MANAGEMENT FRAMEWORK

The Audit Committee has responsibility for the review of the implementation and the development of the Institute's financial risk management framework. The Council is responsible for review of the risk management framework for strategic, commercial, operational and compliance risks.

FINANCIAL REPORTING

AIMS' financial statements are prepared in accordance with:

- Finance Minister's Orders for the reporting period ended 30 June 2008; and
- Australian Accounting Standards and Accounting Interpretations issued by the Australian Accounting Board that apply for the reporting period.

The financial statements are accompanied by a Management Representation letter to the Australian National Audit Officer, signed by the Chairman of Council, Chief Executive Officer and Chief Finance Officer, declaring that the statements present a true and fair view of the financial position, the operating results and the cash flows of the Institute for the year ended 30 June 2008.

INDEPENDENT PROFESSIONAL ADVICE

The Council has the right to obtain, at the Institute's expense, relevant independent professional advice in connection with the discharge of its responsibilities.

DIRECTORS' INTERESTS - DISCLOSURE OF INTEREST

Section 27F - 27K of the CAC 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 the meeting. All of these requirements are currently being met.

INTERNAL AUDIT

The Audit Committee approves the annual internal audit plan and receives regular reports on progress against the plan. The internal audit function is performed by Moore Stephens. The Internal Auditor is responsible for providing an independent risk review function in accordance with the annual plan.

EXTERNAL AUDIT

Under the CAC Act, the Commonwealth Auditor-General, through the Australian National Audit Office (ANAO), is the external auditor for AIMS.

The Audit Committee review the ANAO audit plan and reports and meets with ANAO representatives prior to recommending to the Council that the annual financial statements be accepted and the Statement by Council be signed.

INDEMNITIES AND INSURANCE PREMIUMS FOR OFFICERS

There were no liabilities to any current or former officers. During the reporting period, no premium was paid (or was agreed to be paid) against a current or former officer's liability for legal costs. AIMS paid premiums for the Directors and Officers' insurances, required under the CAC Act.

STAFF CONSULTATION

Staff consultation and communication took place via a range of mediums such as all-staff meetings, emails and the Institute's internal newsletter *Scoop*. The Joint Consultative Committee met six times in 2007–2008. This committee provides a forum for discussion and consultation between management and staff representatives.

CONSULTANCY ADVICE

The Institute sought independent advice from one consulting firm during the 2007-2008 period.

SUB CONTRACTORS

Sub-contractors are selected on the basis of quality, value for money, and availability. Tenders are required for services or products with a value greater than \$50,000. The Tender Board must approve exemptions from public tendering in writing. Consistent with Section 21 of the CAC Act, Council members and staff cannot be involved in decision-making about subcontractors connected to them or to an immediate family member.

PUBLIC ACCOUNTABILITY



MINISTERIAL DIRECTIONS AND APPROVALS

Neither the Minister for Education, Science and Training nor the Minister for Innovation, Industry, Science and Research (from November 2007) issued any directions under the CAC Act. AIMS received approval from the Minister to enter into contracts associated with the naming of the new research vessel RV *Solander*, CMMG Smart State Research Facility Fund, and the launch of the BHP Billiton CReefs Project and of the Scott Reef Research Project with Woodside.

JUDICIAL DECISIONS AND REVIEWS BY OUTSIDE BODIES

No judicial decisions related to AIMS and no reviews of AIMS by outside bodies occurred during the reporting period.

OMBUDSMAN

No issues relating to AIMS were referred to the Commonwealth Ombudsman.

INVESTING AND FINANCING ACTIVITIES

The Institute invested its surplus money in accordance with Section 18(3) of the CAC Act. The investments were deposited with three banks in accordance with AIMS' policy on investments.

OCCUPATIONAL HEALTH AND SAFETY

The Institute endeavours to undertake marine research and related activities in a safe and responsible manner for staff and visitors. The Institute holds that all injuries are preventable and that all risks and hazards should be identified and assessed in line with the complexities of the research work, activities and supporting functions required.

During 2007–08, the OH&S culture and function within the Institute were strengthened by:

- 1. New/updated OH&S related procedures on:
 - i) Fitness for Work;
 - ii) Workplace Responsibilities;
 - iii) Cyclone Procedures;
 - iv) Business Continuity; and
 - v) Risk Management Framework.
- 2. AIMS staff continue to receive training in first aid, dive safety, and chemical information systems (Chemwatch). First aid, workplace harassment officers and, health and safety representatives have been designated to assist staff and the Institute in promoting and maintaining a safe and healthy workplace.
- 3. Other actions including:
 - i) Sun Protection Campaign including sun cancer screening for all staff and the design and provision of sun protection shirts.
 - ii) Improved focus on safety inductions including online access to the Safety Induction DVD Series.
 - iii) Standardised pre-employment medicals, offshore field work medicals and dive medicals and rehabilitation consultation services.
 - iv) Review and trending of previous reported incidents from 2003 to 2008.
 - v) Development of the AIMS HSE Management Plan for the Scott Reef Research Project including the following:
 - i) Safety Management Plan;
 - ii) Emergency Response Plan;
 - iii) Environmental Management Plan;
 - iv) Hazard identification and analysis;
 - v) Project specific HSE inductions; and
 - vi) TRA/toolbox talks/JHEA procedures.
 - vi) Review of the AIMS HSE Management System

INCIDENTS & HAZARD REPORTING

AIMS has encouraged the reporting of hazards and incidents (including potential incidents) and during the 2007–08 period a total of 39 incidents were reported and appropriate corrective actions implemented. This is a significant increase in reporting from the previous year, demonstrating AIMS' commitment to identifying hazards and implementing control measures.

The Institute reported one incident to Comcare for 2007–08 under the requirements of Section 68 of the *Occupational Health and Safety (Commonwealth Employment) Act 1991* in relation to a potential injury.

Two compensable injuries were accepted by Comcare, including a slip, trip, fall resulting in medical expenses and one lost time injury (back strain) resulting in 17 days of rehabilitation/total incapacitation.

RADIATION SAFETY

The Institute continues to hold a Source Licence from the Australian Radiation Protection and Nuclear Safety Agency. The provision of this Source Licence has requirements for quarterly reporting which have been met. Training connections with local Source Licence holders continues to ensure staff and visitors are adequately trained for the use of ionising and non-ionising radiation.

GENE TECHNOLOGY

No new proposals required assessment by the Institute's Biosafety Committee in 2007-08. Except for one Notifiable Low Risk Dealing (NLRD), all ongoing projects using genetically-modified microorganisms are "exempt", as defined by the Office of the Gene Technology Regulator.

ENVIRONMENT

Environmental considerations are a key element of the Institute's decisionmaking processes in relation to both scientific activities and site development. The Institute has in place a comprehensive Environmental Management Plan (EMP) for the Townsville site (AIMS rents premises at its other laboratories). The effectiveness of the associated Environment Management System is regularly reviewed. The Environment Committee, made up of both research and support staff, oversees the implementation of the EMP.

The Institute uses a number of substances declared under the *National Pollution Inventory* of the *National Environment Protection Measures Act*, in quantities below the current declared threshold levels, and has met the reporting requirements.

ENERGY USAGE

This year saw the Institute greatly enhance its commitment to reducing its carbon footprint. In the next financial year a new three-year project will begin to evaluate our footprint and to seek ways to strive for carbon neutrality for the entire operation.

Continuing a rolling program that began in 1990, a level 3 Energy Audit (under A/MZS 3598:2000) as well as a Carbon Account Audit started in May 2008.

Energy data was reported to the Australian Greenhouse Office in accordance with the Government's Energy Efficiency in Government Operations policy. The Institute's operation produced a total of 9,259 tonnes of CO² this year, maintaining the energy use of 47,000 gigajoules. This is seen as a good result due to the expansion of laboratory and office space at Cape Ferguson and the commissioning of a new larger vessel, the RV *Solander*, which operates in Western Australian waters. The Institute achieved a 12 per cent reduction in LPG usage due to roof mounted solar heating of large volumes of seawater.

AIMS assisted in the government advisory panel tasked with achieving energy reduction across all Australian laboratories.

Energy usage reduction initiatives during the year focused on improvements to the Institute's buildings at its headquarters in Townsville. Actions included the replacement of further control system hardware for air conditioning and dehumidification systems. We look forward to the results of the 2008 energy audit and the new initiatives it will produce.

RECYCLING

AIMS aligns itself with the *Australian Packaging Covenant Action Plan* of 2007 and reported on waste statistics this year. This evaluation highlighted improvement areas for AIMS' waste and recycling systems relating to paper, cardboard, batteries, printer cartridges, lubricants and metals. The Institute's headquarters recycles 100 per cent of treated sewage.

WATER USAGE

An on-site wastewater recycling facility allows all sewage generated at the Townsville headquarters to be treated and reused through the lawn and garden watering systems. Wastewater and rainwater storage capacity is being extended and water-wise initiatives have been adopted throughout the site as a result of an ongoing initiative started in 2002.

EEO AND WORKPLACE DIVERSITY

The Institute is aware of diversity issues. AIMS' Diversity Policy acknowledges differences and adapts work practices to create an inclusive work environment in which diverse skills, perspectives and cultural backgrounds are valued.

HARASSMENT

Staff must comply with AIMS' Code of Conduct and Terms and Conditions of Service (which are consistent with Division 4 of the CAC Act). Council members also abide by the *Code of Conduct for Directors* published by the Australian Institute of Company Directors.

AIMS has trained Workplace Harassment Contact Officers across the Institute. Their role is to be available to discuss, in confidence, matters of concern in relation to harassment and associated issues raised by a staff member.

In 2007–08 the Institute had one formally reported case of harassment. The Workplace Harassment Contact Officers gave advice on a number of occasions and some staff were also referred to the AIMS Employee Assistance Service for counselling. In addition, several staff have participated in formal mediation with the assistance of our Employee Assistance Service.

DISABILITY STRATEGY

The Institute is committed to the progression of the Commonwealth Disability Strategy (CDS). Under the Strategy, AIMS fulfils the roles of "Provider" and "Employer".

During 2007-08 the Institute has taken the following actions in terms of the Strategy:

- Employment policies and practices have been reviewed and steps are being taken to implement ongoing instruction for user groups;
- All recruitment advertisements placed in the print media and on AIMS' website promote the fact that the Institute is an equal opportunity employer;
- AIMS' public access facilities (resources) such as conference rooms, theatre, library, canteen and display areas support equity of access and provide for disabled amenities;
- Construction of new facilities such as the Centre of Marine Microbiology and Genetics takes into account equity of access;

- Public tours to the Institute cater for those with a disability and a wheelchair is also available if required; and
- The Institute has mechanisms in place to handle complaints and grievances (formal and informal) to address issues and concerns raised by staff and visitors.

ETHICAL CONDUCT

The Institute has a Code of Conduct to which the Council, management, staff, and medium to long term visitors are required to adhere. The Code complies with Division 4 of the CAC Act and includes relevant sections of the Terms and Conditions of Service. New Council members, staff and visitors are briefed on the Code during induction. Council members also abide by the *Code of Conduct for Directors* published by the Australian Institute of Company Directors.

EMPLOYEE ASSISTANCE PROGRAM

The OSA Group is contracted by the Institute to provide an independent Employee Assistance Program (EAP). Approximately 3.57 per cent of staff accessed the counselling service during the reporting period, a slight decrease on the previous year (nine per cent). A further dissection of usage reveals that five staff and one family member accessed the service. Longer term visitors to the Institute, particularly if they are from interstate or overseas, are able to access this service at no cost, should they need any assistance.

FREEDOM OF INFORMATION

No requests were received in 2007–08 under the provisions of the *Freedom of Information Act 1982* (FOI Act). The statement required under Section 8 of the FOI Act, setting out documents available for inspection, is at Appendix 6.

Freedom of Information Statement

The FOI Act requires each Australian Government agency to publish a statement setting out its role, structure and functions, the documents available for public inspection and access. Section 8 of the FOI Act requires each agency to publish information on the way it is organised, its powers, decisions made and arrangements for public involvement in its work.

This statement, in conjunction with information contained in this annual report, is intended to meet the requirements of Section 8 of the FOI Act.

CUSTOMER SERVICE CHARTER

The AIMS Service Charter for dealing with clients is posted on our website. The Institute welcomes feedback on how well it is delivering services against the standards set in this charter, and has included a feedback form on the website. Both the charter and the feedback form may be found at http://www.aims.gov. au/docs/about/corporate/service-charter.htm

Surgeon fish at Raine Island. Image: Ray Berkelmans. States in the

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AUDITOR-GENERAL'S REPORT

■ Independent Audit Report





INDEPENDENT AUDITOR'S REPORT

To the Minister for Innovation, Industry, Science and Research

Scope

I have audited the accompanying financial statements of the Australian Institute of Marine Science for the year ended 30 June 2008, which comprise: a statement by the Directors and Chief Executive; income statement; balance sheet; statement of changes in equity; cash flow statement; schedules of commitments and contingencies; a summary of significant accounting policies; and other explanatory notes.

The Responsibility of the Directors for the Financial Statements

The Directors of the Australian Institute of Marine Science are responsible for the preparation and fair presentation of the financial statements in accordance with the Finance Minister's Orders made under the *Commonwealth Authorities and Companies Act 1997* and the Australian Accounting Standards (including the Australian Accounting Interpretations). This responsibility includes establishing and maintaining internal control relevant to the preparation and fair presentation of the financial statements that are free from material misstatement, whether due to fraud or error, selecting and applying appropriate accounting policies, and making accounting estimates that are reasonable in the circumstances.

Auditor's Responsibility

My responsibility is to express an opinion on the financial statements based on my audit. My audit has been conducted in accordance with the Australian National Audit Office Auditing Standards, which incorporate the Australian Auditing Standards. These Auditing Standards require that I comply with relevant ethical requirements relating to audit engagements and plan and perform the audit to obtain reasonable assurance whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgement, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the Australian Institute of Marine Science's preparation and fair presentation of the financial statements 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 Australian Institute of Marine Science's internal control. An audit also includes evaluating the appropriateness of accounting policies used

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and the reasonableness of accounting estimates made by the Directors, as well as evaluating the overall presentation of the financial statements.

I believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for my audit opinion.

Independence

In conducting the audit, I have followed the independence requirements of the Australian National Audit Office, which incorporate the requirements of the Australian accounting profession.

Auditor's Opinion

In my opinion, the financial statements of the Australian Institute of Marine Science:

- (a) have been prepared in accordance with the Finance Minister's Orders made under the Commonwealth Authorities and Companies Act 1997, and the Australian Accounting Standards (including the Australian Accounting Interpretations); and
- (b) give a true and fair view of the matters required by the Finance Minister's Orders including the Australian Institute of Marine Science's financial position as at 30 June 2008 and of its financial performance and its cash flows for the year then ended.

Australian National Audit Office

Tuespa Dash

Puspa Dash Acting Executive Director

Delegate of the Auditor-General

Canberra 20 August 2008

Christmas worms. Image: Juergen Freund.

FINANCIAL STATEMENTS

- Statement by Directors and Chief Executive
- Income Statement for the year ended 30 June 2008
- Balance Sheet as at 30 June 2008
- Statement of Changes in Equity as at 30 June 2008
- Statement of Cash Flows for the year ended 30 June 2008
- Schedule of Commitments as at 30 June 2008
- Schedule of Contingencies as at 30 June 2008
- Notes to and forming part of the Financial Statements
- Supplementary Financial Information (unaudited) for the year ended 30 June 2008

STATEMENT BY THE DIRECTORS AND CHIEF EXECUTIVE

In our opinion, the attached Financial Statements for the year ended 30 June 2008 are based on properly maintained financial records and give a true and fair view of the matters required by the Finance Ministers Orders made under the Commonwealth Authorities and Companies Act 1997.

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

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

Signed

Dr Ian Gould Chairman of Council 18th August 2008

En R. Fam

Signed

Dr Ian Poiner Chief Executive Officer 18th August 2008

Signed

Mr Victor Bayer Chief Finance Officer 18th August 2008

INCOME STATEMENT

for the period ended 30 June 2008

	Notes	2008 \$'000	2007 \$'000
INCOME			
Revenue			
Revenue from Government	3A	26,630	24,470
Sale of goods and rendering of services	3B	13,258	6,040
Interest	3C	1,259	1,267
Revenues from joint ventures	3D	121	365
Other revenue	3E	4,316	2,841
Total revenue	_	45,584	34,983
Gains			
Sale of assets	3F	481	-
Total gains	_	481	-
Total Income	_	46,065	34,983
EXPENSES			
Employee benefits	4A	15,151	15,992
Suppliers	4B	14,877	11,292
Depreciation and amortisation	4C	5,698	5,354
Expenditure on joint ventures	4D	378	328
Interest	4E	79	93
Foreign exchange losses	4F	16	-
Losses from asset sales	4G	100	63
Total Expenses	_	36,299	33,122
Surplus (attributable to the Australian Government)	_	9,766	1,861

AIMS ANNUAL REPORT 2007-2008 FINANCIAL STATEMENTS

BALANCE SHEET *as at 30 June 2008*

<i>as a 50 pane 2000</i>		2008	2007
	Notes	\$'000	\$'000
ASSETS			
Financial assets			
Cash and cash equivalents	5A	474	138
Trade and other receivables	5B	7,225	3,621
Investments	5C	12,349	14,682
Total financial assets		20,048	18,441
Non-financial assets			
Land and buildings	6A	48,109	48,613
Infrastructure, plant and equipment	6B,F	27,818	21,875
Intangibles	6C,G	176	174
Inventories	6D	219	230
Other non-financial assets	6E	424	271
Total non-financial assets		76,746	71,163
Total assets		96,794	89,604
LIABILITIES			
Payables			
Suppliers	7A	1,969	4,427
Other payables	7B	2,240	1,977
Total payables		4,209	6,404
Loans			
Loans	8A	540	-
Total loans		540	-
Provisions			
Employee provisions	9A	5,685	6,606
Total provisions		5,685	6,606
Total liabilities	_	10,434	13,010
Net Assets		86,360	76,594
FOUTV	—		
EQUITY Contributed equity		31 607	21 607
Contributed equity		31,007	24 275
Reserves Detained complue		34,373 20.379	10 (12
Retained surplus		20,378	10,612
l otal equity	_	80,300	70,394
Current assets		20,680	18,940
Non-current assets		76,114	70,664
Current liabilities		8,889	12,071
Non-current liabilities		1,545	939

STATEMENT of CHANGES in EQUITY

as at 30 June 2008

Opening balance Balance carried forward from previous period

Income and expenses Surplus for the period Total income and expenses Closing balance at 30 June

		Asset Reva	luation	Contrib	uted		
Retained E	arnings	Reserv	'es	Equity/C	apital	Total Eq	uity
2008	2007	2008	2007	2008	2007	2008	2007
S'000	\$'000	S'000	\$`000	S'000	\$`000	S'000	\$`000
10,612	8,751	34,375	34,375	31,607	31,607	76,594	74,733
9,766	1,861	·	I	'	1	9,766	1,861
9,766	1,861		-			9,766	1,861
20,378	10,612	34,375	34,375	31,607	31,607	86,360	76,594

CASH FLOW STATEMENT

for the period ended 30 June 2008

		2008	2007
	Notes	\$'000	\$'000
OPERATING ACTIVITIES			
Cash received			
Goods and services		12,203	6,002
Appropriations		26,630	24,470
Interest		1,260	1,111
Net GST received		1,072	1,236
Other cash received		234	3,127
Total cash received		41,399	35,946
Cash used			
Employees		15,921	15,943
Suppliers		17,086	13,340
Payments to joint ventures	_	172	588
Total cash used	_	33,179	29,871
Net cash flows from (used by) operating activities	10	8,220	6,075
INVESTING ACTIVITIES			
Cash received			
Proceeds from sales of property, plant and equipment		1,025	415
Total cash received		1,025	415
Cash used			
Purchase of property, plant and equipment		11,782	10,394
Total cash used		11,782	10,394
Net cash flows from (used by) investing activities		(10,757)	(9,979)
FINANCING ACTIVITIES			
Cash received			
Loan Proceeds		540	-
Total cash received		540	-
Net cash flows from (used by) financing activities		540	-
Net increase / (decrease) in cash held	_	(1,997)	(3,904)
Cash and cash equivalents at the beginning of the reporting period	_	14,820	18,724
Cash and cash equivalents at the end of the reporting period	5A,C	12,823	14,820

SCHEDULE OF COMMITMENTS

as at 30 June 2008

	2008	2007
ВҮ ТҮРЕ	\$'000	\$'000
Commitments Receivable		
CMMG facility funding	960	-
Total Commitments Receivable	960	-
Capital commitments payable		
Land and buildings ¹	201	1,347
Infrastructure, plant and equipment ²	1,558	8,089
Total capital commitments payable	1,759	9,436
Other commitments payable		
Operating leases ³	3	9
Other commitments ⁴	25,067	33,212
Total other commitments payable	25,070	33,221
Net commitments by type	25,869	42,657
BY MATURITY		
Commitments receivable		
One year or less	960	-
Total other commitments receivable	960	-
Capital commitments payable		
One year or less	1,759	9,436
Total capital commitments payable	1,759	9,436
Operating lease commitments payable		
One year or less	3	7
From one to five years	-	2
Total operating lease commitments payable	3	9
Other commitments payable		
One year or less	11,969	10,686
From one to five years	13,098	21,770
Over five years	<u> </u>	756
Total other commitments payable	25,067	33,212
Net commitments by maturity	25,869	42,657

NB: Commitments are GST inclusive where relevant.

1. Primarily consists of outstanding contractual payments for building of the Centre of Marine Microbiology and Genetics Research (CMMG) and upgrade of roads and building at AIMS.

2. Plant and Equipment commitments are primarily outstanding contractual payments for the construction

of the Great Barrier Reef Ocean Observing System equipment and equipment for the RV Solander .

3. Operating leases included are effectively non cancellable and comprise:

Leases for the Franking Machine and Photocopier

4. Other commitments are made up of AIMS's outstanding contractual contributions with external collaborators.

SCHEDULE OF CONTINGENCIES

as at 30 June 2008

			тот	ΓAL
Contingent assets	Guara	intees		
	2008	2007	2008	2007
	\$'000	\$'000	\$'000	\$'000
Balance from previous period	6,135	-	6,135	-
New	306	6,135	306	6,135
Expired	(6,135)	-	(6,135)	-
Total contingent assets	306	6,135	306	6,135

Details of each class of contingent liabilities and contingent assets, including those not included above because they cannot be quantified, are disclosed in Note 11: Contingent Liabilities and Assets.

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Note 1: Summary of Significant Accounting Policies Note 2: Events after the Balance Sheet Date Note 3: Income Note 4: Expenses Note 5: Financial Assets Note 6: Non-Financial Assets Note 7: Payables Note 8: Loans Note 9: Provisions Note 10: Cash Flow Reconciliation Note 11: Contingent Liabilities and Assets Note 12: Directors Remuneration Note 13: Related Party Disclosures Note 14: Executive Remuneration Note 15: Remuneration of Auditors Note 16: Financial Instruments Note 17: Appropriations Note 18: Reporting of Outcomes

Note 1: Summary of Significant Accounting Policies

1.1 Objectives of Australian Institute of Marine Science

The objective of the Australian Institute of Marine Science (AIMS) is the protection and sustainable development of Australia's marine resources.

AIMS is structured to meet one outcome:

"Enhanced scientific knowledge supporting the protection and sustainability of Australia's marine resources."

The Financial Statements and notes are required by clause 1(b) of Schedule 1 to the *Commonwealth Authorities and Companies Act 1997* and are a General Purpose Financial Report.

The continued existence of AIMS in its present form and with its present programs is dependent on Government policy and on continuing appropriations by Parliament for AIMS's administration and programs.

The Financial Statements and notes have been prepared in accordance with:

- Finance Minister's Orders (or FMOs) for reporting periods ending on or after 1 July 2007; and
- Australian Accounting Standards and Interpretations issued by the Australian Accounting Standards Board (AASB) that apply for the reporting period.

The Financial Report has been prepared on an accrual basis and is in accordance with historical cost convention, except for certain assets 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 Report is presented in Australian dollars and values are rounded to the nearest thousand dollars unless otherwise specified.

Unless an alternative treatment is specifically required by an Accounting Standard or the FMOs, assets and liabilities are recognised in the Balance Sheet when and only when it is probable that future economic benefits will flow to the AIMS and the amounts of the assets or liabilities can be reliably measured. However, assets and liabilities arising under agreements equally proportionately unperformed are not recognised unless required by an Accounting Standard.

Unless alternative treatment is specifically required by an Accounting Standard, revenues and expenses are recognised in the Income Statement when, and only when, the flow, consumption or loss of economic benefits has occurred and can be reliably measured.

1.2 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:

 The fair value of land and buildings has been taken to be the market value of similar properties as determined by an independent valuer. In some instances, AIMS's buildings are purpose built and may in fact realise more or less in the market.

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

1.3 Statement of compliance

Adoption of new Australian Accounting Standard requirements

No accounting standard has been adopted earlier than the application date as stated in the standard.

The following new standard is applicable to the current reporting period:

Financial instrument disclosure

AASB 7 *Financial Instruments: Disclosures* is effective for reporting periods beginning on or after 1 January 2007 (the 2007-08 financial year) and amends the disclosure requirements for financial instruments. In general AASB 7 requires greater disclosure than that previously required. Associated with the introduction of AASB 7 a number of accounting standards were amended to reference the new standard or remove the present disclosure requirements through 2005-10 Amendments to Australian Accounting Standards [AASB 132, AASB 101, AASB 114, AASB 117, AASB 133, AASB 139, AASB 1, AASB 4, AASB 1023 & AASB 1038]. These changes have no financial impact but will effect the disclosure presented in future financial reports.

The following new standards, amendments to standards or interpretations for the current financial year have no material financial impact on AIMS.

2007-4 Amendments to Australian Accounting Standards arising from ED 151 and Other Amendments and Erratum: Proportionate Consolidation

2007-7 Amendments to Australian Accounting Standards

UIG Interpretation 11 AASB 2 – Group and Treasury Share Transactions and 2007-1 Amendments to Australian Accounting Standards arising from AASB Interpretation 11

Future Australian Accounting Standard requirements

The following new standards, amendments to standards or interpretations have been issued by the Australian Accounting Standards Board but are effective for future reporting periods. It is estimated that the impact of adopting these pronouncements when effective will have no material financial impact on future reporting periods.

AASB Interpretation 12 Service Concession Arrangements and 2007-2 Amendments to Australian Accounting Standards arising from AASB Interpretation 12

AASB 8 Operating Segments and 2007-3 Amendments to Australian Accounting Standards arising from AASB 8

2007-6 Amendments to Australian Accounting Standards arising from AASB 123

AASB Interpretation 13 Customer Loyalty Programmes

AASB Interpretation 14 AASB 119 – The Limit on a Defined Benefit Asset, Minimum Funding Requirements and their Interaction

Other

The following standards and interpretations have been issued but are not applicable to the operations of AIMS.

AASB 1049 Financial Reporting of General Government Sectors by Governments

AASB 1049 specifies the reporting requirements for the General Government Sector. The FMOs do not refer to this standard as it contains guidance applicable to the consolidated financial statements of the Australian Government, rather than financial reports of individual Agencies or Authorities.

1.4 Revenue

Revenue from the sale of goods is recognised when:

- The risks and rewards of ownership have been transferred to the buyer;
- The seller retains no managerial involvement nor effective control over the goods;
- The revenue and transaction costs incurred can be reliably measured; and
- It is probable that the economic benefits associated with the transaction will flow to AIMS.

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:

- The amount of revenue, stage of completion and transaction costs incurred can be reliably measured; and
- The probable economic benefits 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 total costs of the transaction.

Receivables for goods and services, which have 30 day terms, are recognised at the nominal amounts due less any provision for bad and doubtful debts. Collectability of debts is reviewed at balance date. Provisions are made when collectability of the debt is no longer probable.

Interest revenue is recognised using the effective interest method as set out in AASB 139 *Financial Instruments: Recognition and Measurement.*

Revenue from Government

Amounts appropriated for Departmental outputs appropriations for the year (adjusted for any formal additions and reductions) are recognised as revenue, except for certain amounts that relate to activities that are reciprocal in nature, in which case revenue is recognised only when it has been earned.

Appropriations receivable are recognised at their nominal amounts.

1.5 Gains

Sale of assets

Gains from disposal of non-current assets is recognised when control of the asset has passed to the buyer.

1.6 Transactions with the Government as owner

Equity injections

Amounts appropriated which are designated as 'equity injections' for a year (less any formal reductions) are recognised directly in Contributed Equity in that year. AIMS had no such injections during the year.

Restructuring of administrative arrangements

Net assets received from, or relinquished to, another Australian Government Agency or Authority under a restructuring of administrative arrangements are adjusted at their book value directly against contributed equity. AIMS was not involved in a restructuring of administrative arrangement during the year.

Other distributions to owners

The FMOs require that distributions to owners be debited to contributed equity unless in the nature of a dividend. In 2007-08, by agreement with the Department of Finance and Deregulation, AIMS did not relinquish control of any surplus output appropriation funding.

1.7 Employee benefits

Liabilities for services rendered by employees are recognised at the reporting date to the extent that they have not been settled.

Liabilities for 'short-term employee benefits' (as defined in AASB 119) and termination benefits due within twelve months of balance date are measured at their nominal amounts.

The nominal amount is calculated with regard to the rates expected to be paid on settlement of the liability.

All other employee benefit liabilities are measured at the present value of the estimated future cash outflows to be made in respect of services provided by employees up to the reporting date.

Leave

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, 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 liability for long service leave is recognised and measured at the present value of the estimated cash flows to be made in respect of all employees at 30 June 2008. The estimate of the present value of the liability takes into account attrition rates and pay increases through promotion and inflation.

Separation and redundancy

Provision is made for separation and redundancy benefit payments. AIMS recognises a provision for termination when it has developed a detailed formal plan for the terminations and has informed those employees affected that it will carry out the terminations.

Superannuation

Staff of AIMS are members of the Commonwealth Superannuation Scheme (CSS), the Public Sector Superannuation Scheme (PSS) or the PSS accumulation plan (PSSap).

The CSS and PSS are defined benefit schemes for the Australian Government. The PSSap is a defined contribution scheme.

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 and Deregulation as an administered item.

AIMS makes employer contributions to the employee superannuation schemes at rates determined by an actuary to be sufficient to meet the current cost to the Government of the superannuation entitlements of AIMS's employees. AIMS accounts for the 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.

1.8 Leases

A distinction is made between finance leases and operating leases. Finance leases effectively transfer from the lessor to the lessee substantially all the risks and rewards incidental to ownership of leased non-current assets. An operating lease is a lease that is not a finance lease. In operating leases, the lessor effectively retains substantially all such risks and benefits.

Where a non-current asset is acquired by means of a finance lease, the asset is capitalised at either the fair value of the lease property or, if lower, the present value of minimum lease payments at the inception of the contract and a liability is recognised at the same time and for the same amount.

The discount rate used is the interest rate implicit in the lease. 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.

1.9 Interest

Interest is expensed as incurred.

1.10 Cash

Cash and cash equivalents includes notes and coins held and any deposits in bank accounts with an original maturity of 3 months or less that are readily convertible to known amounts of cash and subject to insignificant risk of changes in value. Cash is recognised at its nominal amount.

1.11 Financial assets

AIMS classifies its financial assets in the following categories:

- 'held-to-maturity investments',
- · 'loans and receivables'.

The classification depends on the nature and purpose of the financial assets and is determined at the time of initial recognition.

Financial assets are recognised and derecognised upon 'trade date'.

Effective interest method

The effective interest method is a method of calculating the amortised cost of a financial asset and of allocating interest income over the relevant period. The effective interest rate is the rate that exactly discounts estimated future cash receipts through the expected life of the financial asset, or, where appropriate, a shorter period.

Income is recognised on an effective interest rate basis except for financial assets 'at fair value through profit or loss'.

Held-to-maturity investments

Non-derivative financial assets with fixed or determinable payments and fixed maturity dates that AIMS has the positive intent and ability to hold to maturity are classified as held-to-maturity investments. Held-to-maturity investments are recorded at amortised cost using the effective interest method less impairment, with revenue recognised on an effective yield basis.

Loans and receivables

Trade receivables, loans and other receivables that have fixed or determinable payments that are not quoted in an active market are classified as 'loans and receivables'. They are included in current assets, except for maturities greater than 12 months after the balance sheet date. These are classified as non current assets. Loans and receivables are measured at amortised cost using the effective interest method less impairment. Interest is recognised by applying the effective interest rate.

Impairment of financial assets

Financial assets are assessed for impairment at each balance date.

• Financial assets held at amortised cost - If there is objective evidence that an impairment loss has been incurred for loans and receivables or held to maturity investments held at amortised cost, the amount of the loss is measured as the difference between the asset's carrying amount and the present value of estimated future cash flows discounted at the asset's original effective interest rate. The carrying amount is reduced by way of an allowance account. The loss is recognised in the income statement.

1.12 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 fair value through profit or loss

Financial liabilities at fair value through profit or loss are initially measured at fair value. Subsequent fair value adjustments are recognised in profit or loss. The net gain or loss recognised in profit or loss incorporates any interest paid on the financial liability.

Other financial liabilities

Other financial liabilities, including borrowings, are initially measured at fair value, net of transaction costs.

Other financial liabilities are subsequently measured at amortised cost using the effective interest method, with interest expense recognised on an effective yield basis.

The effective interest method is a method of calculating the amortised cost of a financial liability and of allocating interest expense over the relevant period. The effective interest rate is the rate that exactly discounts estimated future cash payments through the expected life of the financial liability, or, where appropriate, a shorter period.

Supplier and other payables

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

1.13 Contingent liabilities and contingent assets

Contingent Liabilities and Contingent Assets are not recognised in the balance sheet 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.

1.14 Acquisition of assets

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 revenues 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 accounts immediately prior to the restructuring.

1.15 Property, plant and equipment

Asset recognition threshold

Purchases of property, plant and equipment are recognised initially at cost in the Balance Sheet, 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).

Revaluations

Fair values for each class of asset are determined as shown below:

Asset Class	Fair Value Measure at:
Buildings	Market selling price
Leasehold improvements	Depreciated replacement cost
Plant and equipment	Market selling price

Following initial recognition at cost, property plant and equipment are carried at fair value less accumulated depreciation and accumulated impairment losses. Valuations are 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 are made on a class basis. Any revaluation increment is credited to equity under the heading of asset revaluation reserve except to the extent that it reverses a previous revaluation decrement of the same asset class that was previously recognised through operating result. Revaluation decrements for a class of assets are recognised directly through operating result 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 AIMS 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.

Depreciation rates applying to each class of depreciable asset are based on the following useful lives:

	2008	2007
Buildings and leasehold improvements	10 to 80 years	10 to 80 years
Plant and equipment	3 to 20 years	3 to 20 years

<u>Impairment</u>

All assets were assessed for impairment at 30 June 2008. 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.
1.16 Intangibles

AIMS's intangibles comprise internally developed software for internal use. These assets are carried at cost less accumulated amortisation and accumulated impairment losses.

Software is amortised on a straight-line basis over its anticipated useful life. The useful lives of AIMS's software are 3 to 12 years (2006-07: 3 to 12 years).

All software assets were assessed for indications of impairment as at 30 June 2008.

1.17 Inventories

Inventories held for sale are valued at the lower of cost and net realisable value.

Inventories held for distribution are valued at cost, adjusted for any loss of service potential.

Inventories acquired at no cost or nominal consideration are initially measured at current replacement cost at the date of acquisition.

1.18 Taxation

AIMS is exempt from all forms of taxation except fringe benefits tax (FBT) and the goods and services tax (GST).

Revenues, expenses and assets are recognised net of GST:

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

1.19 Foreign currency

Transactions denominated in a foreign currency are converted at the exchange rate at the date of the transaction. Foreign currency receivables and payables are translated at the exchange rate current as at balance date. Associated currency gains and losses are not material.

1.20 Research, development and intellectual property

Costs associated with research and development, intellectual property, patents and trade marks are expensed as incurred unless it can be established that they are recoverable beyond reasonable doubt.

1.21 Contract research

AIMS has entered into various agreements with external parties for the research and development of technologies and scientific knowledge. Details of the ownership of intellectual property vary from agreement to agreement. These arrangements do not involve sharing in common of liabilities and interest in assets, other than assets represented by intellectual property to which AIMS does not attribute any value in the Financial Report.

1.22 Consultancies and grants

Various consultancies and grants have been made to AIMS for specific research projects, seminar, workshops and employment assistance. Monies are paid either in advance or in arrears and the difference at 30 June is reflected as either creditors or receivables respectively.

1.23 Investments

AIMS has interests in:

- · Cleveland Biosensors Pty Ltd
- · AIMS@ JCU Joint Venture
- Arafura Timor Research Facility Joint Venture

Cleveland Biosensors Pty Ltd

AIMS retains an investment of 4.4% (2007: 5.4%) in a spin off company Cleveland Biosensors Pty Ltd (CBPL). The investment is 100 shares at a total value of \$100. This is not a controlling ownership and so does not require consolidation of CBPL in the AIMS's Financial Report.

AIMS@JCU Joint Venture

AIMS has entered into joint venture operations with James Cook University (JCU) to:-

- · increase research activities by the participants in determined programs; and
- to improve participants' individual research capabilities and research outputs and outcomes of all participants

The joint venture operations have a Board which determines the research objective for funding. The agreement specifies that the share that each participant is to receive from the joint venture is to be determined by the Board.

AIMS is responsible for managing the funds on behalf of the joint venture operations. As at 30 June 2008 AIMS held \$1,189,075 (2007: \$1,197,594) on behalf of the joint venture operations. This is shown as a liability in AIMS's Financial Report.

The Arafura Timor Research Facility Joint Venture

AIMS has entered into joint venture operations with the Australian National University. AIMS has a 50% share. The purpose of the venture is to maintain a research facility in Darwin that will create a centre of excellence in the field of physical, chemical engineering, information and biological sciences with the capability of pursuing world class research and training in that field. The Australian National University is responsible for managing the financial affairs of the joint venture.

Note 2: Events after the Balance Sheet Date

Australian Institute of Marine Science is not aware of any material events that have occurred since balance date.

	2008	2007
B	2000	\$2007
Kevenue	2.000	\$ 000
Note 3A: Revenue from Government		
Appropriations:		
Departmental outputs	26,630	24,470
Total revenue from Government	26,630	24,470
Note 3B: Sale of goods and rendering of services		
Provision of goods - external parties	68	64
Rendering of services - related entities	3,689	1,868
Rendering of services - external parties	9,501	4,108
Total sale of goods and rendering of services	13,258	6,040
Note 3C: Interest		
Deposits	1,259	1,267
Total interest	1,259	1,267
Note 3D: Revenues from joint ventures		
Joint venutres	121	365
Total revenues from joint ventures	121	365
Note 3E: Other revenue		
Insurance Claims	18	-
Revenue for Capital Equipment	4,164	2,750
Other	134	91
Total other revenue	4,316	2,841
Gains		
Note 3F: Sale of assets		
Infrastructure, plant and equipment		
Proceeds from sale	666	-
Carrying value of assets sold	(185)	-
Net gain from sale of assets	481	-

Note 3. Income

Note 4: Expenses

	2008	2007
	\$'000	\$'000
Note 4A: Employee benefits	4 000	\$ 000
Wages and salaries	11,608	11.278
Superannuation:)	,
Defined contribution plans	1.696	1 775
Leave and other entitlements	1,621	1 601
Separation and redundancies		1 109
Fringe Benefits Tax	226	229
Total amployee benefits	15 151	15 992
	15,151	15,772
Note 4B: Suppliers		
Provision of goods – related entities	6	5
Provision of goods – external parties	3 860	2 147
Rendering of services – related entities	5,800	612
Rendering of services – external parties	10 228	9 297
Operating lasse rentals:	10,220	0,507
Minimum losse neumonts	70	62
Workers componentian promiums	19	03
	14 977	11 202
Total suppliers	14,077	11,292
Which consists of:	105	
Appointment expenses	105	111
Audung	4/	46
Clauriceland laboration	148	64
Chaming and movinterence	400	228
Cleaning and ground maintenance	254	275
Consultancias	J40 43	330
Contracting and servicing	43	16
Consumplies	1,857	1,033
Electricity	927	703
Electricity	038	5/9
Equipment and software purchases	1 253	134
Field Costs	1,255	/0
Fuel oil and gas	230 651	139
Hire of equipment	031	208
Insurances	336	298
Legal	158	82
Legal Licences and fees	130	174
Operating lease rentals	270	63
Patents and trademarks	67	116
Publications journals and subscriptions	445	358
Rent	166	126
Renairs and maintenance	1 283	1 3 7 5
Security	235	221
Stationery	255	110
Training seminars and conferences	211	94
Travel and accommodation	1.661	1 165
Vessels management and staffing	1,811	1 755
Victuals	84	57
Water	61	58
Workers compensation	94	78
1	14.877	11.292

Note 4: Expenses (cont.)		
	2000	2005
	2008	2007
Note 4C. Demonstration and search institution	\$2000	\$1000
Note 4C: Depreciation and amortisation		
Depreciation:	1 555	1 50 6
Buildings and leasehold improvements	1,777	1,706
Plant and equipment	2,001	2,138
Computer equipment	445	346
Vehicles	381	329
Office equipment	49	4/
Ships, launches and vessels	639	292
Library		5 2 4 1
Total depreciation	5,637	5,241
Amortisation:		
Intangibles:		
Computer Software	61	113
Total amortisation	61	113
Total depreciation and amortisation	5,698	5,354
Note 4D: Expenditure on joint ventures		
Depreciation	51	14
Other expenditure	327	314
Total expenditure on joint ventures	378	328
Note 4F · Interest		
Interest navments	79	03
Total interest	79	93
Total interest		93
Note 4F: Foreign exchange losses		
Non-speculative	16	-
Total foreign exchange losses	16	-
Note 4G: Losses from assets sales		
Buildings and leasehold improvements		
Proceeds from sale	-	-
Carrying value of assets sold	-	5
Infrastructure, plant and equipment		
Proceeds from sale	(359)	(377)
Carrying value of assets sold	459	432
Intangibles		
Proceeds from sale	-	-
Carrying value of assets sold	-	3
Total losses from assets sales	100	63

Note 5: Financial Assets

	2008	2007
	\$'000	\$'000
Note 5A: Cash and cash equivalents		
Cash on hand or on deposit	6	6
Cash at Bank	468	132
Total cash and cash equivalents	474	138
Note 5B: Trade and other receivables		
Goods and services	6,821	3,191
GST receivable from the Australian Taxation Office	80	78
Other:		
Loans	729	729
Interest	401	409
Other receivables	70	90
Total other receivables	1,200	1,228
Total trade and other receivables (gross)	8,101	4,497
Less impairment allowance account:		
Goods and services	(147)	(147)
Loans	(729)	(729)
Total impairment allowance account	(876)	(876)
Total trade and other receivables (net)	7,225	3,621
Receivables are represented by:		
Current	7.225	3.621
Non-current	-	
Total trade and other receivables (net)	7,225	3,621
Receivables are aged as follows:		
Not overdue	5,935	3,510
Overdue by:		
30 to 60 days	830	31
61 to 90 days	9	51
More than 90 days	1,327	905
Total receivables (gross)	8,101	4,497
The impairment allowance account is aged as follows:		
Overdue by:		
More than 90 days	(876)	(876)
Total impairment allowance account	(876)	(876)

Note 5: Financial Assets (cont.)

Reconciliation of the impairment allowance account:

Movements in relation to 2008

	Goods and	Loans	
	services	receivable	Total
	2008	2008	2008
	\$'000	\$'000	\$'000
Opening balance	(147)	(729)	(876)
Amounts written off	-	-	-
Amounts recovered and reversed	-	-	-
Increase/decrease recognised in net surplus	-	-	-
Closing balance	(147)	(729)	(876)

Movements in relation to 2007

services		
	receivable	Total
2007	2007	2007
\$'000	\$'000	\$'000
(423)	(729)	(1,152)
276	-	276
-	-	-
-	-	-
(147)	(729)	(876)
	2007 \$'000 (423) 276 - - (147)	2007 2007 \$'000 \$'000 (423) (729) 276 - - - (147) (729)

	2008	2007
	\$'000	\$'000
Note 5C: Investments		
Deposits	11,160	13,484
Deposits on behalf of joint ventures	1,189	1,198
Total investments	12,349	14,682
Other financial assets are expected to be recovered in		
less than 12 months	12,349	14,682

Total investments

12,349

14,682

	2008	2007
	\$'000	\$'000
Note 6A: Buildings and leasehold improvements		
Buildings and leasehold improvements		
– fair value	50,845	49,383
 work in progress 	1,261	1,324
	52,106	50,707
- accumulated depreciation	(3,997)	(2,094)
Total buildings and leasehold improvements	48,109	48,613

No indicators of impairment were found for buildings and leasehold improvements.

Note 6B: Infrastructure, plant and equipment

Plant and equipment:		
- gross carrying value (at fair value)	12,833	10,927
- work in progress	970	316
	13,803	11,243
- accumulated depreciation	(4,985)	(3,012)
Total plant and equipment	8,818	8,231
Computer equipment		
- fair value	2,177	1,714
- accumulated depreciation	(848)	(430)
Total computer equipment	1,329	1,284
Vehicles		
- fair value	1,703	1,718
- accumulated depreciation	(385)	(284)
Total vehicles	1,318	1,434
Office equipment		
- fair value	341	340
- accumulated depreciation	(125)	(76)
Total office equipment	216	264
Ships,launches and vessels:		
- fair value	16,206	3,531
- work in progress	46	6,361
	16,252	9,892
- accumulated depreciation	(902)	(362)
Total ships, launches and vessels	15,350	9,530
Library books		
- fair value	1,611	1,611
- accumulated depreciation	(824)	(479)
Total library books	787	1,132
Total infrastructure, plant and equipment:		
- gross carrying value (at fair value)	34,871	19,841
- work in progress	1,016	6,677
	35,887	26,518
- accumulated depreciation	(8,069)	(4,643)
Total infrastrucuture, plant and equipment	27,818	21,875

All revaluations are conducted in accordance with the revaluation policy stated at Note 1. No indicators of impairment were found for infrastructure, plant and equipment.

Note 6: Non-Financial Assets (cont.)		
	2008	2007
	2000	\$2007
Note 6C: Intengibles	\$ 000	\$ 000
<u>Note oc. Intalgibles</u>		
Computer software at cost:		
Internally developed – in use	559	506
Work in progress at cost	5	-
Total Computer Software	564	506
Accumulated amortisation	(388)	(332)
Total intangibles (non-current)	176	174
No indicators of impairment were found for intangible assets.		
Note 6D: Inventories		
Inventories held for sale - finished goods	33	36
Inventories held for distribution	186	194
Total inventories (current)	219	230
No items of inventory are recognised at fair value less cost to sell.		
Note 6E: Other non-financial assets		
Workshop jobs in progress	192	56
Prepayments	232	215
Total other non-financial assets	424	271
Other non-financial assets are represented by		
Current	413	270
Non-Current	11	1
Total other non-financial assets	424	271

No indicators of impairment were found for other non-financial assets.

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Note 6: Non-Financial Assets (cont.)

Note 6F: Analysis of property, plant and equipment

TABLE A – Reconciliation of the opening and closing balances of property, plant and equipment (2007-08)

	Buildings and							
	leasehold	Plant and	Computer		Office	Vessels &	Library	
	improvements	Equipment	Equipment	Vehicles	Equipment	Launches	Books	Total
	S'000	\$`000	\$`000	\$,000	\$,000	\$,000	\$,000	\$,000
As at 1 July 2007								
Gross book value	50,707	11,243	1,714	1,718	340	9,892	1,611	77,225
Accumulated depreciation/amortisation and								
impairment	(2,094)	(3,012)	(430)	(284)	(20)	(362)	(479)	(6,737)
Net book value 1 July 2007	48,613	8,231	1,284	1,434	264	9,530	1,132	70,488
Additions:								
by purchase	1,336	2,596	517	737	1	6,583	'	11,770
Depreciation/amortisation expense	(1,777)	(2,001)	(445)	(381)	(49)	(639)	(345)	(5,637)
Other movements - Depreciation on share of ATRF	(51)	'	•		'	•	'	(51)
Disposals:								
Other disposals	(12)	(8)	(27)	(472)	'	(124)	'	(643)
Net book value 30 June 2008	48,109	8,818	1,329	1,318	216	15,350	787	75,927
Net book value as of 30 June 2008 represented by:								
Gross book value	52,106	13,803	2,177	1,703	341	16,252	1,611	87,993
Accumulated depreciation/amortisation and impairment	(3,997)	(4,985)	(848)	(385)	(125)	(902)	(824)	(12,066)
	48,109	8,818	1,329	1,318	216	15,350	787	75,927

Note 6: Non-Financial Assets (cont.)

Note 6F: Analysis of property, plant and equipment

TABLE A – Reconciliation of the opening and closing balances of property, plant and equipment (2006-07)

Item

	Buildings and leasehold	Plant and	Commiter		Office	Vesels &	Lihrarv	
	improvements \$'000	Equipment \$`000	Equipment	Vehicles	Equipment	Launches	Books \$'000	Total \$'000
As at 1 July 2006								
Gross book value	49,570	10,196	1,184	1,294	91	3,539	1,611	67,485
Accumulated depreciation/amortisation and impairment	(464)	(893)	(95)	(56)	(6)	(72)	(96)	(1,685)
Net book value 1 July 2006	49,106	9,303	1,089	1,238	82	3,467	1,515	65,800
Additions:								
by purchase	1,536	1,064	535	927	'	6,361	ı	10,423
Reclassification	(296)	31	19		229		ı	(17)
Depreciation/amortisation expense	(1,706)	(2, 138)	(346)	(329)	(47)	(292)	(383)	(5, 241)
Other movements - Depreciation on share of ATRF	(14)						ı	(14)
Disposals:								
Other disposals	(13)	(29)	(13)	(402)		(9)		(463)
Net book value 30 June 2007	48,613	8,231	1,284	1,434	264	9,530	1,132	70,488
Net hook value as of 30 June 2007 represented hv:								
Gross book value	50,707	11,243	1,714	1,718	340	9,892	1,611	77,225
Accumulated depreciation/amortisation and impairment	(2,094)	(3,012)	(430)	(284)	(20)	(362)	(479)	(6,737)
	48,613	8,231	1,284	1,434	264	9,530	1,132	70,488

Note 6: Non-Financial Assets (cont.)

Note 6G: Intangibles

Table B: Reconciliation of the opening and closing balances of intangibles (2007-08).

Item	Computer software	Total
	\$'000	\$'000
As at 1 July 2007		
Gross book value	506	506
Accumulated depreciation/amortisation and impairment	(332)	(332)
Net book value 1 July 2007	174	174
Additions:		
by purchase or internally developed	63	63
Amortisation	(61)	(61)
Disposals:		
other disposals	-	-
Net book value 30 June 2008	176	176
Net book value as of 30 June 2008 represented by:		
Gross book value	564	564
Accumulated depreciation/amortisation and impairment	(388)	(388)
- · -	176	176

Table B: Reconciliation of the opening and closing balances of intangibles (2006-07).

	Computer	
Item	software	Total
	\$'000	\$'000
As at 1 July 2006		
Gross book value	520	520
Accumulated amortisation and impairment	(219)	(219)
Net book value 1 July 2006	301	301
Additions:		
by purchase or internally developed	18	18
Reclassifications	17	17
Amortisation	(113)	(113)
Disposals:		
other disposals	(49)	(49)
Net book value 30 June 2007	174	174
Net book value as of 30 June 2007 represented by:		
Gross book value	506	506
Accumulated depreciation/amortisation and impairment	(332)	(332)
	174	174

Note 7: Payables		
	2008 \$'000	2007 \$'000
Note 7A: Suppliers		
Trade creditors	1,969	4,427
Total suppliers	1,969	4,427
All supplier payables are current liabilities.		
Settlement is usually made net 30 days.		
Note 7B: Other payables		
Consultancies and grants	1,051	779
Joint ventures	1,189	1.198
Total other payables	2,240	1,977
Other payables are represented by:		
Current	1,553	1,368
Non-current	687	609
Total other payables	2,240	1,977
Note 8: Loans		
	2008	2007

	\$'000	\$'000
Note 8A: Loans		
Loans from Government	540	-
Total loans	540	-
Maturity schedule for loans:		
Payable:		
In more than five years	540	-
Total loans	540	-

Loan information

The Loan was provided in 2007-08 by the Queensland Government Department of Tourism, Regional Development and Industry, with repayments commencing after 10 years. There is no interest payable on the loan.

Note 9: Provisions

	2008	2007
	\$'000	\$'000
Note 9A: Employee provisions		
Salaries and wages	199	132
Annual leave	2,307	2,556
Long service leave	2,588	2,834
Superannuation	516	525
Separations and redundancies	-	475
Workers compensation	21	27
Fringe benefits tax	54	57
Total employee provisions	5,685	6,606
Employee provisions are represented by		
Current	5,368	6,276
Non-current	317	330
Total employee provisions	5,685	6,606

The classification of current employee provisions includes amounts for which there is not an unconditional right to defer settlement by one year, hence in the case of employee provisions the above classification does not represent the amount expected to be settled within one year of reporting date. Employee provisions expected to be settled in twelve months from the reporting date are \$2,105,000 (2007: \$3,008,000), and in excess of one year \$3,580,000 (2007: \$3,598,000).

Note 10: Cash flow reconciliation		
	2008	2007
	\$2000	\$2000
Reconciliation of cash and cash equivalents as per balance sheet to	\$ 000	\$ 000
cash flow statement		
Report cash and cash equivalents as per:		
Cash flow statement	12,823	14,820
Balance sheet	12,823	14,820
Difference		-
Palanas Shaat appress of		
Cash and each equivalents	474	138
Investments	12 349	14 682
Total	12,823	14,002
=	12,020	11,020
Reconciliation of operating result to net cash from operating activities:		
Operating result	9,766	1,861
Depreciation /amortisation	5,698	5,354
Gain on disposal of assets	(481)	-
Loss on disposal of assets	100	63
(Increase) / decrease in net receivables	(3,604)	(84)
(Increase) / decrease in inventories	10	9
(Increase) / decrease in other assets	(153)	17
Increase / (decrease) in employee provisions	(921)	(233)
Increase / (decrease) in supplier payables	(2,459)	230
Increase / (decrease) in other payables	263	(1,142)
Net cash from / (used by) operating activities	8,220	6,075

Note 11: Contingent Liabilities and Assets

Quantifiable Contingencies

The Schedule of Contingencies reports contingent assets in respect of Tenix Defence Pty Ltd of \$304,212 (2007: \$6,084,247) for the security on the design, construction, sale and delivery of the Scientific Research Vessel.

The Schedule also reports contingent asset in respect of OTIS Elevator Company Pty Ltd of \$2,200 (2007: Nil) for the lift modernisation at AIMS.

Unquantifiable Contingencies

At 30 June 2008, AIMS is not aware of any material unquantifiable contingencies.

Note 12: Directors Remuneration		
	2008	2007
The number of directors of AIMS included in these figures are shown below in the relevant remuneration bands:	No.	No.
\$ Nil - \$ 14,999	2	2
\$ 15,000 - \$ 29,999	3	3
\$ 30,000 - \$ 44,999	1	1
\$ 270,000 - \$ 284,999	-	1
\$ 285,000 - \$ 299,999	1	-
Total number of directors of the AIMS	7	7

Total remuneration received or due and receivable by directors of AIMS. **\$ 450,831 \$** 417,594

The Directors (members of council) of AIMS are appointed by the Governor General.

The Chief Executive Officer is appointed by the Governor General on the recommendation of the Board of Directors (Members of Council).

Note 13: Related Party Disclosures

Loans to Directors and Director-related Entities

There were no loans made to any Director or Director-related entities during the period (2007: Nil).

Other Transactions with Directors or Director-related Entities

There were no other transactions with Directors or Director related entities during the period (2007: Nil).

Note 14: Executive Remuneration

	2008	2007
	No.	No.
to receive total remuneration of \$130,000 or more:		
\$130 000 to \$144 999	-	1
\$145 000 to \$159 999	1	-
\$160 000 to \$174 999	-	1
\$190 000 to \$204 999	1	-
\$220 000 to \$234 999	1	1
Total	3	 3
The aggregate amount of total remuneration of senior executives shown above.	\$ 585,215	\$ 530,738
The aggregate amount of separation and redundancy/termination benefit payments during the year to executives shown above.	Nil	\$ 57,663
The Chief Executive Officer's remuneration is included in Note 12, Directors Remuneration.		

Note 15: Remuneration of Auditors

	2008 \$'000	2007 \$'000
Financial statement audit services are provided to AIMS by the Auditor General. The fair value of the services provided was:		
Audit services	47	46

No other services were provided by the Auditor-General.

Note 16: Financial Instruments		
	2008	2007
	\$'000	\$'000
16A Categories of financial instruments		
Financial Assets		
Held-to-maturity		
Investments	12,349	14,682
	12,349	14,682
Loans and receivables financial assets		
Cash at bank	468	132
Receivables for goods and services	6,821	3,191
Loans	729	729
	8,018	4,052
Carrying amount of financial assets	20,367	18,734
Financial Liabilities		
Other financial liabilities		
Trade creditors	1,969	4,427
Consultancies and grants	1,051	779
Joint ventures	1,189	1,198
Loans from Government	540	-
Carrying amount of financial liabilities	4,749	6,404
16B Net income and expense from financial assets		
Held-to-maturity		
Interest revenue (see note 3C)	1,259	1,267
Net gain/(loss) held-to-maturity	1,259	1,267
Loans and receivables		
Exchange gains/(loss)	(16)	-
Net gain/(loss) loans and receivables	(16)	-
Net gain/(loss) from financial assets	1,243	1,267
16C Net income and expense from financial liabilities		
Other financial liabilities		
Interest expense	79	93
Net gain/(loss) from financial liabilities	79	93

Note 16: Financial Instruments (Cont.)

16D Fair value of financial instruments

	Carrying	Fair	Carrying	Fair
	amount	value	amount	value
	2008	2008	2007	2007
FINANCIAL ASSETS	\$'000	\$'000	\$'000	\$'000
Cash at bank	468	468	132	132
Receivables for goods and services (net)	6,674	6,674	3,043	3,043
Investments	12,349	12,349	14,682	14,682
Total	19,491	19,491	17,857	17,857

FINANCIAL LIABILITIES

Trade creditors	1,969	1,969	4,427	4,427
Consultancies and grants	1,051	1,051	779	779
Joint ventures	1,189	1,189	1,198	1,198
Loans from Government	540	540	-	-
Total	4,749	4,749	6,404	6,404

16E Credit risk

AIMS is exposed to minimal credit risk as the majority of loans and receivables are cash. AIMS's maximum exposures to credit risk is the risk that arises from potential default of the loan to Cleveland Biosensors Pty Ltd and of a debtor. AIMS' total exposure is equal to the total amount of loans and trade receivables of \$7,550,000 in 2008 (2007: \$3,920,000) AIMS has assessed the risk of default on payment and has allocated \$876,000 in 2008 (2007: \$876,000) to an allowance for doubtful debts account.

AIMS manages its credit risk by entering into contracts with most external parties prior to establishing a debtor relationship.

The following table illustrates AIMS gross exposure to credit risk, excluding any collateral or credit enhancements.

	2008	2007
	\$'000	\$'000
Financial assets		
Receivables for goods and services	6,821	3,191
Loans	729	729
Total	7,550	3,920

AIMS holds no collateral to mitigate against credit risk.

Credit risk of financial instruments not past due or individually determined as impaired

	Not Past Due Nor Impaired 2008 S'000	Not Past Due Nor Impaired 2007 \$'000	Past due or impaired 2008 \$'000	Past due or impaired 2007 \$'000
Investments	12,349	14,682	-	-
Cash at bank	468	132	-	-
Receivables for goods and services	5,384	2,933	1,437	258
Loans	-	-	729	729
Total	18,201	17,747	2,166	987

Ageing of financial assets that are past due but not impaired for 2008

	0 to 30	31 to 60	61 to 90	90+	
	days	days	days	days	Total
	\$'000	\$'000	\$'000	\$'000	\$'000
Receivables for goods and services	-	830	9	598	1,437
Loans	-	-	-	729	729
Total	-	830	9	1,327	2,166

Ageing of financial assets that are past due but not impaired for 2007

	0 to 30	31 to 60	61 to 90	90+	
	days	days	days	days	Total
	\$'000	\$'000	\$'000	\$'000	\$'000
Receivables for goods and services	-	31	51	176	258
Loans	-	-	-	729	729
Total	-	31	51	905	987

16F Liquidity risk

AIMS's financial liabilities are payables, consultancies and grants, joint ventures and loans from government. The exposure to liquidity risk is based on the notion that AIMS will encounter difficulty in meeting its obligations associated with financial liabilities. This is highly unlikely due to the appropriation funding available to AIMS.

The following tables illustrates the maturities for financial liabilities

	On	within 1	1 to 5	> 5	
	demand	year	years	years	Total
	2008	2008	2008	2008	2008
	\$'000	\$'000	\$'000	\$'000	\$'000
Trade creditors	-	1,969	-	-	1,969
Consultancies and grants	-	1,051	-	-	1,051
Joint ventures	-	502	687	-	1,189
Loans from Government	-	-	-	540	540
Total	-	3,522	687	540	4,749

	On	within 1	1 to 5	> 5	
	demand	year	years	years	Total
	2007	2007	2007	2007	2007
	\$'000	\$'000	\$'000	\$'000	\$'000
Trade creditors	-	4,427	-	-	4,427
Consultancies and grants	-	779	-	-	779
Joint ventures	-	589	609	-	1,198
Loans from Government	-	-	-	-	-
Total	-	5,795	609	-	6,404

AIMS receives appropriation funding from the Australian Government. AIMS manages its budgeted funds to ensure it has adequate funds to meet payments as and when they fall due. In addition, AIMS has policies in place to ensure timely payments are made when due and has no past experience of default.

16G Market risk

AIMS holds basic financial instruments that do not expose AIMS to certain market risks. AIMS is not exposed to 'currency risk', 'other price risk' or 'interest rate risk'.

Note 17: Appropriations

Table A: Acquittal of Authority to Draw Cash from the Consolidated Revenue Fund for Ordinary Annual Services Appropriations

Particulars		Departmental Outputs		tal
	2008	2007	2008	2007
	\$'000	\$'000	\$'000	\$'000
Balance brought forward from previous period	-	-	-	-
Appropriation Act:				
Appropriation Act (No.1) 2007-08	26,645	23,631	26,645	23,631
Appropriation Act (No.3) 2007-08	-	839	-	839
Total appropriation available for payments	26,645	24,470	26,645	24,470
Cash payments made during the year (GST inclusive)	(26,630)	(24,470)	(26,630)	(24,470)
Appropriations credited to Special Accounts (excluding GST)	-	-	-	-
Balance of Authority to Draw Cash from the Consolidated Revenue Fund for Ordinary Annual Services Appropriations	15	-	15	-
Represented by				
Amount to be corrected in 2008-09 Additional Estimates Process	15	-	15	-
Departmental appropriations receivable	-	-	-	-
Total	15	-	15	-

Note 18: Reporting of Outcomes

Note 18A: Net cost of outcome delivery
--

	Outcome 1		Τα	otal
	2008	2007	2008	2007
	\$'000	\$'000	\$'000	\$'000
Expenses				
Departmental	36,299	33,122	36,299	33,122
Total expenses	36,299	33,122	36,299	33,122
Costs recovered from provision of goods and serv	vices to the non	government s	ector	
Departmental	9,569	4,172	9,569	4,172
Total costs recovered	9,569	4,172	9,569	4,172
Other external revenues				
Departmental				
Interest	1,259	1,267	1,259	1,267
Revenues from joint ventures	121	365	121	365
Other revenue	4,316	2,841	4,316	2,841
Total other external revenues	5,696	4,473	5,696	4,473
Net cost/(contribution) of outcome	21,034	24,477	21,034	24,477

Outcome 1 is described in Note 1.1. Net costs shown include intra-government costs that are eliminated in calculating the actual Budget Outcome.

Note 18B: Ma	jor classes of de	partmental r	evenues and	expenses l	by output	groups and	outputs
	-			_			

	Outpu	t 1.1	Outcome 1		
Outcome 1	Tota	al	Total		
Outcome 1	2008	2007	2008	2007	
	\$'000	\$'000	\$'000	\$'000	
Departmental expenses					
Employees	15,151	15,992	15,151	15,992	
Suppliers	14,877	11,292	14,877	11,292	
Depreciation and amortisation	5,698	5,354	5,698	5,354	
Expenditure on joint ventures	378	328	378	328	
Interest	79	93	79	93	
Foreign exchange losses	16	-	16	-	
Losses from asset sales	100	63	100	63	
Total departmental expenses	36,299	33,122	36,299	33,122	
Funded by:					
Revenue from Government	26,630	24,470	26,630	24,470	
Sale of goods and rendering of services	13,258	6,040	13,258	6,040	
Interest	1,259	1,267	1,259	1,267	
Revenues from joint ventures	121	365	121	365	
Other revenue	4,316	2,841	4,316	2,841	
Total departmental revenues	45,584	34,983	45,584	34,983	

Outcome 1 is described in Note 1.1. Net costs shown include intra-government costs that are eliminated in calculating the actual Budget outcome.

SUPPLEMENTARY FINANCIAL INFORMATION (UNAUDITED)

	2008	2007
	\$'000	\$'000
Joint Ventures		
Arafura Timor Research Facility Joint Venture		
AIMS has taken up its 50% share of investment		
Income Statement		
Revenue from joint venture	64	310
Expenditure from Joint Venture	375	310
Net operating (loss)/surplus from joint venture	(311)	0
Represented:		
Balance Sheet		
Cash in bank	23	75
Accounts receivable	30	33
Total current assets	53	108
Building	1,673	1,673
Motor vehicles	11	11
Provision for Depreciation	(130)	(79)
Total non current assets	1,554	1,605
Total included in AIMS equity	1,607	1,713
AIMS@ICU Joint Vonture		
AIMS has taken up its share of investment		
Income Statement		
Revenue from joint venture	57	55
Expenditure by AIMS on joint venture	3	18
Net operating surplus from joint venture	54	37
Represented:		
Balance Sheet		
Investments	1,189	1,198
Total current assets	1,189	1,198
Other payables	1,189	1,198
Total liabilities	1,189	1,198
Total included in AIMS equity	-	-

SUPPLEMENTARY FINANCIAL INFORMATION (UNAUDITED)

Revenue comparison

	2008	2007	2006	2005	2004
	\$'000	\$'000	\$'000	\$'000	\$'000
Appropriation revenue					
Operating	21,073	18,913	18,469	18,160	17,841
Asset replacement	5,557	5,557	4,656	4,323	4,293
Capital and infrastucture		-	-	-	-
Capital use charge		-	-	-	-
Total appropriation revenue	26,630	24,470	23,125	22,483	22,134
Non-appropriation revenue					
Sale of goods and rendering of services	13,258	6,040	8,228	5,689	5,368
Interest	1,259	1,267	1,060	985	790
Revenues from joint ventures	121	365	996	2,696	2,142
Other revenue	4,316	2,841	167	109	158
Total non-appropriation revenue	18,954	10,513	10,451	9,479	8,458
Total Revenue	45,584	34,983	33,576	31,962	30,592
Non-appropration ratio	42%	30%	31%	30%	28%

Sale of goods and rendering of services includes consultancies, grants and contract collaborations. Non-appropriation ratio is percentage non-appropriation revenue of total revenue.

Source of sale of goods and rendering of services

Australian Government	3,562	1,980	971	466	486
Australian joint Government/industry	1,006	2,489	5,098	3,093	2,298
International governments	93	880	875	1,005	765
Australian industry	8,317	407	1,042	524	1,173
International industry	212	220	158	512	528
Sale of goods	68	64	84	89	118
	13,258	6,040	8,228	5,689	5,368



SUPPLEMENTARY FINANCIAL INFORMATION (UNAUDITED)

Cost of Output by Research Teams

	Variable	Salaries De	preciation	Overheads	Total
	\$'000	\$'000	\$'000	\$'000	\$'000
Assessing and Using Marine Biodiversity	6,798	4,465	398	7,548	19,209
Measuring Water Quality and Ecosystem Health	1,387	2,231	218	3,772	7,608
Responding to Climate Change	1,258	1,282	206	2,167	4,913
Understanding Marine Microbes and Symbioses	604	1,140	898	1,927	4,569
Total	10,047	9,118	1,720	15,414	36,299

APPENDICES

- Appendix 1 Legislative Foundation and Ministerial Powers
- Appendix 2 National Research Priorities
- Appendix 3 Performance Indicators
- Appendix 4 Science Publications 2007
- Appendix 5 AIMS Scientists' Membership of External Committees and Non-Government Organisations
- Appendix 6 Freedom of Information Statement

1. LEGISLATIVE FOUNDATION AND MINISTERIAL POWERS

ENABLING LEGISLATION

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

FUNCTIONS OF INSTITUTE

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

- (a) Enter into contracts;
- (b) 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) Purchase or take on lease land or buildings, and to erect buildings, necessary for the purposes of the Institute;
- (d) Dispose of, or grant leases of, land or buildings vested in the Institute;
- (e) 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) Participate in partnerships, trusts, unincorporated joint ventures and other arrangements for sharing profits;
- (g) Subscribe for and to purchase shares in, and debentures and other securities of, companies;
- (h) Form, and to participate in the formation of, companies; and
- (i) Appoint agents and attorneys, and to act as agents for other persons;
- (j) 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) Arrange for displaying material and giving lectures, to the public or otherwise, in respect of matters relating to marine science and marine science technology; and the application and use of marine science and marine technology.

MINISTERIAL POWERS OF DIRECTION

Under Section 10 (1) of the AIMS Act, the 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 (Section 13, 16(b));
- 2. Appointing (and terminating such appointment) a person to act as Chairperson (Section 17(1) and (3));
- 3. Appointing (and terminating such appointment) a person to act as a member of Council (Section 17(2) and (3));
- 4. Convening a meeting of Council (Section 20(2));
- 5. Out of money appropriated by the Parliament for the purpose, the Finance Minister has power to lend money to the Institute (Section 42A);
- 6. The Finance Minister has the power to provide written approval for the Institute to borrow money from persons other than the Commonwealth (Section 42B);
- 7. The Finance Minister has the power to guarantee borrowings of the Institute (Section 42C); and
- 8. Appointing a Committee to assist Council and approving the terms and conditions of members (Section 45).

2. NATIONAL RESEARCH PRIORITIES

NATIONAL RESEARCH PRIORITY GOALS A. An Environmentally Sustainable Australia

Transforming the way we utilise our land, water, mineral and energy resources through a better understanding of human and environmental systems and the use of new technologies.

1. Water – a critical resource

Sustainable ways of improving water productivity, using less water in agriculture and other industries, providing increased protection of rivers and groundwater and the re-use of urban and industrial waste waters.

- 2. Transforming existing industries New technologies for resource-based industries to deliver substantial increases in national wealth while minimising environmental impacts on land and sea.
- Overcoming soil loss, salinity and acidity Identifying causes of and solutions to land degradation using a multidisciplinary approach to restore land surfaces.
- 4. Reducing and capturing emissions in transport and energy generation Alternative transport technologies and clean combustion and efficient new power generation systems and capture and sequestration of carbon dioxide.
- 5. Sustainable use of Australia's biodiversity Managing and protecting Australia's terrestrial and marine biodiversity both for its own value and to develop long-term use of ecosystem goods and services ranging from fisheries to ecotourism.
- 6. Developing deep earth resources Smart high-technology exploration methodologies, including imaging and mapping the deep earth and ocean floors, and novel efficient ways of commodity extraction and processing (examples include minerals, oil and gas) while minimising negative ecological and social impacts.
- Responding to climate change and variability Increasing our understanding of the impact of climate change and variability at the regional level across Australia and addressing the consequences of these factors on the environment and on communities.

B. Promoting and Maintaining Good Health

Promoting good health and well being for all Australians

- A healthy start to life Counteracting the impact of genetic, social and environmental factors which predispose infants and children to ill health and reduce their well being and life potential.
- 2. Ageing well, ageing productively Developing better social, medical and population health strategies to improve the mental and physical capacities of ageing people.
- Preventive healthcare New ethical, evidence-based strategies to promote health and prevent

disease through the adoption of healthier lifestyles and diet, and the development of health-promoting products.

4. Strengthening Australia's social and economic fabric Understanding and strengthening key elements of Australia's social and economic fabric to help families and individuals live healthy, productive and fulfilling lives.

C. Frontier Technologies for Building and Transforming Australian Industries

Stimulating the growth of world-class Australian industries using innovative technologies developed from cutting-edge research

1. Breakthrough science

Better understanding of the fundamental processes that will advance knowledge and facilitate the development of technological innovations.

2. Frontier technologies

Enhanced capacity in frontier technologies to power world-class industries of the future and build on Australia's strengths in research and innovation (examples include nanotechnology, biotechnology, ICT, photonics, genomics/phenomics, and complex systems).

3. Advanced materials

Advanced materials for applications in construction, communications, transport, agriculture and medicine (examples include ceramics, organics, biomaterials, smart material and fabrics, composites, polymers and light metals).

- 4. Smart information use Improved data management for existing and new business applications and creative applications for digital technologies (examples include e-finance, interactive systems, multi-platform media, creative industries, digital media creative design, content generation and imaging).
- 5. Promoting an innovation culture and economy Maximising Australia's creative and technological capability by understanding the factors conducive to innovation and its acceptance.

D. Safeguarding Australia

Safeguarding Australia from terrorism, crime, invasive diseases and pests, strengthening our understanding of Australia's place in the region and the world and securing our infrastructure, particularly with respect to our digital systems

- 1. Critical infrastructure Protecting Australia's critical infrastructure including our financial, energy, communications and transport systems.
- 2. Understanding our region and the world Enhancing Australia's capacity to interpret and engage with its regional and global environment through a greater understanding of languages, societies, politics and cultures.
- Protecting Australia from invasive diseases and pests Counteract the impact of invasive species through the application of new technologies and by integrating approaches across agencies and jurisdictions.
- 4. Protecting Australia from terrorism and crime By promoting a healthy and diverse research and development (R&D) system that anticipates threats and supports core competencies in modern and rapid identification techniques.
- 5. Transformational defence technologies Transform military operations for the defence of Australia by providing superior technologies, better information and improved ways of operation.

3. PERFORMANCE INDICATORS

Regular review of performance and capabilities is a critical component of planning and continuous improvement at AIMS. The Institute's reporting framework sets goals for performance against a range of research and organisational criteria. Performance against agreed targets (AIMS Key Performance Goals) is reviewed regularly by the Management Group and Council and is reported annually to Parliament in the AIMS Annual Report (see pages 47-65).

KEY PERFORMANCE GOALS

	KEY PERFORMANCE GOALS	MEASURE/INDICATOR	Frequency
Science quality			
Scientific publications	Transfer new knowledge generated by AIMS and its collaborators through high quality scientific publications in high impact journals and relevant user-focused publications.	 Number of peer reviewed scientific publications reported quarterly against previous year Trend in publication level 	Annual
Citation analysis	Ongoing improvement in the quality and impact of AIMS' journal publications	Retrospective citation analysis using Science Citation Index	5 yearly
Increase science capacity	Increase in number of post-doc positions. Target is annual average of 10 FTEs (by 2009)	Number of research scientists and postdocs	Annual
External assessment and review	Ongoing improvement of AIMS' research performance.	• Expert review of the quality and impact of AIMS' Research Performance	Within quadrennium
Enhancing impact/ relationships			
Joint ventures	Enhance impact and research capacity through co-investment in research	Joint ventures and current status	Annual
Leverage through collaboration	Maintain and focus AIMS' collaborative approach to research	 Collaborations (collaborative research projects) and significant outputs Number of collaborations and percentage of research papers from collaborations 	Annual

	KEY PERFORMANCE GOALS	MEASURE/INDICATOR	Frequency
Enhance Australia's future capabilities in marine science	Contribution to teaching	 Students, completions and significant outputs reported quarterly Number of jointly supervised postgraduate students (PhD and Masters, with trend) Number of internships and undergraduates (with trend). 	Annual
Effective use of resources			
Project management	Timely delivery of project milestones	Percentage of milestones completed on time.	Annual
Operational efficiency	Improve efficiency of (providing) key support	Number of continuous improvement projects completed	Annual
Strategic alliances	Enhance research delivery by the development and maintenance of alliances with organisations that complement AIMS' skills and infrastructure.	 Strategic alliances and current status. 	Annual
Organisational growth			
Increase revenue	Increase revenue to support investment in AIMS' research.	Trend in total revenue reported annually.	Annual
Enhance core capabilities	Attract and retain key 'talent' through staff satisfaction	Report examples of actions taken and improvements achieved.	Annual
Develop staff	Seek improvements to integration of staff training into organisations goals	 Report examples of actions taken and improvements achieved. 	Annual
Technology diffusion			
Transfer to users	Enhance user uptake of AIMS research	 Practices, instruments and processes developed by AIMS that have been adopted by users in industry, government and the community. 	Annual
Funding mix / Source of revenue	Enhance engagement with industry	 External earnings reported against previous year Trend in external earnings and source of funds 	Annual
Health, Safety and Environmental Performance			
Safety index	Improved safety culture	 Report against indicators and provide examples of improvements 	Annual
Reduce environmental footprint	Ongoing improvements to AIMS' operations to reduce our environmental footprint.	Report examples of actions taken and improvements achieved.	Annual

4. SCIENCE PUBLICATIONS 2007

JOURNAL ARTICLES

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5. AIMS SCIENTISTS' MEMBERSHIP OF EXTERNAL COMMITTEES AND NON-GOVERNMENT ORGANISATIONS

INTERNATIONAL FORUMS

Association of Official Analytical Chemists (AOAC) Presidential Task Force on Marine and Freshwater Toxins Arafura Timor Seas Expert Forum (ATSEF) Steering Committee Convention on Biological Diversity's Panel of Experts on Access and Benefit Sharing (Aust rep) Census of Marine Life - International Scientific Steering Committee (Chair) FAO Steering Committee on Holothurian Fishing Great Barrier Reef Foundation - International Scientific Advisory Committee (ISAC) International Atomic Energy Agency (Expert Consultant to United Nations Development Project 'Transfer of Receptor Binding Assay for Harmful Algal Toxins') International Marine Biotechnology Association (Board Member) International Society for Microbial Ecology (Board Member) National Irish Marine Biotechnology Steering Committee Palau International Coral Reef Center Scientific Advisory Committee Stratos/IISD/Swiss Government's Access and Benefit Sharing Tool Project Advisory Committee World Bank Coral Reef Restoration and Remediation Working Group DOMESTIC FORUMS AIMS@JCU Board Alcan Melville Bay Marine Health Monitoring Program Team - Adviser Antarctic Science Advisory Committee (Chair) Antarctic Research Assessment Committee (ARAC) Life Sciences (Chair) Arafura Timor Research Facility (ATRF) Governance Group Australian Biodiscovery Workshop Group (Commonwealth, States and Territories) of the Biotechnology Liaison Committee Australian Fisheries Management Authority Northern Shark Stock Assessment Group Australian Government Department of the Environment and Water Resources -National Shark Recovery Group Australian Government Department of the Environment and Water Resources **BioIndustry Panel** Australian Biotechnology Advisory Committee Australian Marine Sciences Association (AMSA) National Executive (Secretary) Australian Marine Sciences Association (AMSA) NT President Australian National Sportfishing Association (ANSA) Scientific Research Foundation Australian Ocean Data Centre Joint Facility

Australian Research Council, Centre of Excellence for Coral Reef Studies, Advisory Board Australian Research Council Oz Reader Australian Research Council INTREADER Bioscience North Australian Science Advisory Committee Coastal and Reef Assets (Fitzroy Basin Association) Expert Panel Commonwealth Inter-departmental Committee on Access to Genetic Resources Coordination Committee on Science and Technology (CCST) Darwin Harbour Research Advisory Committee FRDC Prawn Domestication Steering Committee Great Barrier Reef Ocean Observing System User Group (Node Convenor) **GBROOS** Technical Reference Group Great Barrier Reef Water Quality Consensus Taskforce **GBRMPA** Fisheries Research Advisory Committee GBRMPA Reef Water Quality Protection Plan (RWQPP) Steering Committee GBRMPA Reef Water Quality Protection Plan (RWQPP) Project Committee GBRMPA Water Quality and Coastal Research Advisory Committee James Cook University Marine and Aquaculture Research Facilities Committee Integrated Marine Observing System (IMOS) Board Integrated Marine Observing System (IMOS) Steering Committee Marine and Tropical Sciences Research Facility (MTSRF) GBR Operations Committee Marine and Tropical Sciences Research Facility (MTSRF) Great Barrier Reef Steering Committee Marine and Tropical Sciences Research Facility (MTSRF) Torres Strait Program Steering Group National Centre for Tropical Wetlands Management National Facilities Ship Scientific Advisory Committee NT Fisheries Research Advisory Board Oceans Policy Science Advisory Group (OPSAG) Palm Island Sponge Farming Steering Committee Queensland Biotechnology Advisory Committee Queensland Biotechnology Advisory Committee for Environmental Biotechnology **QDPI&F** TrawlMac Science Advisory Group (Chair) Reef and Rainforest Research Centre Pty Ltd (Director) South East Queensland Expert Advisory Panel on Water Recycling Torres Strait Scientific Advisory Committee Twin Cities Fish Stocking Society - Scientific Adviser WA Physical Oceanographic Coordinating Group (WAPOCG) Western Australian Global Ocean Observing System (WAGOOS) Western Australian Marine Science Institution (WAMSI) Board Western Australian Marine Science Institution (WAMSI) R&D Committee Yorke Island Sponge Farm Business Planning Group

6. FREEDOM OF INFORMATION STATEMENT

The *Freedom of Information Act 1982* (FOI Act) requires each Australian Government agency to publish a statement setting out its role, structure and functions, the documents available for public inspection and access to such documents. Section 8 of the FOI Act requires each agency to publish information on the way it is organised, its powers, decisions made and arrangements for public involvement in its work.

This statement, in conjunction with information contained in this annual report, is intended to meet the requirements of Section 8 of the FOI Act.

ROLE, STRUCTURE AND FUNCTIONS

The Institute's role, structure and functions are described in pages iv, and 69–70 of this Annual Report.

DOCUMENTS AVAILABLE FOR INSPECTION

Copies of the Institute's publications and reports available on request are listed below. With the exception of final project reports, they are generally free of charge. Other information may be available, subject to assessment on the grounds of, for example, commercial confidentiality or personal privacy.

Facilities for reviewing documents are provided at AIMS. The Institute's publications are on display to the public and may be purchased through the AIMS Bookshop.

General enquiries concerning access to documents, or other matters relating to FOI, should be directed to:

Human Resources Manager Australian Institute of Marine Science PMB No 3, Townsville Mail Centre MC Qld 4810 Telephone: (07) 4753 4319 Facsimile: (07) 4772 5852

Strategic Directions	Files, publications*
Research Plan	Files, publications*
Annual Operational Plan	Files, unpublished documents
Project details	Databases, files
Final project reports	Publications
Non-technical summaries of final project reports	Publications*
R&D funding applications	Files, Annual Report file, publications
Administration	Files, unpublished documents
Mailing lists	Databases

*These documents are also available on the Institute's website www.aims.gov.au.

GLOSSARY

ACRONYMS AND ABBREVIATIONS

ABARE	Australian Bureau of Agricultural and Resource Economics
ACIAD	Australian Contro for International Agricultural Research
AUAK	Australian Institute of Marine Science
AIMS Act	Australian Institute of Marine Science Act 1072
ANAO	Australian National Audit Office
	Australian National University
ADA	Australian Ivauonar Oniversity
AFA	Austrolian Research Council
ATOVS	Advanced TIPOS Operational Vertical Soundar
ATSEE	Auvanceu TIROS Operational vertical sounder
ATDE	Arafura Timor Besserch Facility
	Australian Covernment eversees eid program
RNA	Bioscionees North Australia
BOM	Burgen of Meteorology
CAC Act	Commonwoodth Authorities and Companies Act 1007
CDU	Charles Denvin University
CEPE	Commonwealth Environment Personal Facilities Program
COAG	Council of Australian Covernments
CoMI	Control of Australian Governments
CEO	Chief Executive Officer
CMMG	Centre for Marine Microbiology and Genetics AIMS
COTS	Crown-of-thorns starfish
CRC	Cooperative Research Centre
CSIRO	Commonwealth Scientific and Industrial Research Organisation
DEC	Western Australian Department of Environment and Conservation
DEMG	Dredge Environmental Management Group
DEWHA	Australian Government Department of the Environment Water
DIMIN	Heritage and the Arts
DFAT	Australian Government Department of Foreign Affairs and Trade
DIISR	Australian Government Department of Innovation. Industry
211010	Science and Research
EAP	Employee Assistance Program
EDS	Electronic Data Systems
EEO	Equal Employment Opportunity
EEZ	Exclusive Economic Zone
EMP	Environmental Management Plan
EPBC	Environment Protection and Biodiversity Conservation Act 1999
ESI	Essential Science Indicators
FAICD	Fellow of the Australian Institute of Company Directors
FAIM	Fellow of the Australian Institute of Management
FAO	Food and Agriculture Organization of the United Nations
FAusIMM	Fellow of Australasian Institute of Mining and Metallurgy
FOI Act	Freedom of Information Act 1982
FRDC	Fisheries Research and Development Corporation
FRV	Fisheries research vessel
FTSE	Fellow of the Australian Academy of Technological Sciences and
	Engineering

GBR	Great Barrier Reef
GBRMPA	Great Barrier Reef Marine Park Authority
GBROOS	Great Barrier Reef Ocean Observing System
GA	Geosciences Australia
GRRWHA	Great Barrier Reef World Heritage Area
HSE	Health Safety and Environment
IA	Intellectual asset
ICP	Investment Capital Partners
IMOS	Integrated Marine Observing System
	Integrated manne Observing System
	Intercevernmental Panal on Climate Change
	Institute for Scientific Information
ISI	APC Bessensh Network for Intelligent Sensors, Sensor Networks
155111	and Information Processing
ICU	In and mormation Processing
JCU KDC	James Cook University
KPGS KDA	Key Performance Goals
KKAS	Key Kesult Areas
LNG	Liquid natural gas
LPG	Liquid petroleum gas
LTMP	Long Term Monitoring Program, AIMS
MMP	Marine Monitoring Program
MPAs	Marine Protected Areas
MTSRF	Marine and Tropical Sciences Research Facility
NCRIS	National Collaborative Research Infrastructure Strategy
NDT	Northern Development Taskforce
NLRD	Notifiable Law Risk Dealing
NOAA	United States National Oceanic and Atmospheric Administration
NRETA	Ningaloo Reef Environmental Tracking Array
NRPs	National Research Priorities
OECD	Organisation for Economic Cooperation and Development
OH&S Act	Occupational Health and Safety (Commonwealth Employment) Act 1991
OPSAG	Oceans Policy Scientific Advisory Group
QCIP	Queensland Cyber-Infrastructure Foundation
QDPI&F	Queensland Department of Primary Industries and Fisheries
QEPA	Queensland Environmental Protection Agency
QM	Queensland Museum
R&D	Research and development
RRRC	Reef and Rainforest Research Centre Limited
RV	Research vessel
RWQPP	Reef Water Quality Protection Plan
SEG	Scientific Experts Group on Climate Change
SRRP	Scott Reef Research Project
TAFE	Technical and Further Education (Queensland Government)
UN	United Nations
UNCLOS	United Nations Convention on the Law of the Sea
UNDP	United Nations Development Program
UNESCO	United Nations Educational, Scientific and Cultural Organisation
UNFCCC	United Nations Framework Convention on Climate Change
UNSW	University of New South Wales
UO	University of Oueensland
ŪŴĂ	University of Western Australia
WAMSI	Western Australian Marine Science Institution
WHA	World Heritage Area
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