



annualreport
20002001



**AUSTRALIAN INSTITUTE
OF MARINE SCIENCE**

The research reported herein is based on early analyses of complex data sets and should not be considered definitive in all cases. Institutions or individuals interested in all consequences or applications of the Institute's research are invited to contact the Director at the Townsville address given below.

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Office location:

Australian Institute of Marine Science
Cape Ferguson, Queensland

Postal address:

PMB No 3
Townsville MC QLD 4810
Australia

Telephone: (07) 4753 4444

Facsimile: (07) 4772 5852

www.aims.gov.au

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Senator The Hon Nick Minchin
Minister for Industry, Science and Resources
Parliament House
Canberra ACT 2600

10 September 2001

Dear Minister

On behalf of the Council of the Australian Institute of Marine Science, we have pleasure in presenting the Institute's 29th annual report for the year ended 30 June 2001. 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 outputs can make an informed judgement about AIMS' performance during the 2000-2001 financial year.

The report has been prepared in accordance with the *Commonwealth Authorities and Companies Orders 1998*. The Council endorsed the content of the annual report, including the report of operations, by a resolution of its meeting of 10 September 2001.

Yours sincerely



A E de Norbury Rogers
Chairman
Australian Institute of Marine Science



Stephen Hall
Director
Australian Institute of Marine Science

About this Report

This reporting period covers the first year of the three-year (triennium) research plan described in the *AIMS Research Plan 2000-2003*. The report describes the extent to which operations achieved the objectives of the Plan.

Highlights of research achievements have been included, showing the relevance and significance of the Institute's research effort of interest to the Minister, Parliament and users of AIMS research.

In 1999-2000 the Commonwealth Government shifted to an accrual-based, outcomes and outputs framework. The report provides an overview of performance information (pp. 2-4), which links our output (goods and services) to our agreed outcome: *Enhanced scientific knowledge supporting the protection and sustainable development of Australia's marine resources*.

In accordance with the 2000-2003 Resource Agreement between the Institute and the Ministers for Industry, Science and Resources, and Finance and Administration, this report gives details of performance against agreed indicators (pp. 88-89). Items complying with the requirements of the Joint Committee of Public Accounts and Audit (Departmental Annual Reports) have also been included (a table of contents; an alphabetical index (pp. 106-107); a compliance index (p. 105); and a glossary (p. 104)).

Legislative Requirement

Clause 1 of Schedule 1 of the *Commonwealth Authorities and Companies Act 1997* (CAC Act) and the *Commonwealth Authorities and Companies Orders 1998* governs the content and presentation of this report. Items required for Departmental Annual Reports have been included where appropriate although they are not required of CAC agencies.

Further Information

This report is available electronically on the AIMS web site (www.aims.gov.au). If you would like to obtain a copy of this report, or other material produced by the Institute, please contact the Science Communication Manager at the Townsville address shown on p. ii.

Details of the types of information available on request and under the provisions of the *Freedom of Information Act 1982* are in Appendix 1.

Other Publications Available

The *Strategic Directions* document and *Research Plan* are the Institute's peak planning documents and useful sources of information on the Institute and its operations. Both are available from Science Communication at the above contact. The Institute provides on-line access to these and other publications. For details visit the AIMS web site (www.aims.gov.au).

CONTENTS

ABOUT THE AUSTRALIAN INSTITUTE OF MARINE SCIENCE	1
Mission	1
Strategic directions	2
Research focus	2
Research approach	4
Performance planning and reporting	4
Clients	5
MARINE SCIENCE ACHIEVEMENTS 2000-2001	7
REPORT OF OPERATIONS	19
Certification of Report of Operations	20
Part A: Council's Review of Operations and Future Prospects	21
The national context	21
The Institute's major achievements in 2000-2001	22
Factors influencing AIMS' performance	22
Council welcomes a new Director	23
Participation in significant partnerships	24
Plans for the future	25
Part B: Operational and Financial Results	27
Principal output	27
Major investing and financing activities	27
Performance indicators	27
Shift of resources to agreed priority areas	27
Scientific publications	27
Patents	29
Scientific recognition	29
Contribution to Australia's future through teaching and training	30
Coordination of research and links with decision-making bodies	31
Collaboration	31
Input to policy making and implementation	31
Use of scientific advice	31
Adoption of practices, instruments and processes	32
Presentations	32
Status reports	32
Community involvement	33
External earnings	34
Joint ventures and strategic alliances	35
Spin-off businesses	35
Customer satisfaction	35
Significant changes in principal activities	35
Developments since the end of the financial year	35
Part C: Institute Structure and Governance	37
Enabling legislation and responsible Minister	37
Ministerial directions	37

Institute Structure	37
Council	37
Council meetings	39
Audit Committee	41
Audit Committee meetings	41
Executive Committee	42
Staff	42
Location of facilities and major activities	42
Research vessels	42
Corporate Governance	44
Structures	44
Processes	44
Controls	44
Council members' interests	44
Fraud control	44
Indemnities and insurance premiums for officers	45
Use of sub-contractors	45
Behaviour	45
Code of conduct	45
Judicial decisions and reviews by outside bodies	45
Policy and Administration	46
Efficiency gains	46
Social justice and equity	46
Staff consultation	47
Occupational health and safety	47
OH&S training	47
Radiation safety	47
Gene technology	47
Employee assistance program	47
Environmental matters	48
National environmental protection measures (NEPM)	48
Freedom of Information (FOI)	48
Customer service charter	48
Advertising and market research	48
FINANCIAL STATEMENTS	49
Statement by Directors of the Australian Institute of Marine Science	50
Auditor General's Report	51
Financial Statements at 30 June 2000	53
APPENDICES	87
1. Freedom of Information Statement	87
2. Triennium Agreement. Performance Indicators	88
3. Publications List for 2000	90
4. AIMS Scientists' Membership of External Committees and NGOs	99
5. The Institute's Legislative Foundation and the Exercise of Ministerial Powers	101
Enabling Legislation	101
Functions	101
Powers of the Institute	101
Ministerial Powers of Direction	102
6. Acronyms and Glossary	103
INDEXES	105
Compliance	105
Alphabetical	106

ABOUT THE AUSTRALIAN INSTITUTE OF MARINE SCIENCE

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

The Institute's Mission is to generate the knowledge to support the sustainable use and protection of the marine environment through innovative, world-class scientific and technological research.

AIMS was established by the Federal Government in 1972 in recognition of the growing importance of the marine sector to Australia. Its first major laboratory was

opened in 1977 at Cape Ferguson, near Townsville. This laboratory is adjacent to the geographic centre of the Great Barrier Reef, Australia's best known natural marine treasure, and one which is highly valued by the general community and marine industries alike.

In 1995 the Institute opened a small laboratory in Dampier, Western Australia, to provide a base for its growing research program in north west Australia. This program was established to support the conservation and management of the north and west marine zones of Australia, an area that has high conservation value and is rich in oil, gas, fisheries and minerals.



In 2000-2001, AIMS Council decided to close the Dampier facility and disperse the same or greater effort between new facilities in Perth and Darwin. These moves, which are forecast to provide better contact with clients requiring AIMS services, are due to be implemented in 2001-2002 and will be reported next year.

The Institute's research is building the knowledge base for industry development and marine conservation across the northern parts of Australia's Exclusive Economic Zone (EEZ). Since its establishment, the Institute has become a world centre for interdisciplinary tropical marine science. Our research products are recognised internationally and directly support Government initiatives such as *Australia's Oceans Policy* and *Australia's Marine Science and Technology Plan*, while more generally contributing to the national innovation system.

Strategic Directions

The planned outcome of AIMS research is "enhanced scientific knowledge supporting the protection and sustainable development of Australia's marine resources". The research effort contributing to this outcome is focused on five integrated strategic directions:

- ❑ The Ocean Environment – understanding the circulation of water, nutrients and sediments;
- ❑ Marine Biodiversity – characterising species richness and genetic variety;
- ❑ Marine Living Resources – managing valuable marine plants and animals;
- ❑ Ecologically Sustainable Development – measuring human impacts in the sea; and
- ❑ Technological Innovation – developing advanced instruments and techniques.

Research Focus

State and Commonwealth legislation directed to the coastal zone and Australia's marine resources enshrine the tenets of ecologically sustainable development and the wise use of the precautionary principle. Much of AIMS' research is designed to build national capacity and to meet the challenges of *Australia's Oceans Policy* through actions consistent with the companion *Marine Science and Technology Plan*, with a focus upon the complex marine ecosystems of the tropics. These actions are described in the *AIMS Research Plan 2000-2003*, which is based upon the following five science projects.

Predicting Climate Impacts upon Marine Ecosystems

This Project focuses on the impact of the physical environment upon marine ecosystems, primarily coral reefs and fisheries. Climate impacts incorporate both natural and human-related processes. These include global changes such as the enhanced Greenhouse effect and regional processes such as sediment and nutrient run-off from land that has been modified by human activities in the river catchments. At the same time the marine ecosystems also respond to natural disturbances, such as variable upwelling, and variable replenishment. These variations are controlled by the water circulation, which is driven ultimately by climate. This knowledge base involves understanding the strong links between the physics, chemistry and the biology of marine ecosystems.

Exploring and Conserving Marine Biodiversity

Biodiversity has been invoked as a cornerstone of ecosystem maintenance, a source of useful products, and the reason for the high aesthetic and conservation values associated with habitats such as coral reefs. This Project seeks to elevate awareness of marine biodiversity,

catalogue its attributes, understand its origins, conserve its values within a multiple use framework, and contribute to its preservation through research supporting the National Representative System of Marine Protected Areas (NRSMPA). Research methodology and results from this Project will be extended globally through the Global Coral Reef Monitoring Network (GCRMN), which is coordinated from AIMS.

Sustaining Marine Living Resources

This Project focuses on coral reef ecosystems and tropical fisheries, which are major resources for industry as well as sources of conservation values. Ecologically sustainable development of these resources requires that management and use is compatible with the attributes of the exploited resources. This requires crucial knowledge about the natural variability of marine ecosystems and the dynamics of living marine resources in time and space. It also requires knowledge about the demography of exploited stocks, especially their natural turnover and rates of replenishment. Finally, it requires that high quality scientific knowledge on these fundamental matters is fully integrated into policy and management practices.

Measuring Human Impacts in Coastal Marine Ecosystems

Australia's tropical coastline is being encroached upon daily by human development. The complexity of the ecosystems where land meets sea, and of the multiple environmental impacts colliding in the coastal zone, requires a skilled multidisciplinary approach to problem solving. This project will identify and quantify the impact of various human activities (agricultural run-off, pesticides, oil freshwater diversion, aquaculture effluents), on the ecology and biogeochemistry of coastal habitats. Our findings will be shared with, and used by, a broad range of clients developing strategies to regulate or mitigate human impacts in the

coastal zone. The research will contribute the knowledge to allow an ecosystem-based approach to the management of Australia's coastal environments.

Deriving Benefits from Marine Biotechnology

Australia's Oceans Policy provides an integrated strategy for the exploration and ecologically sustainable utilisation of marine natural resources. Areas identified as research priorities include the sustainable development of aquaculture industries and the exploitation of marine genetic resources for pharmaceutical and commercial use. This project will deliver results in both of these areas.

Research in tropical aquaculture will focus on prawn domestication and genetics, the culturing of new species, and the improvement of methodologies to enhance industry production.

The search by AIMS scientists for new biochemicals from Australia's diverse marine biota will continue towards the development of pharmaceuticals and healthcare products, agrichemicals for crop protection, and novel bioremediation agents for environmental protection. The search for novel biochemicals is complemented by examining the adaptations of marine organisms to harmful and aggressive environments resulting in the production of biotoxins and venoms, antifoulants, signalling agents, and other molecular defences. Understanding the biochemical functioning of these agents increases the potential for targeted discovery of new and useful marine products.

Research Approach

Each project adopts a multidisciplinary approach using the synergies created through collaborative research to provide effective output. The multidisciplinary nature of environmental research means that each project often addresses several of the Institute's Strategic Directions.

The transfer of knowledge and technologies generated from the Institute's research supports the sustainable use and protection of the marine environment and is the fundamental purpose of AIMS. To this end, AIMS uses a variety of targeted mechanisms to transfer research outputs to all users (e.g. scientific publications, presentations, user group forums, direct linkages to users, media) and seeks to capture the benefits of research outputs with potential commercial application. Business development strategies are designed to enable well-planned commercialisation of suitable technology transfer opportunities as they arise.

Performance Planning and Reporting

The planned outcome of AIMS' research is derived from the official functions of the Institute (see p. 101), the policies of government and the needs of users of marine research. AIMS contributes to this outcome by conducting scientific and technological R&D, providing science facilities and services, and facilitating the application or utilisation of the results of research, all of which offer strategic support for the effective use of Australia's valuable marine resources.

The Institute's research program is developed through extensive consultation (both formal and informal) with its clients (private and public sector and the community). Activities planned for the next triennium (2000-2003) are identified in the Australian Institute of Marine Science Research Plan 2000-2003. This document is available on the web at: www.aims.gov.au/pages/search/search-research-plans.html

Outcome

Enhanced scientific knowledge supporting the protection and sustainable development of Australia's marine resources



Output groups

Research products and services for users of marine resources

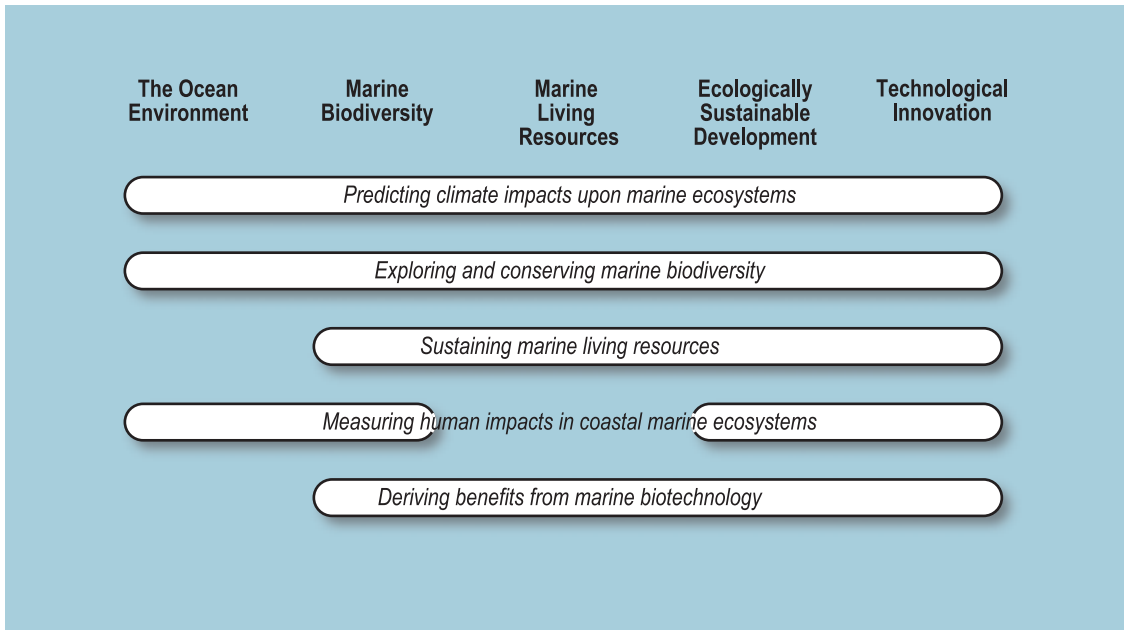


Figure 1: Strategic Directions of the Institute

A cycle of planning, reporting and evaluation has been implemented across both research and support projects to ensure the relevance, quality and effectiveness of the Institute's research program. In addition, AIMS has reported against performance indicators since 1995 (see pp. 88-89). These indicators recognise the strategic national importance of science and technology and the longer-term cycles of research programs, which do not fit neatly into an annual accrual-based outcome and output-reporting framework. Research output in the reporting year may be the result of a research program begun several, or many, years before the reporting period. The indicators show an ongoing trend in the quality, quantity and effectiveness of the Institute's research products and services and are a valuable measure of performance.

Clients

The Institute's clients are the users of marine science and technology: the Australian

community, industries (predominantly marine), regulators and governments, policy developers, educators and students.

Agriculture

AIMS provides information relevant to the development of more accurate climate models for northern Australia and assesses the downstream impact of soil erosion and excess nutrients upon coastal ecosystems.

Aquaculture

AIMS supports the development of profitable and sustainable aquaculture in northern Australia through its research on domestication of valuable wild stocks and maintenance of water quality.

Australian Community

AIMS transfers the results of marine science and technology to the community. It does this primarily through popular publications, internet web sites, public exhibitions and regular contact with the media.

Bioindustries

AIMS searches the ocean for novel molecules from marine organisms that can be copied, grown or adapted to provide social and economic benefits for society.

Education

AIMS informs and trains the next generation of marine scientists. It does this through sponsorship and supervision of student projects, work experience, training workshops and publication of major texts.

Fisheries

AIMS provides science and advice in support of sustainable fisheries from Australia's northern Continental Shelf, benefiting commercial and recreational fishing and dive-based ecotourism.

Government

AIMS provides accurate and impartial advice to the Commonwealth Department of Industry, Science and Resources, Environment Australia, and state and local governments.

Marine Parks

AIMS provides a broad range of information that is relevant to the management and conservation of marine biodiversity.

Mining

AIMS provides environmental assessments of downstream impacts from coastal mining developments.

Petroleum

AIMS provides research services to the oil and gas industry especially in the northwest of Western Australia and the Timor Zone of Cooperation.

Researchers

AIMS provides a diverse range of outputs that are used by other scientists and organisations, both nationally and internationally.

Tourism

AIMS provides research services to this sector primarily through its partnership in the CRC for the Great Barrier Reef World Heritage Area.

MARINE SCIENCE ACHIEVEMENTS 2000-2001

This is the first year of the triennium described in *AIMS Research Plan 2000-2003*. Outputs consistent with this plan were delivered across a range of critical areas and contributed to the Institute's proposed outcome under the accrual-based budget framework.

AIMS Leads the 9th International Coral Reef Symposium

AIMS played a key role in bringing about the 9th International Coral Reef Symposium in Bali, Indonesia in October 2000, and also used the occasion to reinforce its position of leadership in coral reef studies. Through an association with the Indonesian Institute of Science and the International Society for Reef Studies, and with support from CRC Reef, AIMS led the preparation and scheduling of the scientific program. This comprised over 1000 papers in 12 concurrent sessions under the themes *State of knowledge*, *Resource management*, *Socio-economic values*, *Assessment, monitoring and rehabilitation* and *The future of coral reefs*. Over 30 AIMS researchers presented papers and many undertook major roles, including ceremonial duties, a plenary address, two book launches and convening of mini-symposia and workshops. The meeting was attended by over 1500 people from more than 70 countries, and was addressed by the Vice-President (now President) of Indonesia, Ibu Megawati Soekarnoputri, the Minister of State for the Environment Dr Sonny Keraf, and the Minister for Sea Exploration and Fisheries, Mr Sarwono Kusumaatmadja.



The Vice-President (now President) of Indonesia, Ibu Megawati Soekarnoputri addressing the 9th International Coral Reef Symposium in Bali.

Global Coral Reef Monitoring Network Reviews Status of World's Coral Reefs and Provides Management Advice

The ATMS-based Global Coral Reef Monitoring Network completed the second major review on the world's coral reefs. *Status of Coral Reefs of the World: 2000* was distributed to 1500 delegates at the 9th International Coral Reef Symposium in Bali. It reported serious effects of coral bleaching on 16 percent of the world's reefs in 1998, and noted that the Great Barrier Reef and Caribbean escaped lightly. The 363-page book was edited from the contributions of 120 authors in 17 regions of the world. The book was also launched in Washington DC and received widespread media coverage, including items in *Nature*, *Science*, *The Economist*, *Time*, and *Newsweek*, as well as on the BBC World Service, ABC Radio National and other major outlets. The GCRMN also launched the *Socioeconomic Manual for Coral Reef Management* in Bali. This 251-page manual provides baseline information on how people interact with coral reefs and is designed for use in conjunction with the GCRMN. The manual arose out of collaboration between ATMS, the National Oceanic and Atmospheric Administration of the USA and the World Conservation Union.

Global Climate Change and Coral Reefs

ATMS has several major linkages that give us a central role in the study of implications for the Great Barrier Reef of global climate change. This year, we signed a formal arrangement with the Great Barrier Reef Marine Park Authority and the US National Oceanic and Atmospheric Administration to increase collaboration among specialists in coral reef ecology, coral physiology, satellite remote sensing and coral reef management. This arrangement complements links with scientists from CSIRO Atmospheric Research, with whom we are developing risk

assessments for several decades into the future. Queensland's Department of Natural Resources and CRC Reef also make important financial contributions to our efforts.

Work to date suggests certain sections of the Great Barrier Reef are more vulnerable than others to the effects of rising sea temperatures, which can cause corals to bleach and die. Future work will attempt to model and quantify the differences in risk, at scales right down to individual reefs and parts of reefs. Collaborative arrangements with GBRMPA and the University of Queensland's Centre for Marine Studies are helping PhD students at ATMS to study the physiological thresholds and molecular changes associated with temperature stress in corals. A collaborative ATMS-GBRMPA research project has shown that some reefs have higher bleaching thresholds than others. Acclimatization experiments of individual colonies to increased temperatures were unsuccessful in the short-term (months). This type of information is now being used to provide early warning of bleaching conditions on the Great Barrier Reef using automatic weather stations.

A number of scientists in the past two years have suggested that coral reefs are threatened by rising atmospheric carbon dioxide. They claim that it is reducing the alkalinity (pH) of surface seawater in a way that weakens the skeleton-building capacity of corals and other reef organisms. ATMS researchers have observed no such decline in calcification in coral cores drilled from large Great Barrier Reef colonies. Indeed, there has been a slight but significant increase during the twentieth century. Laboratory experiments also showed that two common marine carbonates – high magnesium calcite and magnesium carbonate – can return seawater pH to normal values. Since these compounds are present in vast quantities in marine limestones, ATMS researchers hypothesize that the oceans may

have the capacity to neutralize direct detrimental effects of increased atmospheric CO₂ on corals, through dissolving common shallow marine carbonates.

Benefit-Sharing with the Queensland Government

This year, AIMS negotiated and signed a groundbreaking Biotechnology Benefit Sharing Agreement with the Queensland Government. The agreement provides a legislative framework to facilitate biodiscovery and development of natural products from Queensland's marine fauna and flora. It recognises the need to progress early-phase research while ensuring appropriate environmental checks and balances. Further, the agreement identifies the need to maintain control over biological samples, to identify ownership and to share benefits. Importantly, it outlines a course of best practice that maximises all the benefits gained from bioprospecting, including conservation and education outcomes. Similar agreements are now being negotiated with the Western Australian and Northern Territory Governments. Draft terms and conditions are available for discussion with the Commonwealth Government for the EEZ estate.

Corals of the World Publication Launched to World Acclaim

Through the efforts of Dr John Veron and Dr Mary Stafford-Smith, AIMS produced the spectacular three-volume colour book *Corals of the World*. This work is the first comprehensive guide to the identification of corals worldwide and also makes contributions to coral reef biogeography, ecology and conservation. The project was started 12 years ago, and is based on taxonomic and biogeographic information gathered on 16 expeditions to all of the previously unstudied biogeographic regions of the world. It was launched nationally in Canberra by the Minister for Industry, Science



Parts of John Brewer Reef show signs of bleaching.



Dr John Veron and Dr Mary Stafford-Smith at the launch in Canberra of Corals of the World.



A diver takes part in efforts to eradicate crown-of-thorns starfish from popular dive sites.



An AIMS diver investigates contamination from a grounded vessel at Sudbury Reef.

and Resources Senator Nick Minchin in October 2000, and internationally by the President of the International Society for Reef Studies Dr Terry Done at the 9th International Coral Reef Symposium in Bali later that month. A larger and equally substantial electronic sister publication, *Coral ID*, is currently under trial and is due to be published by mid-2002.

Reef Monitoring Team Observes Increase in Reefs Affected by Crown-of-thorns Starfish and Coral Disease

In the past year, the AIMS long-term monitoring team recorded a significant rise in the number of reefs along the Queensland coast affected by crown-of-thorns starfish (COTS) and coral disease. In particular, large outbreaks of COTS were observed in the Swains sector of the southern GBR. These outbreaks constituted the highest average number of COTS observed in any sector since surveys began in 1985. Starfish numbers also increased substantially over the previous year in the Cairns, Innisfail and Townsville sectors of the GBR, continuing a noticeable southward drift of this marine pest. AIMS staff are collaborating with the Association of Marine Park Tourism Operators (AMPTO) and CRC Reef to examine the effectiveness of COTS control measures at key tourist sites. The project aims to identify the characteristics of successful COTS eradication programs and to estimate the resources required to protect reefs against infestation.

Other coral mortality, likely due to disease, has been on the rise for the past three years. The term “White Syndrome” has been coined to refer to this phenomenon, the pathology of which has yet to be investigated.

Experiments Probe Effects of Contamination from Grounded Ship

AIMS scientists conducted experiments after the 184-metre cargo ship *Bunga Teratai Satu* ran aground on Sudbury Reef, three days before corals were due to spawn. They examined the effects of the ship's antifoulant paint – containing tributyltin (TBT), copper and zinc – on the reef environment, particularly its impact on coral larvae, larval recruitment and recruit survival, as well as its toxicity to adult corals. The scientists found that very low concentrations had highly significant effects on all stages of life history for dominant corals, with the larvae being especially susceptible to the contaminated sediment. Although much of the contaminated material has been removed, questions remain about the extent to which remaining contamination will prevent or delay recruitment of corals and slow the recovery of the reef from the effects of the collision.

Studies Compare Reefs in Hunt for Clues on Land Use Impacts

A major project by AIMS and CRC Reef is providing clues about the possible impact of land-based threats to coastal reefs in different parts of north Queensland. Reefs in the Wet Tropics (Innisfail to Cooktown) near urban and agricultural developments show greater signs of disturbance than those adjacent to less developed areas (e.g. north of Princess Charlotte Bay). Differences include lower species richness and less living cover of hard and soft corals; the absence of species intolerant to sediments; and lower numbers of juvenile coral recruits. Fleshy seaweeds do not differ greatly between the two regions. Their richness and abundance is controlled by complex interactions between levels of grazing and the supply of nutrients in the water column. AIMS research suggests run-off inhibits recovery of coral populations after disturbances, and that the extent of inhibition varies from place to place depending on

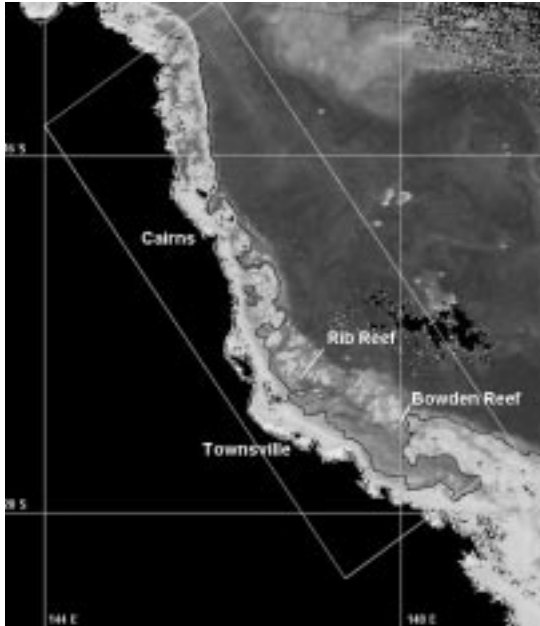
complex synergisms among nutrients, sediments, turbidity, algae and herbivores.

Scientists Discover Corals Track Freshwater Influences on the GBR

AIMS researchers have demonstrated that luminescent lines in coral skeletons revealed under ultra-violet light record the effects of diluted seawater on skeletal growth. Scientists have used these lines to map the intrusion of flood plumes on reef environments. They recently conducted a survey of luminescent lines in 250 corals from 30 reefs along the Great Barrier Reef. Corals from reefs within about 20 km of the mainland recorded freshwater influences every year. Mid-shelf reefs recorded such influences less frequently. For instance, corals from Rib Reef, 56 km from the mainland, were found to have luminescent lines every two to three years. Corals from reefs further offshore did not have luminescent lines. The coral records matched closely the predictions of computer models developed by CRC Reef Research Centre, and thereby provided essential validation of these models.

Monitoring Sediment Loads from River Catchments

While rivers have always carried sediment and nutrients into Great Barrier Reef waters, increases in run-off due to land-clearing and agricultural practices are believed to be changing the near-shore environment in a number of locations. AIMS scientists now estimate that 11 to 18 million tonnes of sediment are washed into the Great Barrier Reef each year, which is double or triple that estimated for the early nineteenth century. Across all 35 mainland drainage basins between Cape York and Fraser Island, concentrations of suspended sediment change rapidly during floods. Dry catchment rivers such as the Burdekin and Fitzroy Rivers, used primarily for grazing, carry suspended sediment loads up to 10 times



A satellite image of a section of the GBR showing inflow of oceanic water.



An aircraft used in the remote sensing study of river plumes.

higher than those in the smaller rivers of the Wet Tropics, such as the Tully and Herbert Rivers. However, these small catchments, in which a much greater proportion is used for cropping, lose much more soil per unit area. Continual improvement in agricultural practices in both grazing and cropping lands therefore should bring benefits to coastal ecosystems. AIMS scientists are working through the CRC Reef Research Centre to provide more reliable and location-based estimates of sediment run-off in support of management practices for ecologically sustainable use of both the catchments and the Great Barrier Reef.

Oceanographers Track Influence of Coral Sea Currents

AIMS oceanographers have discovered currents of water flowing into the Great Barrier Reef from the Coral Sea are vital in maintaining its health. The oceanic inflow helps transport corals and fishes around the Reef, as well as flushing out river plumes and polluted inshore waters. A computer model of the hydrodynamic circulation along a 750-kilometre stretch of the Great Barrier Reef has shown that the Coral Sea influence is very strong and persistent. Oceanographers estimate that the average oceanic inflow of water over this distance is about 580,000 cubic metres per second. The inflow of Coral Sea water is clearly visible in satellite images and is equivalent to the volume of Sydney Harbour flowing into the Great Barrier Reef every 15–20 minutes. The model and images show that most of the inflow occurs off Townsville, where few outer shelf reefs exist to obstruct it. In this region, the stronger inflow suppresses the mixing of muddy near-shore waters with water further offshore. To the north and the south of Townsville, where coral reefs form a more continuous barrier, the counteracting force against muddy water moving offshore is weaker, and thus the potential for deleterious impacts of land use is greater.

Airborne Sensors Enhance Understanding of River Plumes

Scientists from AIMS, Flinders University and James Cook University have conducted Australia's first airborne remote sensing and *in situ* study of freshwater plumes, focusing on Great Barrier Reef waters off the Herbert, Tully, Johnston, Russell and Mulgrave Rivers. The study showed how sea temperature, salinity distribution and river plumes changed under a variety of conditions, including strong winds, flat calm periods and floods. The study also revealed significant "line sources" of freshwater draining from beaches and coastal wetlands, in addition to the more concentrated flows emanating from rivers and estuarine "point sources". The results of this study advance our knowledge of freshwater inputs over large areas of the Great Barrier Reef and provide a vital source of data not readily obtained by more conventional, and slower, shipboard survey techniques. AIMS Project Leader Dr Derek Burrage has now joined the Stennis Space Centre in the United States, and will continue collaborating with the Australian consortium to refine the salinity retrieval process and evolve new applications suited to tropical Australian seas.

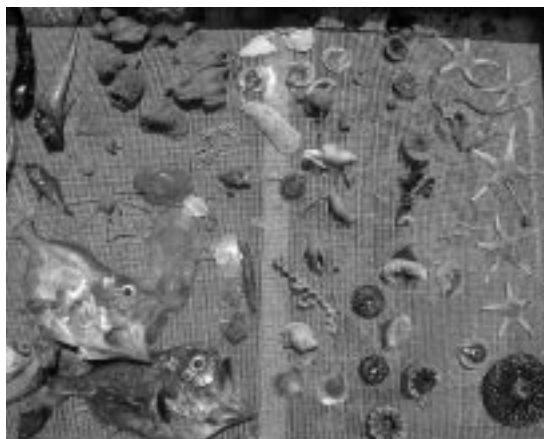
Scientists Confirm Existence of "Wonky Holes" on Sea Floor

The fishing industry has long known of seafloor depressions in the Great Barrier Reef lagoon dubbed "Wonky Holes" because of the hazard they represent to trawl equipment. Recently AIMS and JCU researchers, using side-scan sonar, found about 100 Wonky Holes in 20 metres of water, seven to 10 kilometres offshore. The holes contained relatively fresh groundwater during the tropical wet season. Their diameters ranged from 10 to 30 metres and they were up to four metres deep. On their floors, scientists observed a number of depressions with circular tunnels radiating out from their walls.

The life in these areas was prolific compared to the surrounding seafloor. A seismic survey of the sub-surface structure of the seafloor showed that Wonky Holes are located on ancient river channels incised into the shelf during low sea level and then capped by sediments during Holocene (last 10,000 years) sea-level rise. The ancient river channel thus provides a pipe, and the Wonky Hole a leaky valve, discharging freshwater onto the inner shelf of the Great Barrier Reef lagoon. The significance of this discovery is that Wonky Holes may discharge groundwater that is highly enriched in soluble nutrients.

NW Shelf: Food chains limited by low pelagic food chain efficiency

AIMS oceanographic studies off North West Cape suggest reasons why the west coast has no equivalent to the Peruvian anchovy fishery. Biological sampling has shown that the dynamics of food chains differs greatly from year to year in this region. During El Niño years, the upwelling of cool nutrient-rich waters fuels high production by phytoplankton. During La Niña years (the opposite phase of the ENSO cycle), upwelling is suppressed and primary production is low. In this area, the microscopic phytoplankton is consumed by mesozooplankton (organisms between 0.2 and 2.0 mm in size), mainly small crustaceans called copepods. There is a rich community of more than 100 species of copepods. However, little of the high primary productivity is transferred to the copepods or to fish larvae that eat them. Food chain efficiency is only about half that of the productive North Sea fishery, and one-tenth of that in upwelling systems such as the one that once supported Peru's world-famous anchovy industry. Thus, the seas off northwest Australia appear to have less potential for production of fish from each gram of carbon fixed by the phytoplankton.



A unique AIMS sled collected specimens from the ocean floor up to 1 kilometre deep off the NW Cape in WA.



Sharks captured on film using an AIMS underwater video tool.

Exploring Deep-sea Biodiversity off the NW Cape

In support of regional marine planning, AIMS researchers have been working with Woodside Energy Pty Ltd to explore biodiversity on the North West Shelf at depths below those routinely accessible to research divers.

Following previous successful development of a small ROV to deliver very high quality video images of reef habitats in the upper 100 metres, the team designed and built an underwater sled-video suitable for surveying habitats and collecting specimens from the sea floor at depths up to 1200 meters. The device has been used successfully to date between depths of 50 and 900 metres. Most of the continental slope surveyed off the North West Cape consisted of soft sediments. However, occasional rocky outcrops and canyons were encountered in areas of the upper slope. Scientists say the videos and specimens collected are invaluable resources for characterizing the significant differences in biodiversity between soft and hard bottoms at all depths in this area. The survey has provided the first deep-water material available for certain groups, such as sponges and gorgonians. As well as making a significant contribution to knowledge of the fauna, flora and ecology of this region, the work has signalled the opportunity to explore habitats with potential for species containing bioactive compounds important to human welfare.

Underwater Video Tools Developed for Recording Fish Diversity

The extension of survey capacity to greater depths also included a special focus on fish communities. To survey the fish, shark and ray component of deep-sea biodiversity, AIMS has developed and deployed a fleet of “BRUVS” (Baited Remotely operated Underwater VideoS). In trials, these devices provided the first records of these fishes in deep reef and sandy areas in the Great Barrier Reef and the North West Shelf at depths too

great for SCUBA diving. The development is part of a national effort to map and monitor our Exclusive Economic Zone, and was a topic at a national workshop, *Video in Australian Fisheries: A National Workshop*, that AIMS co-hosted with the University of Western Australia.

Surveys Show Impact of Traditional Fishers on Coral Reef Resources

Under a Memorandum of Understanding with Australia, Indonesian fishers use traditional sail-powered vessels to collect trochus (a large snail used for buttons and paint) and trepang (sea cucumbers) at reefs on the North West Shelf. AIMS has collaborated with Environment Australia to undertake assessments of the stocks of trochus and trepang at Ashmore Reef, fished by Indonesians from nearby Roti. This survey, conducted in September-October 2000, confirmed reports of severe depletion in a number of shallow-water stocks although commercially valuable trepang species were abundant in depths greater than 15 metres, which are less easily reached by traditional fishers equipped only with goggles. Trochus and trepang have been exploited across the entire Australian tropics since times well before white colonisation, but the ecological implications of their removal from coral reef habitats has attracted little scientific study.

Genetics and Ecology Guide Sea Cucumber Fishery Management

An AIMS study funded by the Fisheries Research and Development Corporation has revealed significant depletion of “black teatfish” stocks on the Great Barrier Reef. Subsequent monitoring has revealed negligible recovery of these stocks in the two years since Queensland banned the commercial exploitation of this valuable sea cucumber. An innovation emerging from this work is the “Fingerprint-Recapture Technique” that uses DNA fingerprinting to identify individuals. The technique solves the

hitherto intractable problem of estimating the growth rate of organisms that cannot be tagged by conventional means.

Study Explores Pearl Oyster Genetics

AIMS researchers have developed genetic markers for studies of the commercially important pearl oyster *Pinctada maxima*. The markers have been used to examine the genetic stock structure of the Western Australian pearl oyster fishery. Analysis suggests some differentiation between pearl oyster stocks from Indonesian, Northern Territory and West Australian waters. A lack of genetic differentiation between several fished populations within Western Australia, ranging from those off the Lacepede Islands in the north to Exmouth Gulf in the south, indicates high levels of gene flow and/or strong connections between these fishing grounds.

Exploring the Potential for Rock Lobster Aquaculture

AIMS is evaluating the potential of tropical rock lobsters as a new aquaculture species for Australia. Although tropical rock lobsters are not of major commercial importance here, they are the basis of an established world market. Further, these animals tolerate being held in high density, have excellent growth rates and have no known contagious diseases. In 2000-2001, AIMS successfully spawned two species of rock lobster. In the wild the animals metamorphose into miniature adults, called pueruli, after 120-160 days. At AIMS, larvae have now been maintained through multiple moults to complete two-thirds of larval development. Researchers are now demonstrating that the lobsters can be induced to breed out-of-season by manipulating their environment. The greatest challenge for the AIMS team is to produce post-larvae (pueruli) on a commercial scale and ensure a high rate of survival through the numerous larval transformations.

Removing Viruses from Prawn Stocks

Australian prawn farmers rely on wild broodstock, which makes it difficult to control disease and threatens industry sustainability. AIMS is working with CSIRO and the industry to achieve complete domestication and allow the productivity gains that can be achieved through selective breeding. Researchers and industry have demonstrated that *Penaeus monodon* can be bred in captivity, but there have been major losses of domesticated broodstock to disease. The key virus affecting Australian prawns was determined by CSIRO to be the gill-associated virus. In collaboration with CSIRO, AIMS has demonstrated that this virus is transmitted from parent to offspring. This finding has led to current research on finding ways of washing eggs or larvae in the hatchery to supply pathogen-free post-larvae to industry. Such procedures would have major impacts on current production and would remove one of the key barriers to full domestication of *Penaeus monodon*.

Collaboration Leads to Discovery of Marine Antioxidant

In collaborative research with the University of Tokyo, AIMS has discovered a novel vitamin E compound (α -tocomonoenol) in salmon eggs – only the 10th compound of its type known to occur in nature. This vitamin E derivative has since been observed throughout the Antarctic and sub-Arctic marine food chains, in everything from phytoplankton to the eggs and tissues of coldwater fish. Evidence suggests that biosynthesis, or trophic accumulation, of this unusual antioxidant provides enhanced protection in marine organisms functionally adapted to coldwater environments. Industry applications may include use as a feed additive in coldwater fin-fish aquaculture and as a food antioxidant in cold-storage; the compound may also be useful in preventing and fighting human degenerative disease. The international collaboration underpinning

this important research has been supported, in part, by the Australian Academy of Sciences and the Japan Society for the Promotion of Science. Further studies proposed with the Australian Antarctic Division will examine the antioxidant's role in UV protection in marine organisms under the Antarctic “ozone hole”.

Herbicide Project Moves to Glasshouse Testing Stage

The global agrichemical firm Nufarm funded collaborative research by AIMS and JCU to pursue new herbicides based on chemicals produced by marine organisms. The research team is identifying chemical leads from these animals to assess their potential to become herbicides to supply a global demand. AIMS has progressed from the synthesis of one marine chemical, toxic to plants, to testing its effectiveness in glasshouse trials. Pending satisfactory results, it will be assessed then for its toxicology and environmental safety. A patent application for this chemical and its relatives has been lodged.

Test Kit being Developed for Paralytic Shellfish Poisoning

AIMS has completed several studies to assess the potential for a novel means of testing oysters, clams, scallops and other shellfish for the presence of a toxin which causes the world's most prevalent seafood poisoning syndrome, paralytic shellfish poisoning. The laboratory technique developed by the Institute in collaboration with JCU is almost 100 times more sensitive than the present method endorsed by the US Food and Drug Administration that involves animal testing. Conversion of the AIMS technique to a design suitable for use outside the laboratory will enable shellfish farmers to test the quality of their produce before harvesting. A grant from the Queensland Government has enabled the establishment of a company to commercialise the technique.

Farming Sponges for Chemical Production: Biomass with bite

AIMS has completed new aquaculture feasibility experiments on both coasts of Australia, in the tropics on the Great Barrier Reef, and in subtropical locations near Perth in Western Australia. The new targets for aquaculture are sponges, ascidians and soft corals that yield bioactive fine chemical products or collagen skeleton. Projected harvest times to produce valuable products are less than a year. AIMS has successfully cultured nine species of sponge, two soft corals, an ascidian and a bryozoan. All elicit anti-tumour active compounds, which are now in preclinical trial or of value as biomedical tools. AIMS is working to develop novel techniques, based on understanding the role of the bioactive compounds in nature, to enhance their yield. By identifying key components of the metazoan genome and manipulating biosynthetic pathways, it may be possible to create new compounds for a range of medicinal applications. AIMS is also researching the culture of sponges for their biomaterials (as commercial bath sponges and collagen for use in bone and ligament wound healing). Experiments suggest that such production technologies are sustainable and economic. Scale-up research is now being undertaken. It has been supported by the Fisheries Research and Development Corporation and the Queensland and Western Australian Governments.

China Project Develops System for Making Waste Safe and Useful

China's rural regions are contributing to pollution of waterways and coastal areas through heavy reliance on agricultural chemicals. Over the past two years, AIMS scientists have been working with the Environmental Science Research Centre at Xiamen University to identify the effects of pollution in coastal waters using bio-indicators.



A string of sponges may soon be more valuable than a string of pearls. AIMS scientists have been trialling the culture of sponges for use as biomedical tools.



Chinese villagers are working with AIMS scientists to make rural waste water safe and reusable.

These include malformation rates in fish embryos, biochemical markers and scope for growth. Pesticides in particular (organophosphates and DDT) appear to be affecting aquatic organisms in this region. With cooperation from Australian industry, the project aims to solve problems in the key areas of rural development and environment, such as replacement of chemical fertilizers with safe, treated wastes. A model system will be developed in which village wastes are treated using inexpensive technology, and then reused as combined fertilizer and irrigation water on adjoining farms, or fertilizer in estuarine aquaculture ponds. This model has potential to deliver benefits such as water conservation, improved soil quality and removal of contaminants.

Scientists Devise Aquaculture Models for Natural Waterways

A three-year research project by AIMS and CSIRO has given prawn farmers and management authorities models for sustainable aquaculture in natural waterways. AIMS scientists investigated how prawn farm effluent impacts on coastal ecosystems. They found small scale discharges into tidal creeks did not elevate dissolved nutrient concentrations compared with non-impacted creeks, but did elevate concentrations of particulate nutrients, chlorophyll and suspended solids. The extra load was assimilated rapidly due to enhanced bacterial production and herbivory. A significant fraction of the enrichment moves through the food chain to baitfishes (herrings and sardines), and may enhance the food stocks for larger fishes further downstream. When coupled with computer simulations of the tidal flushing of creeks, researchers were able to predict how they might behave under different scenarios of farm size, location and discharge volume.

Multimedia Book on the GBR Sets New Standards

Dr Eric Wolanski, FTSE, received broad acclaim from five scientific journals and learned societies on the release of his latest book entitled *Oceanographic Processes of Coral Reefs: Physical and Biological Links in the Great Barrier Reef*. A former Prime Minister of Australia, Malcolm Fraser, who was a key figure in the establishment of AIMS, provided the foreword. American Scientist stated that the book “constitutes nothing less than the authoritative reference to the natural – and not so natural – processes that will determine the fate of the world’s largest barrier reef”. It is a book of sound scholarship with an extensive bibliography that sets a framework for new and urgent research questions. The book includes a companion CD-ROM that allows many visualizations of complex and dynamic data to be viewed in full colour. The product will have broad appeal to those interested in the Great Barrier Reef, coral reefs in general, and the function of Earth systems.

REPORT OF OPERATIONS

**PART A: Council's Review
of Operations and Future
Prospects**

**PART B: Operational and
Financial Results**

**PART C: Institute
Structure and Governance**

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 of the Australian Institute of Marine Science's Annual Report.

Council endorsed the content of the report of operations, which was prepared in accordance with the *Commonwealth Authorities and Companies Orders 1998*, by a resolution of its meeting of 10 September 2001.



A E de Norbury Rogers
Chairman
10 September 2001

REPORT OF OPERATIONS

PART A: COUNCIL'S REVIEW OF OPERATIONS AND FUTURE PROSPECTS

The National Context

Australia's ocean territory is larger than the Australian landmass. From north to south, the claimable jurisdiction straddles three major climate zones from the tropics to the frozen Antarctic continent. From west to east, it encompasses the eastern Indian Ocean and the western Pacific Ocean as well as intermediate seas (e.g. Arafura, Timor and Coral seas). This vast and diverse expanse contains many valuable resources and opportunities that already contribute around 10 per cent of Australia's GDP and provide employment, particularly in regional Australia. It contains many more as-yet untapped opportunities and has the potential to become an even greater source of economic and social well-being if used wisely. Marine science and technology is the key to capturing that potential through the development of an improved understanding of the ecological assets and functioning of the large marine ecosystems that make up Australia's Marine Jurisdiction (AMJ – the Exclusive Economic Zone plus claimable area).

The AMJ is so large, and much of it so remote from land, that it remains mostly unexplored. The Commonwealth Government has provided a national framework for development and wise use of the AMJ through the release of *Australia's Ocean Policy* and the *Marine Science and Technology Plan (MS&T Plan)*. The AIMS research program is developed within this framework and supports 20 of the 28 detailed objectives in the *MS&T Plan* across the marine domains of northern Australia. To these specifically marine policy documents should be added the recent Innovation Action Plan – *Backing Australia's Ability*, which recognises that science, engineering and

technology underpin Australia's economic future. The commercialisation of AIMS research and other mechanisms for the transfer of new knowledge for wealth creation are key goals for the Institute.

The longer-term nature of the Institute's research and its focus on tropical ecosystems provides a unique contribution to the national effort made in a geographical area of strategic importance (regional and northern Australia). Research output during 2000-2001 has continued to generate scientific knowledge relevant to users of marine research. Transfer of this information to users is a continuing priority and this report identifies ongoing success in our effort to support the protection and sustainable development of Australia's marine resources.

The effectiveness of the Institute's effort is enhanced through collaboration and linkages to users of marine research. Our collaborative effort allows AIMS to build highly specialised, multidisciplinary teams to improve understanding of the marine environment. The extensive nature of this collaboration (over 60 percent of AIMS publications in peer-reviewed journals were written in collaboration with researchers outside the Institute) not only strengthens Australia's research capability but also facilitates the coordination of research effort nationally and internationally. The success of AIMS' collaboration and coordination in the Townsville region was praised by the Chief Scientist, Dr Robin Batterham, and recommended as "a model for replication elsewhere in Australia" in the interim report of the *Review of Marine Research in Tropical Australia*.

The Institute's Major Achievements in 2000-2001

Highlights of the research program are described in the previous section of this report, entitled Marine Science Achievements (pp. 7-18).

In addition to these successes, AIMS scientists have maintained a steady flow of information in support of the protection and sustainable development of Australia's marine resources. This information was expressed in many ways (see Part B, Report of Operations). Apart from the traditional high quality scientific publications, information was transferred to the Australian public and other users through presentations, community consultations, representation on expert committees, the Internet and other electronic media. The Institute was also a major sponsor of the International Marine Biotechnology Conference, held Townsville in September-October 2000.

AIMS recognises a special obligation to transfer the results of its research to Australian marine industries. During 2000-2001, this support was provided in client reports covering aquaculture, biodiversity surveys, fisheries and environmental impact assessments. Our biotechnology research provides an especially important focal point for industry partnership. A number of significant relationships have evolved over the past year, supporting, for example, the development of novel herbicides and test-kits for shellfish toxins.

Many of the Institute's biotechnology innovations are derived from the highly biodiverse marine resources of tropical Australia. In undertaking research to capture the opportunities provided by these natural resources, the Institute has recognised the need to enable sustainable development and to ensure that benefits are appropriately

distributed. On 26 July 2000, AIMS signed a Deed of Agreement with the Queensland Government that will provide the State with benefits from AIMS biodiscovery research that uses Queensland's marine biological resources. The agreement, signed by the Premier, Peter Beattie, and AIMS Acting Director, Dr John Bell, ends the commercial uncertainty that has hampered biodiscovery in the past and will pave the way for Queensland's natural resources to form the basis of useful new compounds such as therapeutic drugs. AIMS expects that this agreement will lead to investment in research outcomes by companies that have in the past been wary of entering into agreements without legal certainty. The agreement deals only with benefit-sharing and does not, in itself, provide permission to access Queensland marine resources for collections. Access will remain subject to permitting legislation and appropriate environmental scrutiny. The Agreement is being used as a template by others for the development of similar agreements both within Australia and overseas.

Factors Influencing AIMS Performance

This year the Institute's infrastructure was enhanced with the launch of our new research vessel *RV Cape Ferguson* and the refurbishment of the *RV Lady Basten*. *RV Cape Ferguson* was formally named by Mrs Kerry Minchin at a ceremony in Townsville on 15 December 2000. The \$3.7 million vessel was built by Tenix Shipbuilding, WA. Designed following extensive consultation with scientific users and marine architectural and engineering advice, the vessel has already proved to be an excellent research platform. It will work on a broad range of tasks across northern Australia.

Further work to enhance the infrastructure of the Institute began in February 2001 with the breaking of ground for new laboratory facilities at Cape Ferguson. The contractor, Northern Project

Management, is overseeing the \$11 million construction and refurbishment program with the new laboratory due for completion by November 2001. Refurbishment of the existing building will take place in 2001 and 2002. This program of work will maintain the Institute's capacity to provide world-class facilities for marine research.

In October 2000, Dr John Bell's term as Acting Director of the Institute was completed. He was replaced on an interim basis by Dr Peter Isdale until the arrival of the new Director, Prof Stephen Hall in November 2000.

Council Welcomes a New Director

Council is very pleased to welcome Prof Stephen Hall as the new Director of the Institute. Prof Hall is an eminent international scholar and researcher, recognised by the award of a prestigious Pew Fellowship in Marine Conservation. Prof Hall is very much a "big picture" scientist, concerned about the world's fish stocks and the ecosystem effects of fishing activities. His experience and dynamism equip him well to steer the Institute into a period of strategic planning for future directions. His commitment to improving research capacity through commercialisation is balanced by a belief in the importance of continued strategic basic science for the national benefit. He has undertaken to stimulate the development of new ideas and new products, and attract more investment to enable AIMS to further develop its research portfolio.

Council would also like to thank Dr John Bell for his contribution to the Institute during his time as Acting Director. The maintenance of research focus during this period is testimony to his enthusiasm and the seamless way he immersed himself into the Institute's operations.



Mrs Kerry Minchin, the Rev. Graham Miller (from the Mission to Seafarers) and the Minister for Industry, Science and Resources, Senator the Hon Nick Minchin, at the official naming of RV Cape Ferguson.



Queensland Premier Peter Beattie and AIMS Scientist Matt Kenway inspect a rock lobster used as a breeder in AIMS aquaculture trials.

Participation in Significant Partnerships

AIMS continues to value existing partnerships and to explore opportunities to develop synergistic relationships with individuals and research and industrial organisations.

- ❑ As the largest research provider in the CRC for the Great Barrier Reef World Heritage Area (also known as CRC Reef) AIMS continues to play a significant role in the Centre's research. The CRC is a consortium of research providers, management agencies, public interest groups and industry and its research program is determined through consultations among the partners. Senior scientists from the Institute lead two of its four research programs: Program C Maintaining Ecosystem Quality (Dr Peter Doherty) and Program D Information, Synthesis and Advice (Dr Terry Done). The complementarity between the research objectives and resource investments of CRC Reef and AIMS provides valuable economies of scale and efficiencies in transfer of research outcomes to the community. During the past six years, the Institute's provision of substantial research services to this consortium has been one of the mechanisms by which AIMS research has been connected directly with the needs of end users. The same consultations have provided a mechanism through which client needs also influence parts of the AIMS research program not committed directly to the CRC.
- ❑ AIMS continues to be a significant contributor to the Innovation Technology Advisory Group (ITAG), a collective initiative set up under Townsville Enterprise Ltd to foster and facilitate the development of knowledge-based industries in the Townsville region.
- ❑ In March AIMS signed a Memorandum of Understanding with the ITOCHU Corporation of Japan, in which both parties agreed to co-operate in the commercialisation of marine biotechnologies.
- ❑ An MOU with NOAA and GBRMPA was signed in February 2001, in order to facilitate a closer working relationship in scientific and technical co-operation, particularly in the field of sea surface temperature analysis.
- ❑ AIMS and CSIRO Marine Research (CMR) have further developed joint activities in a number of areas. Notable among these is the development of a joint program of work to support prawn aquaculture. AIMS also has strong partnerships with other CSIRO divisions, such as Land and Water, where there is considerable collaborative effort to understand the relationships between land use practices and coastal water quality.
- ❑ On 27 February 2001, AIMS and the Great Barrier Reef Research Foundation executed an MoU wherein the organisations have agreed to promote each other's objectives, particularly with regard to assistance with sourcing and funding world-class research in the GBR and reefs worldwide.

Plans for the Future

This reporting period, which covers the first year of the 2000-2003 Triennium, has been marked by a modest but significant restructuring of teams to meet research priorities. For example, elements of marine biotechnology (aquaculture, bioactive molecule discovery) that were previously distributed in different projects have been united under one umbrella to maximise advantage from greater sharing of equipment and research skills. The new directions that were set during the planning process undertaken in 1999-2000 have been published in the *AIMS Research Plan 2000-03*.

A number of other decisions made this year will have far-reaching implications for the future activities of the Institute:

- ❑ In December 2000 AIMS Council signalled a renewed emphasis on work in northern and western Australia with a decision to close the AIMS laboratory in Dampier and open new facilities in Perth and Darwin. The positioning of AIMS staff at these two locations will greatly enhance our capacity to deliver research outcomes for stakeholders in Western Australia and the Northern Territory.
- ❑ AIMS and CRC Reef will jointly establish The Reef Futures Group, which will capitalise internationally on Australia's lead in scientific support for coral reef management and conservation. This task will develop user-friendly interfaces to present the information in complex multi-layered data sets. Computer models will be developed to provide tools for scenario evaluation by marine resource managers. More products, including oceanographic monitoring data, will be distributed over the Internet, providing the public and other users with access to information in real time.
- ❑ An AIMS Data Centre will be established to meet the scientific support and corporate data needs of the Institute. The centre will continue earlier work to enhance internal administrative systems, as well as developing and implementing centralised scientific data management. The centre will also work with scientists to develop and make available a set of tools and expertise for the analysis, visualisation and web publishing of data and value-added data products.
- ❑ AIMS plans to make greater use of channels for technology transfer such as spin-offs for the commercialisation of its technologies. One such development will be the incorporation of a company to take the shellfish toxin detection technology to market in an appropriate commercial alliance.

R.V. The Harry Messel



After 20 years of distinguished service, AIMS vessel RV The Harry Messel was retired on 2 December 2000 and replaced by the larger, modern research vessel RV Cape Ferguson. The Messel was commissioned into the AIMS research fleet on 2 October 1980. At first, AIMS neither owned the vessel nor employed her crew. She was under charter from the University of Sydney and was crewed and operated by the NSW-based company Australian Maritime Services. It was another eight years before AIMS was able to buy her outright. The Messel was constructed in 1973 by Stannard Bros Sydney and measured 20.7 metres in length, with 13.2 square metres of dry laboratory space. She accommodated six scientists. In all, the Messel averaged 24 cruises or 230 days at sea for each year of service. That adds up to 270,000 nautical miles completed in the name of duty. The Master on RV The Harry Messel's last voyage was Danny Ryan and Cruise Leader was Carolina Bastidas. They were not the only ones to feel the passing of an era when the vessel pulled up to the AIMS wharf at Cape Ferguson for the last time.

REPORT OF OPERATIONS

PART B: OPERATIONAL AND FINANCIAL RESULTS

Principal Output

AIMS produces a wide range of services and products for users of marine research. Selected examples of research outputs have been summarised in a separate section, Marine Science Achievements 2000-2001 (pp. 7-18). Indicators of some additional outputs are included below.

Major Investing and Financing Activities

AIMS has no investing activities other than those related to normal commercial cash management and no financing activities other than those enabling the Institute's outputs to be produced.

Performance Indicators

The Institute reports performance against indicators agreed as part of the *2000-2003 Triennium Funding Agreement*. The major focus of these indicators is the linkage between AIMS and the users of its research. A description of the indicators is included in Appendix 2.

Shift of Resources to Agreed Priority Areas

This year is the first of the 2000-2003 Triennium and resources have been shifted to priority areas identified through the planning process (see Performance Planning and

Reporting, p. 4) undertaken in 1999-2000 (and reported in last year's Annual report). The main effect of the planning process has been to give higher priority to:

- ❑ Impacts of global climate change upon coral reefs.
- ❑ Water quality in the Great Barrier Reef World Heritage Area.
- ❑ Knowledge of sea-floor biodiversity in support of regional marine planning.
- ❑ Decision support for marine resource management.
- ❑ Timor-Arafura Seas.

The planned research program for the current triennium addresses key issues and has been focused to five projects to maximize synergies and enhance usage of resources. A brief description of the research projects is provided on pages 2-5 of this report. For detail see *AIMS Research Plan 2000-2003*.

Scientific Publications

Starting with this report, publications are reported by calendar rather than financial year. This offers the advantage of more accurate statistics and allows easier comparison for the purposes of performance benchmarking (given the reliance upon electronic bibliometric searches). Data from previous years have been adjusted to the same basis in order to be able to monitor trends over five years in the following table.

	1996	1997	1998	1999	2000
Journal Articles	52	72	81	82	82
Books and Chapters	8	13	16	7	9
Conference Papers	21	68	15	22	6
Technical Reports	39	30	22	28	17
Other (includes theses)	2*	8	9	15	11
Total	122	191	143	152	125

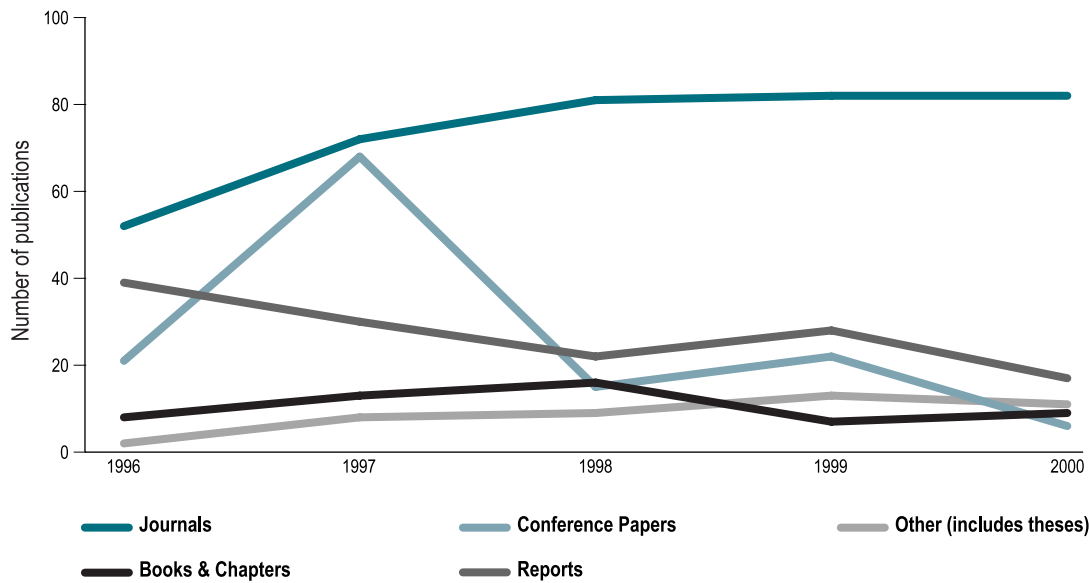


Figure 2: Scientific publications

Published scientific outputs in 2000 (see Appendix 3) were similar to previous years with the exception of Conference Proceedings, which fluctuate in response to the publication schedules of major meetings. The high output in 1997 was caused by concurrent publication of proceedings from several earlier conferences related to coral reef science. AIMS staff gave a large number of presentations to the 9th International Coral Reef Symposium (Bali 2000) that will be credited when published, probably 2002.

A key indicator of quality is the number of publications in peer-reviewed scientific journals. Output has remained stable over the past four years despite decreases in the number of scientific staff employed by the Institute (see p. 42). This decline in staff numbers may have had an effect upon the number of technical reports, which include both Client Reports and Data Reports. The latter have declined, partly as a result of greater use of the Internet as a rapid way of disseminating information. The former have also fallen as a result of a policy to focus external engagement upon major tasks.

The collaborative nature of the AIMS research program is reflected in the large proportion (over 60 percent) of internationally reviewed scientific publications that were co-authored with scientists from outside of the Institute. One third of all scientific publications were co-authored with scientists from other countries. Another third included collaborations with scientists, academics and students from Australian organisations. One quarter of the remainder reported cross-disciplinary collaborations among staff employed by the Institute.

Statistics of these collaborations during 2000-2001 were:

National collaborations	93
International collaborations	110
Countries providing collaborators	27
Countries where collaborations took place	21

Since the Institute started compiling these statistics five years ago, the numbers have indicated an increase in the Institute's collaborative effort.

Figure 3 shows the geographic spread of the Institute's network of collaborators.



Figure 3: The geographic spread of the Institute's network of collaborators

Patents

The Institute holds 45 deeded patents relating to ultra-violet blocking sunscreen technology. Nine patents have been granted up to the reporting date on the WetPC™/KORD™ technologies. One has been granted for the Coral Bones Technology, and patent coverage for this technology is currently in the national examination phase in the major market countries. During the reporting period, five provisional patent applications were made in the field of biotechnology.

Scientific Recognition

In recognition of their professional standing, AIMS scientists served as Editorial and/or Board Members for more than a dozen international scientific journals in the marine sciences.

Some of the individuals recognized during 2000-2001 were:

- ❑ Drs Charlie Veron and Mary Stafford-Smith who received the inaugural

science prize offered by *Australasian Science* for their three-volume publication entitled *Corals of the World* (see story on p. 9).

- ❑ Dr Gregg Brunskill who was appointed by the US National Science Foundation to assist in planning its international geoscience project MARGINS.
- ❑ Dr Daniel Alongi who was appointed to the Scientific Steering Committee for UNESCO's Coastal Biodiversity Symposium to be held in Greece in 2001.
- ❑ Dr Chris Battershill who was invited by Environment Australia to review the Australian State of the Environment Report – 2001. He was also requested to review the submission from Biotechnology Australia to the Bailey Inquiry¹.
- ❑ Dr Eric Wolanski who received broad critical acclaim on the release of his latest multimedia book. A former Prime Minister of Australia, Malcolm Fraser, provided the foreword and the international environmentalist, Dr David Suzuki, wrote the introduction (see story on p. 18).

¹The House of Representatives Standing Committee on Primary Industries and Regional Services Inquiry into Development of High Technology Industries in Regional Australia based on Bioprospecting.



Doctoral student, Ms Carolyn Smith, discusses her findings about the genetics of coral bleaching with AIMS Director, Prof Stephen Hall. Carolyn (University of Queensland) was one of three postgraduate students to receive an AIMS Research Award in 2000-2001.

Contribution to Australia’s Future Through Teaching and Training

Five staff were recognised by conjoint or adjunct appointments at universities and many others contributed occasional lectures and seminars. Most PhD scientists supervised postgraduate students (52 during the reporting period) and many students were included within the supervisor’s research team. In addition, work experience was offered to numerous students (high school, undergraduates, postgraduates), either through formal work experience programs or voluntary research positions.

	99/00	00/01
Research students supervised		
by AIMS staff	55	52
Thesis completions		
during the year	14	10
Conjoint teaching positions		
undertaken with universities	6	5

In 2000-2001, the Institute reintroduced a competitive funding award for postgraduate students who conduct the majority of their research within the AIMS workplace. Three AIMS Research Awards, each worth \$30,000 over three years for research expenses, were accepted by the following students: Claire Bennett (University of Melbourne) “Measuring human impacts in coastal marine environments: Validation of laboratory biomarker research”; Alison Robertson (James Cook University) “The biology and function of saxiphilin, a novel paralytic shellfish toxin binding protein”; and Carolyn Smith (University of Queensland) “Heat stress response of scleractinian corals: Implications for bleaching susceptibility and thermal adaptation/acclimation”.

Coordination of Research and Links with Decision-making Bodies

AIMS places a high priority upon developing and maintaining effective relationships with the users of its research outputs. This includes coordination of research through collaboration and research networks; as well as linkages with decision-making and educational bodies that facilitate the transfer of knowledge.

Collaboration

The Institute has fostered many strategic partnerships. Since 1993, it has been the major research provider in the CRC Reef Research Centre and will continue this role until at least 2006. This alliance leverages around 20 percent of the total scientific effort at AIMS into collaborative research with other government agencies (GBRMPA, QDPI, CSIRO), universities (JCU, ANU) and industry (AMPTO, QSIA).

AIMS has always sought and maintained effective working relations with scientists from other Commonwealth science organisations (e.g. AGSO, ANSTO, CSIRO). Above all, it has a special relationship with the Marine Division of CSIRO and the senior management of both organisations met twice formally to co-ordinate activities.

A memorandum of understanding was negotiated and signed during the year to provide a resource-sharing umbrella for the activities of AIMS, GBRMPA and NOAA aimed at a risk-assessment of the threat to coral reefs from global climate change. Under this agreement, GBRMPA has seconded one staff member to AIMS and one scientist from the Institute spent several months working in Washington.

In addition to these inter-institutional arrangements, there were many informal collaborations among scientists from different organisations (see pp. 28-29).

Input to Policy-making and Implementation

AIMS staff served on a number of expert committees set up to advise government, regulatory authorities and user groups. The AIMS Director served on a number of senior level groups for the co-ordination of science and marine affairs by the Commonwealth. In addition, individual scientists contributed to policy formulation in Australia and elsewhere through membership of government committees and influential NGOs (Appendix 4).

Significant contributions were made in areas of

- ☐ Fisheries management (Queensland Fisheries Service).
- ☐ Regional marine planning (National Oceans Office, GBRMPA).
- ☐ Marine protected areas (WA Department of Conservation).
- ☐ Access to biological resources in Commonwealth areas (IDC reference group).
- ☐ Water quality in the GBR World Heritage Area (GBRMPA).
- ☐ Marine science policy (Batterham review)

During 1999-2000, AIMS provided written and oral evidence to the Bailey Inquiry. AIMS also made several significant contributions to Departmental and Parliamentary forums on matters concerning the transfer and commercialisation of technologies.

Use of Scientific Advice

As detailed in Appendix 4, AIMS staff participated in a diverse range of external committees where their inclusion was based upon the ability to provide high-quality scientific advice.

AIMS staff responded quickly following the grounding of the *Bunga Teratai Satu*, a Malaysian container ship, near Cairns. Sediment contaminated by TBT antifoulant was shown to be highly toxic to coral larvae

and to inhibit settlement at very low concentrations. This information was used by GBRMPA to determine the dimensions of the subsequent clean up operations.

GBRMPA also used AIMS data on water quality in rivers and coastal seas to recommend new standards for the acceptable levels of sediments and nutrients carried by terrestrial run-off entering the GBR World Heritage Area.

AIMS data on currents, habitats, plant and animal communities collected during the Institute's 25 years of study of the Great Barrier Reef were assimilated by GBRMPA's Representative Areas Program. These data have been stored and manipulated in large public geographical information systems that are guiding the selection of candidate sites for a network of marine protected areas to conserve the diversity of the World Heritage Area.

Adoption of Practices, Instruments and Processes

The Institute places high priority upon the transfer of its products to end users, and can substantiate this with the following examples:

- ❑ Protocols developed by AIMS for monitoring the health of the GBR have been adopted by many other countries as a defacto global standard.
- ❑ Fourth generation prawns from the AIMS domestication program have been transferred to industry for stocking commercial ponds.
- ❑ Scientific knowledge about the dynamics of corals and reef fish populations have been translated into draft management plans for the sustainable development of several fisheries in Queensland.
- ❑ Scientific results about fish ecology have been used to evaluate the potential for a new artisanal fishery

through an Australian technical aid project in the Solomon Islands.

- ❑ Output from AIMS Automatic Weather Stations have been posted on the Internet and assimilated into local and regional weather forecasts. Increasingly, external research users are requesting access to the whole data set to examine climatic trends and effects.
- ❑ Information and advice have been transferred directly to industry clients through consultancies into aspects of fisheries, mining, petroleum, and tourism.
- ❑ During the reporting period, AIMS transferred one of its licensed technologies to Australian industry (see Joint Ventures and Strategic Alliances, p. 35).

Presentations

During the year AIMS scientists made more than 110 formal presentations, (eight keynote addresses) of their work to diverse audiences, including industry bodies, environmental agencies, scientific conferences, workshops, schools and community groups.

Status Reports

The AIMS Long-term Monitoring Team provides surveillance over much of the Great Barrier Reef and reports its information to a wide audience through the Internet (see www.aims.gov.au). This site is updated shortly after new surveys are completed, providing users with almost real-time access to conditions within the Marine Park. AIMS hosts the secretariat of the Global Coral Reef Monitoring Network, which delivered major status reports to the 9th International Coral Reef Symposium in October. The general report, entitled *Status of Coral Reefs of the World: 2000*, contained details on 87 countries based upon reports from 97 authors. In addition, separate regional assessments were issued for coral reefs in the Philippines, Papua New Guinea, Indonesia, Malaysia, and Palau.

Community Involvement

A significant rise in media coverage of AIMS research activities and a growing number of visits to AIMS by film crews provided evidence of strong community outreach during 2000-2001. The coverage of AIMS activities in regional, metropolitan, national and international news media included many popular and prestigious outlets, such as *Nature*, *Science*, *The Economist*, *Time Magazine*, *National Geographic*, *The Australian*, *Courier-Mail*, *Sydney Morning Herald*, *Canberra Times*, *Australian Financial Review*, *Today's Life Science*, *BBC*, *Sky News*, *Reuters*, Queensland's regional press, *ABC*, and all Australian commercial TV networks. The Internet featured strongly, with AIMS research highlighted on many key websites. In November 2000, AIMS staff took part in an Internet chat room for AustraliaQuest, a US-based educational initiative reviewing the impact of crown-of-thorns starfish and other issues relevant to the Great Barrier Reef.

Other publications distributed by AIMS to inform the public as well as stakeholders about important marine science research included the *Research Plan 2000-2003*, *Status of Coral Reefs of the World 2000*, *Socioeconomic Manual for Coral Reef Management*, *Corals of the World* and *Oceanographic Processes of Coral Reefs: Physical and Biological Links in the GBR* (see details earlier in this report). All book launches attracted the attention of journalists worldwide. Still, the most popular publication remains the AIMS website, which attracts enormous interest and serves as a strong entry point for people curious about the Institute's activities. At a regional level, community outreach was achieved through the AIMS tour program. A total of 54 tours were conducted through the Institute's laboratories at Cape Ferguson, near Townsville, from 1 July 2000 to 30 June 2001. This number was slightly down on the previous year, due to construction works on site. The tours are designed to explain AIMS

research and technology to the public in an entertaining manner, and have proved popular with schoolchildren, tourists to the region, and community groups. They are conducted by a dedicated and enthusiastic group of volunteers and are well supported by the AIMS scientific community.

In 2000-2001, the Institute also mounted a number of public displays at strategic venues in Australia and overseas. In conjunction with CRC Reef and James Cook University, AIMS had a strong presence at the Australian Science Festival in Canberra in May 2001, with an innovative exhibition in keeping with the theme, *The Amazing World of Science*. Thousands of schoolchildren visited our booth in the National Convention Centre and an 11-year-old home-educated girl won the competition prize of a holiday on the GBR. At Bio2001 held in June in San Diego, the audience was very different and included industrialists and political figures. The display at this venue featured AIMS bioactivity projects, also the focus of an earlier exhibition at Bio Japan in September 2000. At the International Coral Reef Symposium in Bali in October 2000, AIMS mounted promotional displays for *Corals of the World* and a publication that was still in press entitled *Soft Corals and Sea Fans*. In addition, the AIMS Science Communication Section provided sponsorship for Siemen's Science Experience 2000 (in collaboration with JCU, GBRMPA, CRC Reef, QDPI and CSIRO), for the North Queensland Science Education Centre, and for the Marine Science Journalism Prize (in collaboration with CRC Reef and JCU). These activities targeted science students at both school and university level, although the latter is being redesigned to attract professional journalists.

External Earnings

The Institute earned \$4.40 million from external funds during the financial year 2000-2001, slightly down on the previous year's total of \$4.62 million. This represented a level of external earnings of 19.7 percent (of adjusted operating revenue²) and was just below the Institute's target of 20 percent.

The accompanying graph compares the Institute's adjusted external earnings over a period of five years. For consistency, appropriation provided for infrastructure and refurbishment has been deducted. Over this period, adjusted operating revenue has remained relatively static. The slight increase in appropriation in 1999-2000 reflected new monies provided for asset replacement and

refurbishment (\$1,439,000 in 1999-2000; \$1,148,000 in 2000-2001).

The gradual decrease in external earnings since 1996-1997 was due to the completion of a number of major contracts. AIMS continues to seek opportunities to transfer knowledge and technology and to generate earnings through this transfer. While the Institute has had success in transferring IP from its research and in developing partnerships with business and industry to commercialise its research, earnings and timeframes have varied.

AIMS has received royalties arising from the licensing of its patented technologies. WetPC Pty Ltd pays royalties on sales of the products of WetPC™ and KORD™ technologies to industry clients.

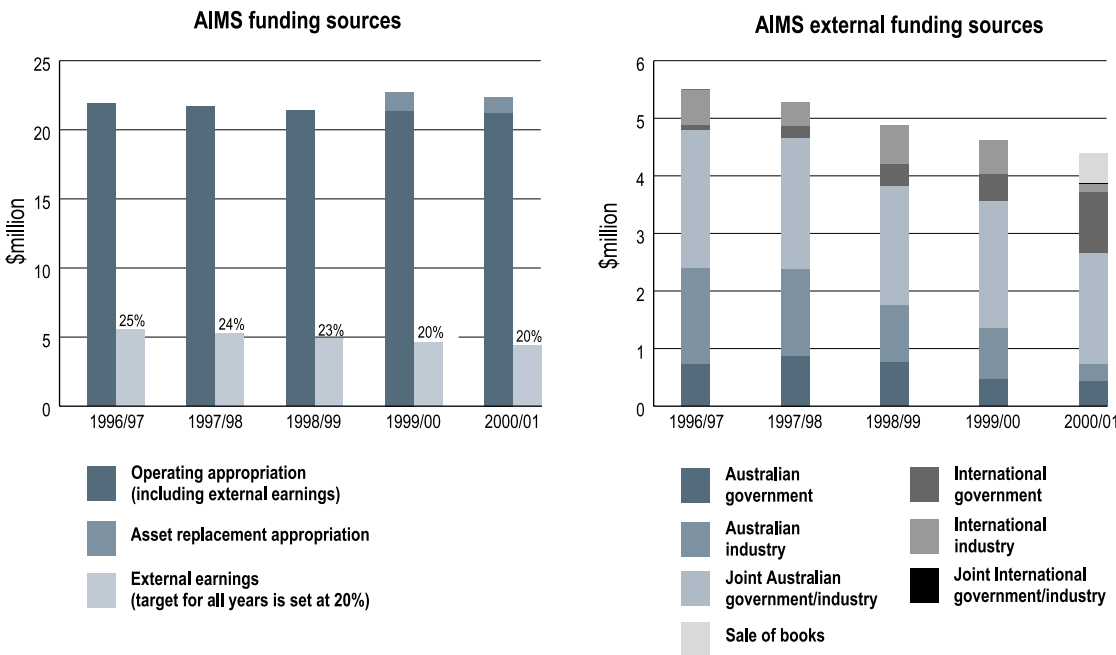


Figure 4: External earnings sources

² Adjusted Operating Revenue includes appropriation and external earnings which have been adjusted to exclude capital appropriation (Bill No 2) Capital Use Charge, unrelated revenue and bad debt expense, as defined in the 2000-2003 Triennium Agreement.

Joint Ventures and Strategic Alliances

A listed Australian technology company, Nautronix Pty Ltd, continues to hold and exploit a sub-licence from WetPC Pty Ltd for the use of the WetPC™ and Kord™ technologies in underwater applications.

AIMS has licensed the use of the IC855 patented UV-blocking sunscreen compounds to a Sydney technology company Sunscreen Technologies Pty Ltd. The company is presently negotiating further commercial arrangements with a number of companies. In August 2000, AIMS and James Cook University entered into a Research Agreement and a Licence Agreement for the development and commercialisation of a new natural herbicide with Nufarm Australia Ltd.

Spin-off Businesses

No spin-off businesses were initiated during the reporting period.

Customer Satisfaction

Thirty-two contracts (1999-2000: 22) for AIMS' scientific research services (including grants and consultancies) were registered by AIMS during the reporting period. A total of 50 reports were contracted as a result of AIMS' externally funded research or scientific services; all were completed.

A high proportion of these were performed with and on behalf of clients who have funded AIMS' research in the past.

Significant Changes in Principal Activities

Through a priority-setting process that involved targeted consultation with stakeholders, the science program was restructured and focused on priority issues (see Shift of Resources to Agreed Priority Areas, p. 27).

Developments Since the End of the Financial Year

On 21 August 2001, the Minister for Industry Science and Resources, Senator Nick Minchin, announced that the Arafura-Timor Research Facility proposed by AIMS as a Major National Research Facility would receive funding. The facility, which will be located in Darwin, will improve the national capacity to describe, benefit from and use the biota's genetic resources. An operational plan for the construction and establishment of the centre, which will be jointly run with the Australian National University will be developed and implemented in the coming year.

The *Review of Marine Research in Tropical Australia* by Chief Scientist Dr Robin Batterham was released by the Minister for Industry, Science and Resources, Senator the Hon Nick Minchin, on 22 August 2001. AIMS welcomes the Review and strongly supports Dr Batterham's views regarding the importance of marine science and the need for an increase in research capacity to respond to the growing wealth from tropical marine resources and to regional population growth. AIMS notes that the *Arafura-Timor Research Facility* directly addresses the recommendation in the Review that a new marine research centre should be established in Darwin.

The Minister has referred the *Review of Marine Research in Tropical Australia* to the ISR portfolio's Marine Science Advisory Group for advice. As a member of that Group the Director of AIMS, Prof Stephen Hall, will assist in providing that advice.



The display put together by AIMS Science Communication staff for the “Amazing World of Science” exhibition in Canberra attracted the interest of many visiting children.

REPORT OF OPERATIONS

PART C: INSTITUTE STRUCTURE AND GOVERNANCE

Enabling Legislation and Responsible Minister

The Australian Institute of Marine Science (AIMS) is a Commonwealth Statutory Authority established by the *Australian Institute of Marine Science Act 1972*. AIMS reports to the Minister for Industry, Science and Resources, Senator The Hon Nick Minchin.

The functions of the Institute are to carry out research and development in relation to marine science and marine technology and to encourage and facilitate its application and use. These functions are defined in the AIMS Act (see Appendix 5).

Ministerial Directions

During the reporting period, the Minister approved or directed the following in accordance with the AIMS Act.

1. Entry into five (5) contracts for expenditure of more than \$100,000 in any single contract (Section 42).
2. The transfer of AIMS technology under licence (Section 48(1)) in one instance.
3. The appointment of one person, who was not an Australian citizen to the staff of AIMS (Section 32 (2) (a)).
4. During the reporting period, the Minister extended the term of Acting Director of Dr John Bell. In addition, AIMS utilised the Minister's approval for the appointment of Acting Director for short periods of the Director's absence on three occasions (Section 30).

Institute Structure

Council

AIMS has a Council of six members including the Director. Members of the Council are appointed by the Governor-General on such terms and conditions as the Governor-General determines. The Director is appointed by the Governor-General on the recommendation of the Council. The terms and conditions of the Director are also determined by the Governor-General.

The Council members holding office at 30 June 2001 were as follows:

Mr A E de Norbury Rogers BCom, AAUQ,
FCA, FAICD
Chairman

Term 30/7/1998-30/6/2003

Mr Norbury Rogers is a Chartered Accountant and Company Director and is a Senior Consultant to Ernst and Young. He spent many years as Managing Partner and Senior Partner in Ernst and Young (and its predecessors).

Mr Rogers holds a number of directorships. He is Chairman of Golden Casket Lottery Corporation Limited, Global Seafood Limited and UniQuest Limited and is a member of the Boards of CSIRO and Business Management Limited. He has been a long-standing, active member and office bearer of the Institute of Chartered Accountants in Australia and he is a member of the Senate of the University of Queensland.

Dr Wendy Craik BSc (Hons), PhD, Grad Dip Mgt, FTSE, FAICD

Term 1/7/1997-30/6/2004

Dr Wendy Craik is the Chief Executive Officer of Earth Sanctuaries Ltd, the only publicly listed company with the aim of saving Australian native wildlife. A fisheries biologist, Dr Craik previously worked for the National Farmers' Federation as Chief Executive Officer for five years. Prior to 1995 she worked at the Great Barrier Reef Marine Park Authority for 17 years, the last three as the Executive Officer responsible to the Chair of the Authority. Dr Craik was responsible for coordinating the development and implementation of the 25 Year Strategic Plan for the Great Barrier Reef World Heritage Area.

Dr Craik has extensive experience in public policy, environmental planning, management and research, financial and human resource management. She is Chair of the Australian Fisheries Management Authority, a councillor on the National Competition Council, and a board member of the Foundation for Rural & Regional Renewal. She was a member of the Australian Information Economy Advisory Council and on the board of the Institute of Land and Food Resources at Melbourne University.

Mr Bruce G McKay BSc (Hons), FIEAust, FAICD

Term 1/7/1997-30/6/2002

Mr Bruce McKay is a geologist with more than 30 years experience in exploration, production and management in the resources industry, primarily oil and gas. He worked for Esso Australia and internationally with Exxon affiliates from 1968 to 1992. He is an Honorary Life Member of the Australian Petroleum Production and Exploration Association (APPEA) and was its Chairman in 1991-92. He was Chief Executive of the Australian Graduate School of Engineering Innovation from 1994 to 1997.

Mr McKay is a Non-Executive Director of Normandy Mining Limited and the Non-Executive Chairman of Australian Worldwide Exploration Ltd. Mr McKay is also an executive coach with The Stephenson Partnership, an adjunct lecturer at the Macquarie University Graduate School of Management and Chairman of the Management Board of the School of Petroleum Engineering and Management at the University of Adelaide.

Mr Brian Guthrie BEng, BEcon, MEng

Term 30/7/1998-30/6/2003

Mr Brian Guthrie commenced his working career at the Townsville City Council as an assistant Engineer and gained experience in all facets of Local Government engineering. His last 10 years with the Council were spent as Works Engineer. Mr Guthrie then moved into private enterprise with a major subsidiary of Brambles Pty Ltd and held the position of National Manager for Government Services.

Mr Guthrie then moved to the position of General Manager for the Townsville Thuringowa Water Supply Board, a position he held until taking up the appointment as Deputy Town Clerk and Director Corporate Services with the Townsville City Council. For the past seven years he has held the position of Chief Executive Officer with the Townsville City Council. He has extensive experience at Senior Executive level in government and private enterprise and is the holder of degrees in Engineering and Economics, and a Masters Degree in Systems.

Prof Merilyn Sleigh BSc(Hons), PhD, Dip Corp Mgt, FTSE, GAICD

Term 30/7/1988-30/6/2003

Prof Merilyn Sleigh is Dean of the Faculty of Sciences at the University of New South Wales, where she has management responsibility for teaching and research activities across a range of physical, health and environmental science areas.

Prof Sleigh is a member of the boards of two CRCs (Food Industry Innovation and Biopharmaceuticals Research) and a member of the Boards of Food Science Australia (a joint venture between CSIRO and the Victorian Government) and Unisearch Pty Ltd, the technology commercialisation company of the University of New South Wales.

Prior to joining UNSW in 1997, Prof Sleigh was Research and Development Director for Peptech Limited, a small listed pharmaceutical company. Until 1993, she worked with CSIRO as a research scientist and manager in the area of biotechnology.

Dr John D Bell BSc, MSc, PhD, FTSE, FRACI, CompIEAust

Acting Director

Term 22/4/2000-21/10/2000

Dr John Bell's career developed from research in structural chemistry and biology, to serving as Deputy Secretary and Chief Science Adviser with the (now) Department of Industry, Science and Resources.

He has wide experience in public sector management and policy formulation and has provided advice to governments on a wide range of scientific and technical issues. Dr Bell spent seven years in Paris working with and for the Organisation for Economic Cooperation and Development. He has served as a member of the Industry Research and Development Board, the Australian Research Council, the Science Prizes Committee and the ACT Science and Technology Council. He is a Director of the Australian Science Festival Ltd and previously served as a Director of the Australian Technology Group Ltd, and Managing Director of ANUTECH Pty Ltd. His previous appointments include Chair of the Government's Coordination Committee on Science and Technology, the Cooperative Research Centres Committee and the Oil Industry Forum. He also has led delegations to major international meetings.

Prof Stephen J Hall BSc, PhD, MAICD
Director

Term 14/11/2000-13/11/2005

Prof Stephen Hall was Head of Fish Biology at the Scottish Office Agriculture, Environment and Fisheries Dept Marine Laboratory in Aberdeen, before taking up a position as Professor of Marine Biology at Flinders University of South Australia and Director of the Lincoln Marine Science Centre. In 2000 he took up his current position as Director of the Australian Institute of Marine Science. He has published extensively on the structure and functioning of marine ecological systems, focussing especially on the effects of natural and human disturbance. This work has recently culminated in a book on the global effects of fishing on marine communities and ecosystems.

Prof Hall has served on numerous national and international committees and is a past chairman of the International Council for the Exploration of the Seas (ICES) Working Group on the Ecosystem Effects of Fishing Activities. This group provides advice to ICES and the European Commission on fishing effects and other aspects of coastal zone management. He is also a member of a US National Research Council Panel on the Effects of Trawling. In addition to these activities, Prof Hall has acted as a consultant to the United Arab Emirates and the European Commission and is a recent recipient of a Pew Fellowship in Marine Conservation, one of the most prestigious marine conservation awards in the world.

Council Meetings

The Institute's Council meets four times per year. Members disclose to the Council their connections to other commercial entities, such as boards, and adhere to a policy on declaring actual or potential conflicts of interest as part of the Council operations.

Council meetings are normally attended by the Institute's Executive Committee to provide advice and consultation. The Council met on

the following dates during the 2000-2001 reporting year:

Council meeting	140	11 September 2000	Brisbane
Council meeting	141	20 November 2000	Townsville
Council meeting	142	12 March 2001	Townsville
Council meeting	143	18 June 2001	Townsville

	#140	#141	#142	#143
Mr Norbury Rogers	✓	✓	✓	✓
Dr Wendy Craik	✓	×	✓	✓
Mr Bruce McKay	✓	✓	✓	✓
Mr Brian Guthrie	✓	✓	✓	✓
Prof Merilyn Sleigh	×	✓	✓	✓
Dr John Bell (Acting Director, <i>ex-officio</i>)	✓	—	—	—
Prof Stephen Hall (<i>ex-officio</i>)	—	✓	✓	✓



Members of the AIMS Council, (clockwise, from top left) Mr Brian Guthrie, Prof Merilyn Sleigh, Mr Bruce McKay, Dr Wendy Craik and Mr Norbury Rogers, discuss plans for the coming year with AIMS Director, Prof Stephen Hall.

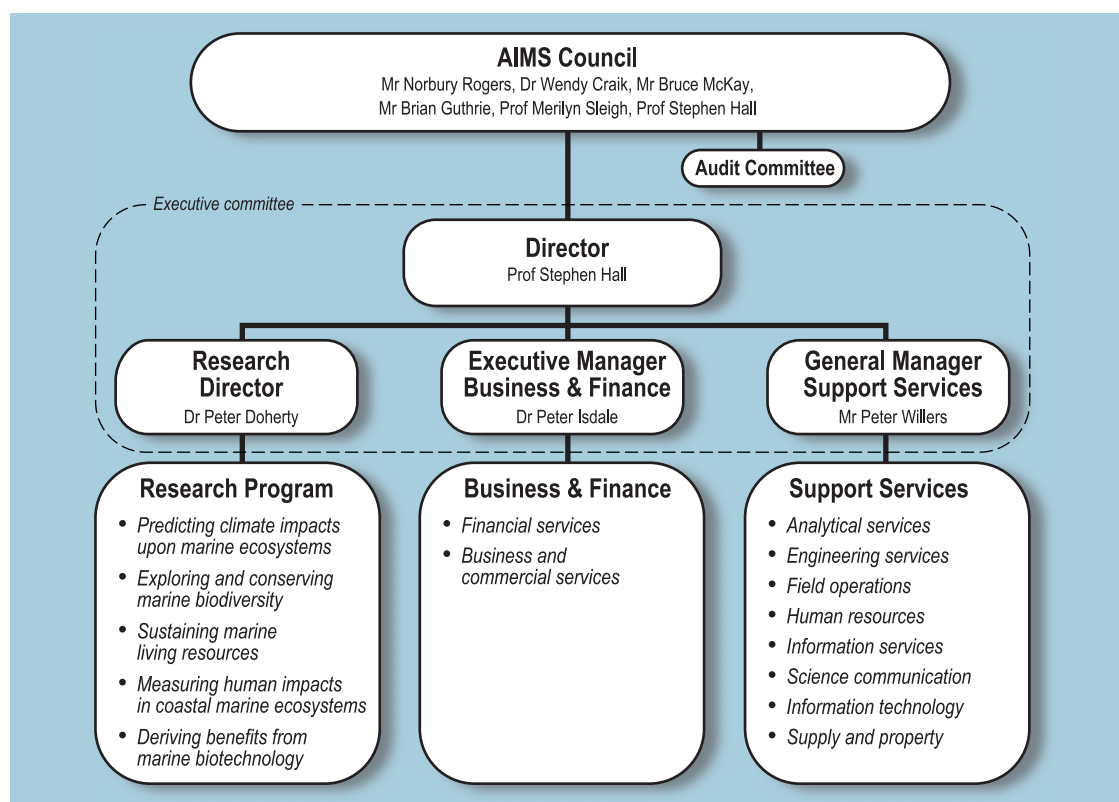


Figure 5: The organisational structure of the Institute

Audit Committee

The Council has an Audit Committee comprising two Council members and one independent member, which oversees the Institute's audit strategy and reviews and reports to the Council in connection with the Institute's accounting records. The committee comprises Mr Bruce McKay (Committee Chair, Council Member); Mr Norbury Rogers (Council Member); and Mr Robert Tardiani (Independent External Representative, C E Smith & Co) who replaced Mr Ian Jessup (C E Smith & Co) in March 2001; Mr Vic Bayer (AIMS Finance Manager) is Secretary to the Committee. Dr Peter Isdale (Executive Manager, Business and Finance, AIMS) and Mr Mark Hayward, Ernst and Young attend as observers. The Audit Committee's operation is consistent

with the Australian National Audit Office *Better Practice Guide*, July 1997.

Audit Committee Meetings

During 2000-2001 the Council's Audit Committee held meetings as follows:

31 August 2000			Brisbane
1 March 2001			Brisbane
13 June 2001			Brisbane
	August 2000	March 2001	June 2001
Mr Bruce McKay	✓	✓	✓
Mr Norbury Rogers	✓	✓	✓
Mr Ian Jessup	✓	—	—
Mr Robert Tardiani	—	✓	✓

Executive Committee

The Executive Committee has four members including the Director who chairs the Committee. During 1999-2000 the Executive Committee included: Dr Peter Isdale, Executive Manager (Business and Finance); Dr Peter Doherty, Research Director; and Mr Peter Willers, General Manager, Support Services. The committee meets on a monthly basis.

Staff

All Institute staff members are employed under the *Australian Institute of Marine Science Act 1972* (amended 1992). In addition to staff paid from appropriation funds, the Institute employs staff periodically on various projects and schemes that are funded from external sources.

The total staff employed by AIMS during the 2000-2001 reporting period (including casuals) was an equivalent full-time value (i.e. staff years) of 154.7 (compared with 159.7 for 1990-2000). This is a further reduction in staff numbers, which have fallen by 16.4 percent since 1995-96.

Location of Facilities and Major Activities

The Institute’s major laboratory is just outside Townsville. A small laboratory in Dampier supported research in the north west of Australia. During 2000-2001 effort will be redirected to facilities in Perth and Darwin.

Research Vessels

During the year vessel operations were restricted to the Great Barrier Reef region because of the ship replacement program.

After 20 years of excellent service to the Institute, the *RV The Harry Messel* completed its last trip for AIMS on 1 December 2000. She was replaced by the *RV Cape Ferguson* (see Report of Operations Part A), which is now the sister ship to the *RV Lady Basten*. Since its first research trip on 15 December 2000, the new ship has proved more efficient to operate. Modern communications technology, laboratories and oceanographic winching facilities have provided enhanced support for the Institute’s seagoing research activities.



The new AIMS vessel, *RV Cape Ferguson*.

	No. Trips	Days at sea	Distance travelled
<i>RV The Harry Messel</i> (until 1 Dec.)	12	118	11,548 nm
<i>RV Lady Basten</i>	29	283	14,802 nm
<i>RV Cape Ferguson</i> (since 15 Dec)	15	139	8,267 nm

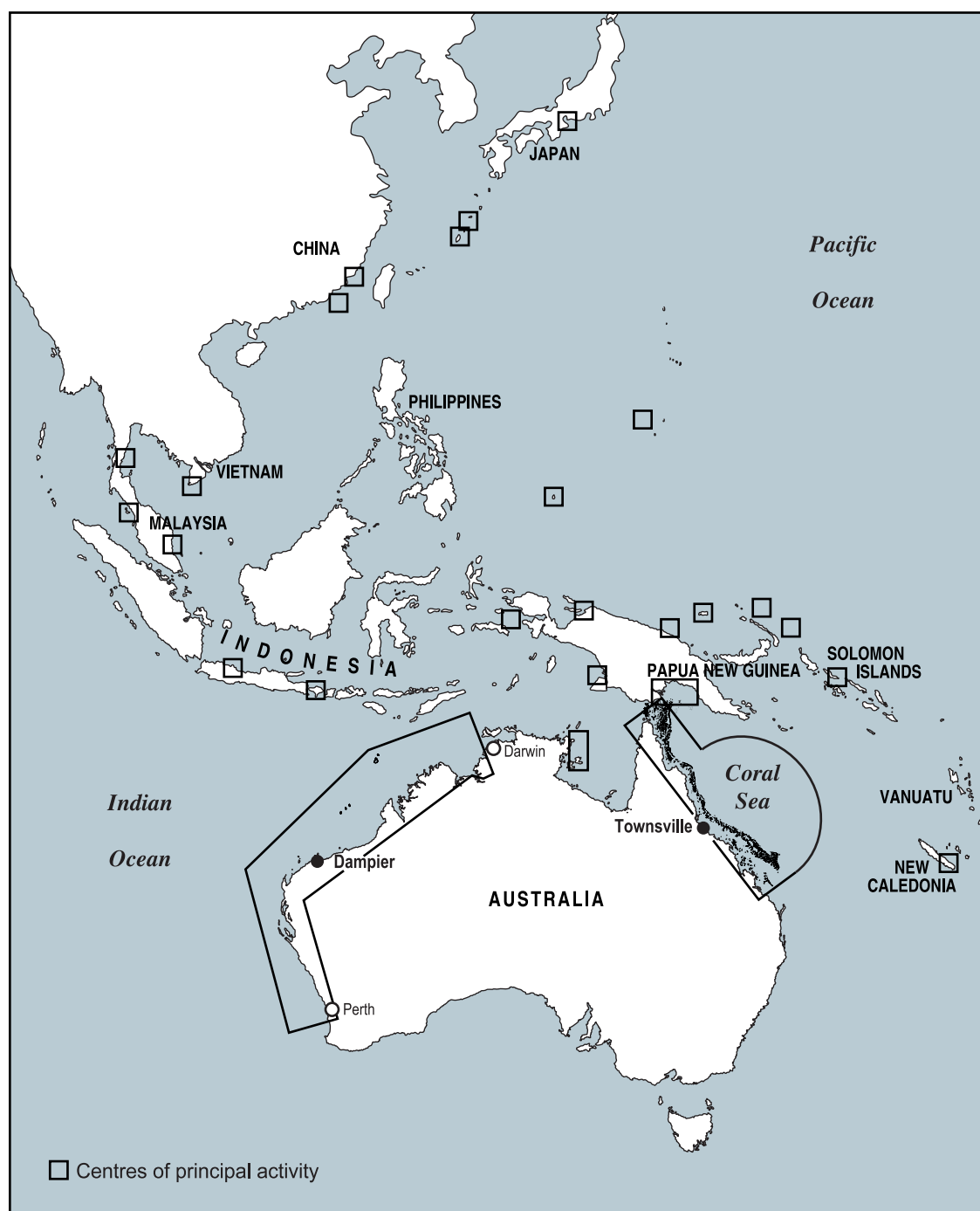


Figure 6: Facilities and areas of activities

Corporate Governance

Structures

The Australian Institute of Marine Science is a Commonwealth Statutory Authority, formed by the *Australian Institute of Marine Science Act 1972*, the AIMS Act. It is subject to the *Commonwealth Authorities and Companies Act 1997* (known as the CAC Act), reporting to the Minister for Industry, Science and Resources, Senator The Hon Nick Minchin.

AIMS mission, planned outcome and output, and strategies related to the achievement of these, originate in the AIMS Act. Its strategic priorities are determined by the Council and by the decisions of Government.

The AIMS Council is appointed in accordance with Section 12 of the AIMS Act, and is responsible for the overall direction and operation of the Institute. It is committed to the principle of applying the results of the Institute's research for the benefit of the community and of Australian industry and commerce, and to assist the Government in making informed management decisions concerning coastal and marine resources and activities.

The Council ensures effective management through the Director who manages the affairs of the Institute and provides leadership to staff.

An Audit Committee provides advice to the Council in relation to the Institute's finances and governance.

Processes

The Council oversees the running of the Institute. It governs the Institute by setting policy, providing review, advice and direction to Institute management (the Director and Executive Committee). The Council also ensures that its finances are audited each year. Ernst and Young conducts an internal audit four times a year, and the Australian

National Audit Office conducts an annual external audit.

All members of Council and staff undergo a comprehensive induction process. For the Council, this includes a briefing on the requirements of the CAC Act.

Controls

Council Members' Interests

The Institute's policy on the interests of members of Council is that members must disclose an interest whenever he or she considers that there is a potential conflict of interest. The policy is consistent with the CAC Act (Section 21).

In keeping with this Act and Institute policy, a Council member who considers that he or she has a material personal interest (direct pecuniary or indirect pecuniary) in a matter to be discussed by the Council is to declare the existence and the nature of the interest, and is to leave the meeting.

The Council decides when to invite the absent Council Member back to the meeting. In the case of Council Members with a direct pecuniary interest this is not until discussion on the matter is completed.

The policy also applies to all members of staff.

Fraud Control

The Institute has a comprehensive fraud control plan that complies with the *Fraud Control Policy of the Commonwealth – Best Practice Guide for Fraud Control*. The plan is integrated into the Institute's management system and internal audit process. It is reviewed and updated annually by the Audit Committee to ensure it remains relevant to the Institute's business.

No incidence of fraud was detected during 2000-2001.

Indemnities and Insurance Premiums for Officers

There are no known liabilities to any current or former officers. During the reporting period, no premium has been paid, or has been agreed to be paid, against a current or former officer's liability for legal costs.

AIMS pays premiums for the Directors and Officers Insurances required under the CAC Act.

Use of Sub-contractors

A sub-contractor is a person or organisation engaged by AIMS to provide a service or product that impacts on the Institute's delivery of its products.

The Institute's policy is to base the selection of sub-contractors on quality, value for money and availability when needed, not necessarily on price.

When the purchase value exceeds \$30,000 tenders will be invited either publicly or selectively or as the Tender Board determines. Where there is a benefit to the Institute, selective tendering may be approved by the Director. The Tender Board must approve any exemption from public tendering in writing.

Purchases between \$2,000 and \$30,000 will be through selective tender requiring at least three quotations unless the delegated officer determines that the request for quotations is impracticable. The reasons for such a decision must be made in writing.

Purchases of less than \$2,000 are considered routine and the calling of quotations is optional.

Consistent with Section 21 of the CAC Act, if a purchase involves the consideration of a member of council or staff member, or an immediate family member of either, the member of Council (see Council Member's interests) or staff member is not to be

involved in decision-making relating to the purchase.

Behaviour

The Council requires the Director to extend his or her commitment to good corporate governance – by example and by direction – to all functions of the Institute. The Institute's commitment to best practice is incorporated in its *Strategic Directions* document that recognises the importance of the Institute's staff to the fulfilment of the Institute's mission. Consequently, the highest level of staff satisfaction, health and safety must be maintained.

Code of Conduct

AIMS has a Code of Conduct to which the Council, Director and staff 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 for staff. New Council members and staff are briefed on the Code during induction training.

Judicial Decisions and Reviews by Outside Bodies

None.

Policy and Administration

Efficiency Gains

The Institute continues to strive to improve productivity by minimising administrative details and processes. This year further development of the Institute’s Intranet has taken place and additional electronic forms and management systems implemented, resulting in valuable savings in staff time.

Social Justice and Equity

AIMS has a policy of equal employment opportunity. Staff are recruited and promoted

on a merit-based system. The following table shows a breakdown of staff gender and funding sources.

Twelve percent of the workforce worked part-time, increasing last year’s figure by three percent. The Institute had no reported cases of harassment.

Scientific visitors from over 30 countries worked at AIMS during the year.

	Female	Male	Total
APPROPRIATION FUNDED STAFF			
Science	22.9	58.6	81.5
Corporate	13.3	9.0	22.3
Support	10.7	28.5	39.2
Total	46.9	96.1	143.0
EXTERNALLY FUNDED STAFF			
Science	4.4	5.8	10.2
Corporate	0.0	0.0	0.0
Support	1.5	0.0	1.5
Total	5.9	5.8	11.7
TOTAL STAFF	52.8	101.9	154.7

The major policy objectives of the AIMS Equal Employment Opportunity (EEO) Plan are illustrated in the following table:

Aboriginal and Torres Strait Islander	0.6 %
Non-English speaking background	10 %
Staff with a disability	7 %
Women	37 %

Staff Consultation

The Joint Consultative Committee met four times during the year. This committee provides a forum for discussion and consultation between management and staff representatives.

The consultative process with staff is also enhanced by making available all minutes of internal management committee meetings. In addition, regular staff meetings are held and intranet bulletins issued where the Director advises staff of organisational and scientific issues.

Negotiations took place during the year to formulate the Institute's new Certified Agreement for 2001 onwards.

Occupational Health and Safety

Work continued on the implementation of the OH&S Strategic plan to ensure that OH&S becomes integrated into everyday management of the Institute.

In addition to the OH&S strategic plan, work continued on ensuring the Institute met its legal obligations under the *OH&S (Commonwealth Employment) Act 1991*. The Institute's OH&S Committee met four times during the year and examined a number of OH&S issues, including results from the first aid risk assessment required under the Code of Practice on Provision of First Aid Services in Commonwealth workplaces.

The system for reporting and recording workplace accidents and incidents was reviewed during the year, with the recording system moving from a paper-based system to a computerised database. Twenty-five incidents were reported during the year, with three resulting in time loss from the workplace.

There were no formal investigations conducted by Comcare under Sections 29 or 41 of the OH&S Act. No provisional improvement notices were issued by Health and Safety Representatives, nor were any notices issued by Comcare under Section 45, 46 or 47 of the OH&S Act.

OH&S Training

General OH&S induction courses were conducted throughout the year and were attended by 18 staff and contractors and a further 114 visitors. Other OH&S related training including first aid, CPR and Oxygen resuscitation, dive rescue, dangerous goods and radiation safety we attended by 103 people.

Radiation Safety

The Institute continued work on developing and implementing the policies and procedures necessary for research to be carried out using radioisotopes under the *Australian Radiation Protection and Nuclear Science Act 1999*. The Institute is awaiting formal auditing and licensing by ARPANSA.

Gene Technology

AIMS became a deemed facility under the *Gene Technology Act 2000*. An Institute Biosafety Committee is in place and is responsible for ensuring that accredited research is conducted in accordance with the requirements of the Gene Technology Regulator.

Employee Assistance Program

The Institute's employee assistance providers, Interlock, reported steady use of the service by employees throughout the year with approximately 7.5 percent of staff accessing counselling services. This compares with 7 percent of staff accessing the services in the 1999-2000 financial year.

Environmental Matters

The Institute's research is targeted to supporting the protection and sustainable development of Australia's marine resources (see About AIMS, p. 1). It is the Institute's policy to achieve and maintain high standards of environmental care in all aspects of its research and operations and to comply with all relevant State and Commonwealth legislation, including the *Environment Protection and Biodiversity Conservation Act 1999*.

The Institute is involved in researching sea-floor biodiversity and aims to use the outcomes of its research to assist Australia to utilise the marine environment and its produce in an ecologically sustainable manner and in accordance with the principles of ESD.

The Institute has developed an environment management plan (*AIMS Environment Management Plan*) in consultation with all employees and contractors. This plan considered all aspects of the Institute's operations, both at the Cape Ferguson and Dampier sites, and environmental aspects of conducting research out in the field. The Plan is under constant review and provides a framework for assessing environmental issues associated with the Institute's activities. Specific plans are developed for significant additional activities. For example, an environmental management plan was developed prior to commencing construction of the new science wing at Cape Ferguson. Current effort is focused to the implementation of an integrated waste management strategy.

National Environmental Protection Measures (NEPM)

The Institute uses a number of the scheduled substances declared under the National Pollution Inventory of the *National Environmental Protection Measures*

(*Implementation*) Act 1998, in quantities significantly below the current declared threshold levels. The Institute has met the current reporting requirements of the National Pollution Inventory NEPM.

Freedom of Information (FOI)

During 2000-2001 no requests were made to the Institute under the provisions of the *Freedom of Information Act 1982* (FOI Act).

The statement required under Section 8 of the FOI Act is at Appendix 1.

Customer Service Charter

Departments, agencies and Government Business Enterprises (GBEs) which have an impact on the public are required to develop Service Charters in which agencies set standards of service for key undertakings seen as important by customers. This has relevance for work done in delivering research and other services to the private sector.

AIMS has implemented a Service Charter for dealing with its clients. The Charter has been posted to the AIMS website along with a feedback form
www.aims.gov.au/pages/about/corporate/csc-01.html

Advertising and Market Research

AIMS does not undertake significant amounts of advertising. During the year advertising was placed in both print and electronic media for the normal processes of recruitment and requests for tender. A limited amount of directed advertisements highlighted the Institute's capacities as a collaborative research or commercial partner in particular matters.

During 2000-2001 AIMS commissioned a small amount of market analysis related to potential commercialisation of its technologies.

FINANCIAL STATEMENTS FOR THE YEAR ENDED 30 JUNE 2001

Incorporating

- ☐ Statement by Directors
- ☐ Independent Audit Report
- ☐ Statement of Financial Performance for the year ended 30 June 2001
- ☐ Statement of Financial Position as at 30 June 2001
- ☐ Statement of Cash flows for the year ended 30 June 2001
- ☐ Schedule of Commitments as at 30 June 2001
- ☐ Schedule of Contingencies as at 30 June 2001
- ☐ Notes to and forming part of the Financial Statements
- ☐ Unaudited supplementary information for the year ended 30 June 2001

**STATEMENT BY DIRECTORS OF THE
AUSTRALIAN INSTITUTE OF MARINE SCIENCE**

In our opinion, the attached financial statements give a true and fair view of the matters required by Schedule 1 to the Finance Minister's Orders made under the *Commonwealth Authorities and Companies Act 1997* for the year ended 30 June 2001.



A E de N Rogers
Chairman of Council
10 September 2001



Prof S Hall
Director and Member of Council
10 September 2001



INDEPENDENT AUDIT REPORT

To the Minister for Industry, Science and Resources

Scope

I have audited the financial statements of the Australian Institute of Marine Science for the year ended 30 June 2001. The financial statements comprise:

- Statement by Directors;
- Statement of Financial Performance;
- Statement of Financial Position;
- Statement of Cash Flows;
- Schedule of Commitments;
- Schedule of Contingencies, and
- Notes to and forming part of the Financial Statements.

The Directors are responsible for the preparation and presentation of the financial statements and the information they contain. I have conducted an independent audit of the financial statements in order to express an opinion on them to you.

The audit has been conducted in accordance with Australian National Audit Office Auditing Standards, which incorporate the Australian Auditing Standards, to provide reasonable assurance as to whether the financial statements are free of material misstatement. Audit procedures included examination, on a test basis, of evidence supporting the amounts and other disclosures in the financial statements, and the evaluation of accounting policies and significant accounting estimates. These procedures have been undertaken to form an opinion as to whether, in all material respects, the financial statements are presented fairly in accordance with Australian Accounting Standards, other mandatory professional reporting requirements and statutory requirements in Australia so as to present a view of the entity which is consistent with my understanding of its financial position, the results of its operations and its cash flows.

The audit opinion expressed in this report has been formed on the above basis.

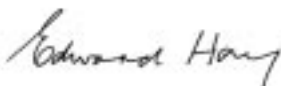
GPO Box 707 CAMBERRA ACT 2601
Centenary House 19 National Circuit
BARTON ACT
Phone (02) 6262 7306 Fax (02) 6262 7777

Audit Opinion

In my opinion:

- the financial statements have been prepared in accordance with Schedule 1 of the Finance Minister's Orders; and
- the financial statements give a true and fair view, in accordance with applicable Accounting Standards, other mandatory professional reporting requirements and Schedule 1 of the Commonwealth Authorities and Companies (Financial Statements 2000-2001) Orders, of the financial position of the Australian Institute of Marine Science as at 30 June 2001 and the results of its operations and its cash flows for the year then ended.

Australian National Audit Office



Edward M. Hay
Group Executive Director

Delegate of the Auditor-General

Canberra
12 September 2001

STATEMENT OF FINANCIAL PERFORMANCE

for the year ended 30 June 2001

	Notes	2001 \$'000	2000 \$'000
Revenues from ordinary activities			
Revenues from government	5A	22,571	24,953
Sales of goods and services	5B	4,401	4,623
Interest	5C	860	626
Proceeds from disposal of assets	5D	330	30
Other		179	91
Total revenues from ordinary activities		28,341	30,323
Expenses from ordinary activities			
Employees	6A	11,540	11,575
Suppliers	6B	9,211	9,944
Grants	6D	162	215
Depreciation and amortisation	6C	2,038	1,478
Disposal of assets	5D	672	35
Total expenses from ordinary activities		23,623	23,247
Net operating surplus (deficit) from ordinary activities		4,718	7,076
Net surplus attributable to the Commonwealth		4,718	7,076
Total changes in equity other than those resulting from transactions with owners as owners		4,718	7,076

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

STATEMENT OF FINANCIAL POSITION

as at 30 June 2001

	Notes	2001 \$'000	2000 \$'000
ASSETS			
Financial assets			
Cash	7A	505	531
Investments	7B	8,519	12,829
Receivables	7C	1,552	1,050
Total financial assets		10,576	14,410
Non-financial assets			
Land and buildings	8A	21,376	21,671
Plant and equipment	8B	15,860	11,845
Inventories	8C	253	266
Other	8D	215	203
Total non-financial assets		37,704	33,985
Total assets		48,280	48,395
LIABILITIES			
Provisions			
Capital use charge	9A	17	3,997
Employees	9B	4,872	4,565
Total provisions		4,889	8,562
Payables			
Suppliers	9C	1,202	1,175
Consultancies and grants	9D	640	807
Total payables		1,842	1,982
Total liabilities		6,731	10,544
EQUITY			
Capital	10	25,376	21,890
Reserves	10	14,384	14,384
Accumulated surplus	10	1,789	1,577
Total equity		41,549	37,851
Total liabilities and equity		48,280	48,395
Current liabilities		3,215	7,297
Non-current liabilities		3,516	3,247
Current assets		11,044	14,879
Non-current assets		37,236	33,516

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

STATEMENT OF CASH FLOWS

for the year ended 30 June 2001

	Notes	2001 \$'000	2000 \$'000
OPERATING ACTIVITIES			
Cash received			
Appropriations		22,571	24,953
Sales of goods and services		4,257	4,067
Interest		557	460
GST recovered from taxation authority		969	—
Other		179	90
Total cash received		<u>28,533</u>	<u>29,570</u>
Cash used			
Grants		(163)	(215)
Employees		(11,233)	(11,254)
Suppliers		(10,374)	(9,285)
Total cash used		<u>(21,770)</u>	<u>(20,754)</u>
Net cash from operating activities	11	<u>6,763</u>	<u>8,816</u>
INVESTING ACTIVITIES			
Cash received			
Proceeds from sale of property, plant and equipment		330	50
Total cash received		<u>330</u>	<u>50</u>
Cash used			
Purchase of property, plant and equipment		(6,431)	(4,191)
Total cash used		<u>(6,431)</u>	<u>(4,191)</u>
Net cash from investing activities		<u>(6,101)</u>	<u>(4,141)</u>
FINANCING ACTIVITIES			
Cash received			
Equity Appropriation		3,486	—
Total cash received		<u>3,486</u>	<u>—</u>
Cash used			
Capital use paid		(8,484)	—
Total cash used		<u>(8,484)</u>	<u>—</u>
Net cash from financing activities		<u>(4,998)</u>	<u>—</u>
Net increase in cash held		<u>(4,336)</u>	<u>4,675</u>
Cash at beginning of the reporting period		<u>13,360</u>	<u>8,685</u>
Cash at the end of the reporting period	7B	<u><u>9,024</u></u>	<u><u>13,360</u></u>

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

SCHEDULE OF COMMITMENTS

as at 30 June 2001

	Notes	2001 \$'000	2000 \$'000
BY TYPE			
CAPITAL COMMITMENTS			
Buildings ¹		9,293	11,268
Plant and equipment ²		157	1,901
Total capital commitments		9,451	13,169
OTHER COMMITMENTS			
Operating leases ³		538	224
CRC Reef		12,750	14,205
Contracts		4,365	6,547
Other ⁴		2,038	2,786
Total other commitments		19,691	23,762
COMMITMENTS RECEIVABLE		(2,650)	—
Net commitments		26,492	36,931
BY MATURITY			
All net commitments			
One year or less		13,179	11,815
From one to five years		13,063	22,530
Over five years		250	2,586
Net commitments		26,492	36,931
Operating lease commitments			
One year or less		320	160
From one to five years		219	64
Over five years		—	—
Net operating lease commitments		538	224

Commitments are GST inclusive where relevant.

¹ Outstanding contractual payments for building under construction.

² Plant and equipment commitments include contracts for plant and equipment for existing and new buildings.

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

<i>Nature of lease</i>	<i>General description of leasing arrangement</i>
Motor vehicles	Leases are for a period of 24 months or 60,000 kilometres. No contingent rentals exist.
Telephone system	Leases are for a period of 36 months and cover the cost of installation and annual maintenance. No contingent rentals exist.

⁴ As at 30 June 2001, other commitments comprise amounts payable under grants agreements in respect of which the recipient is yet to perform the services required.

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

SCHEDULE OF CONTINGENCIES

as at 30 June 2001

UNQUANTIFIABLE CONTINGENCIES

At 30 June 2001, the Institute had a legal claim against it for damages. The Institute has denied liability and is defending the claim. It is not possible to estimate the outcome of this claim.

NOTES TO AND FORMING PART OF THE
FINANCIAL STATEMENTS
for the year ended 30 June 2001

Note	Description
1	Summary of Significant Accounting Policies
2	Reporting by Segments and Outcomes
3	Economic Dependency
4	Subsequent Events
5	Operating Revenue
6	Operating Expenses – Goods and Services
7	Financial Assets
8	Non- Financial Assets
9	Provisions and Payables
10	Equity
11	Cash Flow Reconciliation
12	External Financing Arrangements
13	Remuneration of Directors
14	Related Party Disclosures
15	Remuneration of Officers
16	Remuneration of Auditors
17	Financial Instruments

NOTES TO AND FORMING PART OF THE FINANCIAL STATEMENTS

for the year ended 30 June 2001

1. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

1.1 Basis of Accounting

The financial statements 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 statements have been prepared in accordance with:

- ☐ Schedule 1 to the Commonwealth Authorities (Financial Statements 2000-2001) Orders made under the *Commonwealth Authorities and Companies Act 1997* for the year ended 30 June 2001;
- ☐ Australian Accounting Standards and Accounting Interpretations issued by the Australian Accounting Standards Boards;
- ☐ other authorities pronouncements of the Boards; and
- ☐ Consensus Views of the Urgent Issues Group.

The Statements have been prepared having regard to:

- ☐ Statements of Accounting Concepts;
- ☐ The Explanatory Notes to Schedule 1 issued by the Department of Finance and Administration; and
- ☐ Guidance Notes issued by that Department.

The Institute's Statement of Financial Performance and Financial Position have been prepared on an accrual basis and are in accordance with historical cost convention, except for certain assets, which as noted, are at valuation. Except where stated, no allowance is made for the effects of changing prices on the results or on the financial position.

Assets and liabilities are recognised in the Institute's Statement of Financial Position when and only when it is probable that future economic benefits will flow and the amounts of the assets or liabilities can be reliably measured. Assets and liabilities arising under agreement equally proportionately unperformed are however not recognised unless required by an Accounting Standard. Liabilities and assets which are unrecognised are reported in the Schedule of Commitments and Schedule of Contingencies.

Revenue and expenses are recognised in the Institute's Statement of Financial Performance when and only when the flow or consumption or loss of economic benefit has occurred and can be reliably measured.

1.2 Changes in Accounting Policies

The accounting policies used in the preparation of these financial statements are consistent with those used in 1999-2000.

NOTES TO AND FORMING PART OF THE FINANCIAL STATEMENTS

for the year ended 30 June 2001

1.3 Reporting by Outcomes

A comparison of Budget and Actual figures by outcomes specified in the Appropriation Acts relevant to the Institute is presented in Note 2. Any intra-government costs included in the figure “net cost to Budget outcomes” are eliminated in calculating the actual budget outcome for the Government overall.

1.4 Revenue

- ☐ The revenues described in this Note are revenue relating to the core operating activities of the Institute.
- ☐ Revenue from the sale of goods is recognised upon the delivery of goods to customers.
- ☐ Interest revenue is recognised on a proportional basis taking into account the interest rates applicable to the financial assets.
- ☐ Dividend revenue is recognised when the right to receive a dividend has been established.
- ☐ Revenues from disposal of non-current assets is recognised when control of the asset has passed to the buyer.
- ☐ Revenue from the rendering of a service is recognised by reference to the stage of completion of contracts or agreements to provide services to Commonwealth bodies. The stage of completion is determined according to the proportion that costs incurred to date bear to the estimated total costs of the transactions.

Revenues from Government – Output Appropriations

Appropriations for outputs are recognised as revenue to the extent they have been received into the Institute’s bank account or are entitled to be received by the Institute at the year end.

Resources Received Free of Charge

Services received free of charge are recognised as revenue when and only when a fair value can be reliably determined and the services would have been purchased if they had not been donated. Use of those resources are recognised as an expense.

Contributions of assets at no cost of acquisition or for nominal consideration are recognised at their fair value when the asset qualifies for recognition.

1.5 Transactions by the Government as Owner

Appropriations to the Institute designated as “capital-equity injections” are recognised directly in equity, to the extent that the appropriations have been received into the Institute’s bank account or are entitled to be received by the Institute at year end.

NOTES TO AND FORMING PART OF THE FINANCIAL STATEMENTS

for the year ended 30 June 2001

1.6 Employee Entitlements

(a) Leave

The liability for employee entitlements 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 by the Institute's employees in the future years is estimated to be less than the annual entitlement for sick leave.

The provision for annual leave reflects the value of total annual leave entitlements of all employees at 30 June 2001 and is recognised at its nominal value.

The non-current portion of the liability for long service leave is recognised and measured at the present value of the estimated future cash flows to be made in respect of all employees at 30 June 2001. In determining the present value of the liability, the Institute has taken into account attrition rates and pay increases through promotion and inflation.

(b) Superannuation

Employees contribute to the Commonwealth Superannuation Scheme and the Public Sector Superannuation Scheme. Employer contributions amounting to \$1,171,295 (1999-2000: \$1,097,794) for the Institute in relation to these schemes have been expensed in these financial statements.

No liability for superannuation benefits is recognised as at 30 June 2001 as the employer contributions fully extinguish the accruing liability which is assumed by the Commonwealth.

Employer Superannuation Productivity Benefit contributions totalled \$281,216 (1999-2000 \$276,132) for the Institute.

1.7 Leases

A distinction is made between finance leases which effectively transfer from the lessor to the lessee substantially all the risks and benefits incidental to ownership of leased assets and operating leases under which the lessor effectively retains substantially all such risk and benefits.

Operating lease payments are expensed on the basis which is representative of the pattern of benefits derived from the leased assets. The net present value of future net outlays in respect of surplus space under non-cancellable lease agreements is expensed in the period in which the space becomes surplus.

1.8 Cash

Cash means cash and coins held and any deposits held at call with a bank or financial institution.

1.9 Financial Instruments

Accounting policies for financial instruments are stated in Note 17.

NOTES TO AND FORMING PART OF THE FINANCIAL STATEMENTS

for the year ended 30 June 2001

1.10 Rounding

Amounts are rounded to the nearest \$1,000 except in relation to:

- ☐ remuneration of directors (members of council);
- ☐ remuneration of officers; and
- ☐ remuneration of auditors.

1.11 Taxation

The Institute is exempt from all forms of taxation except fringe benefits tax and goods and services tax.

1.12 Inventories

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

Inventories not held for sale are valued at cost, unless they are no longer required, in which case they are valued at net realisable value.

Costs incurred in bringing each item of inventory to its present location and condition are assigned on first in first out basis.

1.13 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.

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.

1.14 Property (Land and Buildings), Plant and Equipment

Asset recognition threshold

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

Revaluations

Land, buildings, plant and equipment are revalued progressively in accordance with the 'deprival' method of valuation in successive 3-year cycles, so that no asset has a value greater than three years old.

A revaluation of buildings was obtained at 30 June 2001. However, no adjustment was made to carrying values as there were not significant differences from the revalued amounts. The valuation was supplied by Mr M Missingham (AAPI), Certified Practising Valuer No: 1273, Herron Todd White. Plant and equipment was revalued at 30 June 1999 and library books and journals were revalued on 1 July 1998.

NOTES TO AND FORMING PART OF THE FINANCIAL STATEMENTS

for the year ended 30 June 2001

1.14 Property (Land and Buildings), Plant and Equipment (continued)

Property, plant and equipment are measured at their depreciated replacement cost. Where assets are held which would not be replaced or are surplus to requirements, measurement is at net realisable value. At 30 June 2001 the Institute had no assets in this situation.

All valuations are independent.

Recoverable amount test

Schedule 1 requires the application of the recoverable amount test to the Institute's non-current assets in accordance with AAS 10 *Recoverable Amount of Non-Current Assets*. The carrying amount of each item of non-current property, plant and equipment assets have been reviewed to determine whether it is in excess of the asset's recoverable amount. If an excess exists as at the reporting date, the asset is written down to its recoverable amount immediately. In assessing recoverable amounts, the relevant cash flows, have been discounted to their present value.

Depreciation

Depreciable property, plant and equipment assets are written off to their estimated residual values over their estimated useful lives to the Institute using, in all cases, the straight line method of depreciation.

Depreciation rates (useful lives) and methods are reviewed at each balance date and necessary adjustments are recognised in the current, or current and future reporting periods, as appropriate. Residual values are re-estimated for a change in prices only when assets are revalued.

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

	<u>2000–2001</u>	<u>1999–2000</u>
Buildings and improvements	10 to 60 years	10 to 60 years
Plant and equipment	3 to 20 years	3 to 20 years

The aggregate amount of depreciation allocated for each class of asset during the reporting period is disclosed in Note 6C.

1.15 Insurances

The Institute has insured for risks through the Government's insurable risk managed fund, called Comcover. Workers Compensation is insured through Comcare Australia.

NOTES TO AND FORMING PART OF THE FINANCIAL STATEMENTS

for the year ended 30 June 2001

1.16 Investments

The Australian Institute of Marine Science (AIMS) is a member Institute of AMRAD Corporation Ltd (AMRAD). Under an “Institute Agreement” between AMRAD, the Victorian Medical Consortium Pty Ltd (VMC) and AIMS, AMRAD has allotted to VMC 333,334 fully paid one dollar shares to be held on trust for AIMS. The agreement allows AIMS to require VMC to transfer to it all or part of the shares and any bonus shares, or to sell such shares and pay the proceeds to AIMS. This can only occur if AIMS is still a party to the Institute Agreement upon the first ninth anniversary of the date of execution of the Agreement (29 October 1993). The shares have not been brought to account in the Institute’s financial statements as it is considered that the Institute is unable to exercise any ownership or control over these assets at the present time.

Cash held on term deposit with a bank is included in investments.

1.17 Capital Use Charge

A capital use charge of 12 % is imposed by the Commonwealth on the net assets of the Institute. The charge is adjusted to take into account assets, gifts and revaluation increments during the financial year.

1.18 Bad and Doubtful Debts

Bad debts are expensed during the year in which they are identified, to the extent they have not previously been provided for. A provision is raised for doubtful debts based on a review of all outstanding receivables at year end.

1.19 Comparative Figures

Where necessary, comparative figures have been adjusted to conform to changes in presentation in these financial statements.

1.20 Research, Development and Intellectual Property

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

1.21 Contract Research

The Institute 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 agreements do not involve sharing in common of liabilities and interest in assets, other than assets represented by intellectual property to which the Institute does not attribute any value in the accounts.

1.22 Consultancies and Grants

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

NOTES TO AND FORMING PART OF THE FINANCIAL STATEMENTS

for the year ended 30 June 2001

2. REPORTING BY SEGMENTS AND OUTCOMES

The Institute operates in a single industry and geographical segment, being provision of government programs in Australia. The Australian Institute of Marine Science operates in the marine science research industry.

The Institute is structured to meet one outcome: being “the enhancement of scientific knowledge supporting the protection and sustainable development of Australia’s marine resources”.

Reporting by Outcome for 2000 – 2001

	Outcome 1		Total	
	Budget \$'000	Actual \$'000	Budget \$'000	Actual \$'000
Cost of outcome	28,946	28,331	28,946	28,331
Net cost to budget Outcome	28,946	28,331	28,946	28,331
Outcome specific assets	46,340	48,280	46,340	48,280

3. ECONOMIC DEPENDENCY

The Australian Institute of Marine Science was established by an act of Parliament, *The Australian Institute of Marine Science Act 1972*, and is controlled by the Commonwealth of Australia.

The Institute is dependent on appropriations from the Parliament of the Commonwealth for its continued existence and ability to carry out its normal activities.

4. SUBSEQUENT EVENTS

The Institute is not aware of any material events that have occurred subsequent to balance date.

NOTES TO AND FORMING PART OF THE
FINANCIAL STATEMENTS

for the year ended 30 June 2001

	2001 \$'000	2000 <u>\$'000</u>
5. OPERATING REVENUE		
5A Revenue from Government		
Appropriation operating	16,788	16,703
Appropriation asset replacement	1,148	1,439
Appropriation infrastructure development	—	2,994
Appropriation capital use charge	4,635	3,817
	<u>22,571</u>	<u>24,953</u>
<p>Note: The appropriation for infrastructure development has been treated differently by the Government over the two years. In 2000 the amount \$2,994,000 was appropriated in Bill No 1 and treated as operating revenue. In 2001 the infrastructure development appropriation of \$3,486,000 was treated as capital injection in Bill No 2 (refer Note 10).</p>		
5B Sale of Goods and Services		
Australian industry	612	895
Australian governments	427	458
Australian joint government/industry	1,925	2,200
International industry	155	581
International governments	742	477
International joint government/industry	2	12
Publications	538	—
	<u>4,401</u>	<u>4,623</u>
5C Interest		
Term deposits	860	626
	<u>860</u>	<u>626</u>
5D Proceeds and Expenses from Disposal of Assets		
Revenue (proceeds) from sale	330	30
Expense from sale	(672)	(35)
Total	<u>(342)</u>	<u>(5)</u>

NOTES TO AND FORMING PART OF THE
FINANCIAL STATEMENTS

for the year ended 30 June 2001

6. OPERATING EXPENSES – GOODS AND SERVICES

	2001	2000
	<u>\$'000</u>	<u>\$'000</u>
6A Employees Expenses		
Basic remuneration for services provided	8,628	8,605
Related employees expenses:		
Superannuation	1,452	1,374
Provision for annual recreation leave	796	828
Provision for long service leave	313	376
Fringe benefit tax	226	281
Remote location subsidy	68	66
Workers compensation insurance	57	45
Total Employee expenses	<u>11,540</u>	<u>11,575</u>

The Institute contributes to the Commonwealth Superannuation (CSS) and the Public Sector Superannuation (PSS) schemes which provide retirement, death and disability benefits to employees. Contributions to the schemes are at rates calculated to cover existing and emerging obligations. Current contribution rates are 15.6 % of salary (CSS) and 12.5 % of salary (PSS). An additional 3 % is contributed for employee productivity benefits.

NOTES TO AND FORMING PART OF THE
FINANCIAL STATEMENTS

for the year ended 30 June 2001

	2001 <u>\$'000</u>	2000 <u>\$'000</u>
6. OPERATING EXPENSES – GOODS AND SERVICES (continued)		
6B Suppliers Expenses		
Operating lease rentals	288	393
Supply of goods and services		
Appointment expenses	68	108
Equipment and software purchases	161	422
Catering subsidy	80	62
Chemical Supplies	70	73
Cleaning and ground maintenance	182	185
Communications, telephone, postage	307	307
Consultancies	927	1,030
Consumables	671	779
Electricity	356	340
Field costs	35	51
Freight	207	141
Fuel, oil, distillates	414	445
Hire of equipment	233	419
Insurances	138	100
Laboratory expenses	175	114
Legal expenses	35	91
Licenses and fees	130	108
Patents and trade marks	55	84
Publications, journals, subscriptions	837	505
Rent	82	82
Repairs and maintenance	815	1,153
Security	139	145
Stationery	88	77
Training, seminars and conferences	204	129
Travel and accommodations	954	1,123
Vessels management and staffing	1,452	1,378
Victuals	54	41
Water	54	59
Total suppliers expenses	<u>9,211</u>	<u>9,944</u>

NOTES TO AND FORMING PART OF THE
FINANCIAL STATEMENTS

for the year ended 30 June 2001

	2001 <u>\$'000</u>	2000 <u>\$'000</u>
6. OPERATING EXPENSES – GOODS AND SERVICES (continued)		
6C Depreciation		
Depreciation property, plant, equipment	2,038	1,478
Building and improvements	544	452
Computer equipment	372	184
Library	204	204
Office equipment	24	23
Plant and equipment	533	446
Ships, launches and vessels	269	104
Vehicles	92	65
	<u>2,038</u>	<u>1,478</u>
6D Grants		
Non-profit institutions	162	215
	<u>162</u>	<u>215</u>

The Institute provides grants to various organisations for the purpose of marine science research.

NOTES TO AND FORMING PART OF THE
FINANCIAL STATEMENTS

for the year ended 30 June 2001

	2001 \$'000	2000 <u>\$'000</u>
7. FINANCIAL ASSETS		
7A Cash		
Cash on hand	5	5
Cash at bank	366	521
Deposits at call	<u>134</u>	<u>5</u>
	<u>505</u>	<u>531</u>
7B Investments		
Term Deposits	<u>8,519</u>	<u>12,829</u>
	<u>8,519</u>	<u>12,829</u>
Balance of cash as at 30 June shown in the Statement of Cash Flows	<u>9,024</u>	<u>13,360</u>
7C Receivables		
Goods and services	458	597
Less: Provision for doubtful debts	<u>(3)</u>	<u>(3)</u>
	455	594
Other debtors	<u>1,097</u>	<u>456</u>
Total receivables	<u>1,552</u>	<u>1,050</u>
Receivables (gross) which are overdue are aged as follows:		
Not Overdue	<u>1,468</u>	<u>975</u>
Overdue by:		
- less than 30 days	76	40
- 30 to 60 days	3	35
- 60 to 90 days	<u>8</u>	<u>3</u>
	<u>87</u>	<u>78</u>
Total receivables (gross)	<u>1,555</u>	<u>1,053</u>

NOTES TO AND FORMING PART OF THE FINANCIAL STATEMENTS

for the year ended 30 June 2001

	2001 \$'000	2000 \$'000
8. NON-FINANCIAL ASSETS		
8A Buildings and Improvements		
Buildings and improvements at directors' valuation 30 June 2001	22,034	22,034
Accumulated depreciation	(1,421)	(897)
	<u>20,613</u>	<u>21,137</u>
Buildings and improvements at cost	784	537
Accumulated depreciation	(21)	(3)
	<u>763</u>	<u>534</u>
Total buildings and improvements	<u>21,376</u>	<u>21,671</u>
The directors' valuation of buildings and improvements was based on an independent valuation conducted by Mr M Missingham, AAPI, Certified Practising Valuer No: 1273, Herron Todd White (refer Note 1.14).		
8B Plant and Equipment		
Plant and equipment at independent valuation 30 June 1999	2,782	2,785
Accumulated depreciation	(747)	(374)
	<u>2,035</u>	<u>2,411</u>
Plant and equipment at cost	1,035	716
Accumulated depreciation	(230)	(71)
	<u>805</u>	<u>645</u>
Total plant and equipment	<u>2,840</u>	<u>3,056</u>
Computer equipment at independent valuation 30 June 1999	773	779
Accumulated depreciation	(307)	(154)
	<u>466</u>	<u>625</u>
Computer equipment at cost	1,097	713
Accumulated depreciation	(245)	(30)
	<u>852</u>	<u>683</u>
Total computer equipment	<u>1,318</u>	<u>1,308</u>

NOTES TO AND FORMING PART OF THE
FINANCIAL STATEMENTS

for the year ended 30 June 2001

	2001 <u>\$'000</u>	2000 <u>\$'000</u>
8. NON-FINANCIAL ASSETS (continued)		
8B Plant and Equipment (continued)		
Vehicles at independent valuation 30 June 1999	86	302
Accumulated depreciation	<u>(29)</u>	<u>(57)</u>
	57	245
Vehicles at cost	397	159
Accumulated depreciation	<u>(67)</u>	<u>(8)</u>
	330	151
Total vehicles	<u>387</u>	<u>396</u>
Office equipment at independent valuation 30 June 1999	135	137
Accumulated depreciation	<u>(45)</u>	<u>(23)</u>
	90	114
Office equipment at cost	19	10
Accumulated depreciation	<u>(2)</u>	<u>—</u>
	17	10
Total office equipment	<u>107</u>	<u>124</u>
Ships, launches and vessels at independent valuation 30 June 1999	1,168	1,652
Accumulated depreciation	<u>(239)</u>	<u>(99)</u>
	929	1,553
Ships, launches and vessels at cost	3,858	103
Accumulated depreciation	<u>(101)</u>	<u>(5)</u>
	3,757	98
Total ships, launches and vessels	<u>4,686</u>	<u>1,651</u>
Library books at independent valuation 1 July 1998	3,328	3,328
Accumulated depreciation	<u>(612)</u>	<u>(408)</u>
Total library books	<u>2,716</u>	<u>2,920</u>
Capital work in progress	<u>3,806</u>	<u>2,390</u>
Total plant, equipment and other	<u>15,860</u>	<u>11,845</u>

NOTES TO AND FORMING PART OF THE
FINANCIAL STATEMENTS

for the year ended 30 June 2001

	2001 \$'000	2000 <u>\$'000</u>
8. NON-FINANCIAL ASSETS (continued)		
8C Inventories		
All inventories are current assets.		
Inventories held for sale	52	53
Stores		
Inventories not held for sale (cost)	201	213
	<u>253</u>	<u>266</u>
8D Other Non-Financial Assets		
Work in progress	76	29
Prepayments	139	174
	<u>215</u>	<u>203</u>
8E. Analysis of Property, Plant and Equipment		

TABLE A

Movement summary 2000-2001 for all assets irrespective of valuation basis.

Item	Buildings & Improvements	Total Plant & Equipment	Total
	\$'000	\$'000	\$'000
Gross value as at 1 July 2000	22,571	13,074	35,645
Additions – Purchase of Assets	261	4,707	4,968
Disposals	(14)	(713)	(727)
Capital Work in progress capitalised during the financial year	—	(2,390)	(2,390)
Capital Work in progress accumulated during the financial year	3,798	8	3,806
Gross value as at 30 June 2001	26,616	14,686	41,302
Accumulated Depreciation as at 1 July 2000	900	1,229	2,129
Disposals	(3)	(101)	(104)
Depreciation charge for the year	545	1,496	2,041
Accumulated Depreciation as at 30 June 2001	1,442	2,624	4,066
Net book value as at 30 June 2001	25,174	12,062	37,236
Net book value as at 1 July 2000	21,671	11,845	33,516

NOTES TO AND FORMING PART OF THE
FINANCIAL STATEMENTS

for the year ended 30 June 2001

8. NON-FINANCIAL ASSETS (continued)

8E. Analysis of Property, Plant and Equipment (continued)

TABLE B

Summary of balances of assets at valuation as at 30 June 2001

Item	Buildings & Improvements	Total Plant & Equipment	Total
	\$'000	\$'000	\$'000
As at 30 June 2001			
Gross value	26,616	14,687	41,303
Accumulated Depreciation	1,442	2,625	4,067
Net Book Value	25,174	12,062	37,236
As at 30 June 2000			
Gross value	22,571	13,074	35,645
Accumulated Depreciation	900	1,229	2,129
Net Book Value	21,671	11,845	33,516

TABLE C

Summary of assets under construction as at 30 June 2001

Item	Buildings & Improvements	Total Plant & Equipment	Total
	\$'000	\$'000	\$'000
As at 30 June 2001			
Gross value	3,798	9	3,807
Accumulated Depreciation	—	—	—
Net Book Value	3,798	9	3,807
As at 30 June 2000			
Gross value	547	1,843	2,390
Accumulated Depreciation	—	—	—
Net Book Value	547	1,843	2,390

NOTES TO AND FORMING PART OF THE
FINANCIAL STATEMENTS

for the year ended 30 June 2001

	2001	2000
	<u>\$'000</u>	<u>\$'000</u>
9. PROVISIONS AND PAYABLES		
9A Capital Use Charge	<u>17</u>	<u>3,997</u>
9B Liabilities to Employees		
Salaries and wages	247	259
Annual leave	1,952	1,891
Long service leave	2,564	2,357
Fringe benefit tax	56	10
Sundry	<u>53</u>	<u>48</u>
	<u>4,872</u>	<u>4,565</u>
9C Suppliers		
Creditors	<u>1,202</u>	<u>1,175</u>
	<u>1,202</u>	<u>1,175</u>
9D Consultancies and Grants		
Non-profit institutions	450	567
Profit institutions	37	18
Overseas entities	<u>153</u>	<u>222</u>
	<u>640</u>	<u>807</u>

NOTES TO AND FORMING PART OF THE
FINANCIAL STATEMENTS
for the year ended 30 June 2001

10. EQUITY

Item	Capital		Accumulated Results		Asset Revaluation Reserve		Total Reserves		TOTAL EQUITY	
	2001 \$'000	2000 \$'000	2001 \$'000	2000 \$'000	2001 \$'000	2000 \$'000	2001 \$'000	2000 \$'000	2001 \$'000	2000 \$'000
Balance 1 July	21,890	21,890	1,577	(1,502)	14,384	14,384	14,384	14,384	37,851	34,772
Operating result	—	—	4,718	7,076	—	—	—	—	4,718	7,076
Equity Appropriation: Capital (refer Note 5A)	3,486	—	—	—	—	—	—	—	3,486	—
Capital Use Charge paid 00/01	—	—	(4,654)	(3,997)	—	—	—	—	(4,654)	(3,997)
Capital Use Charge refund 99/00	—	—	148	—	—	—	—	—	148	—
Balance 30 June	25,376	21,890	1,789	1,577	14,384	14,384	14,384	14,384	41,549	37,851

NOTES TO AND FORMING PART OF THE
FINANCIAL STATEMENTS

for the year ended 30 June 2001

	2001	2000
	<u>\$'000</u>	<u>\$'000</u>

11. CASH FLOW RECONCILIATION

Reconciliation of operating surplus to net cash provided by operating activities

Operating Surplus	4,718	7,076
Depreciation	2,038	1,478
Loss on disposal of non-current assets	371	5
Profit on disposal of non-current assets	(29)	—
(Increase)/Decrease in receivables	139	(219)
(Increase)/Decrease in accrued revenue	(641)	(196)
(Increase)/Decrease in inventory	13	6
(Increase)/Decrease in other assets	(12)	(22)
Increase/(Decrease) in employees provisions	307	321
Increase/(Decrease) in suppliers payable	26	674
Increase/(Decrease) in other creditors	(167)	(307)
Net cash provided from operating activities	<u>6,763</u>	<u>8,816</u>

12. EXTERNAL FINANCING ARRANGEMENTS

The Institute has guarantee arrangements with the Commonwealth Bank of Australia as follows:

Total facilities	1,514	594
Amount of facility used as at 30 June	(164)	(244)
Facility available	<u>1,350</u>	<u>350</u>

The facilities are guarantees provided to external parties which do not appear on the Statement of Financial Performance.

NOTES TO AND FORMING PART OF THE FINANCIAL STATEMENTS

for the year ended 30 June 2001

	2001 \$	2000 \$
13. REMUNERATION OF DIRECTORS (MEMBERS OF COUNCIL)		
Aggregate amount of superannuation payments in connection with the retirement of directors	25,530	26,822
Other remuneration received or due and receivable by directors of the Institute	<u>249,557</u>	<u>334,341</u>
Total remuneration received or due and receivable by directors of the Institute	<u>275,087</u>	<u>361,163</u>
The number of directors of the Institute included in these figures are shown below in the relevant remuneration bands		
	Number	Number
<input type="checkbox"/> \$10,001 – 20,000	4	4
<input type="checkbox"/> \$20,001 – \$30,000	1	1
<input type="checkbox"/> \$30,001 – \$40,000	—	1
<input type="checkbox"/> \$60,001 – \$70,000	1	—
<input type="checkbox"/> \$120,001 – \$130,000	1	—
<input type="checkbox"/> \$250,001 – \$260,000	—	1
	<u>7</u>	<u>7</u>

The Directors (members of council) of the Australian Institute of Marine Science are appointed by the Governor General. The Director (CEO) is appointed by the Governor General on the recommendation of the Board of Directors (Council).

14. RELATED PARTY DISCLOSURES

Directors of the Institute

The Directors (Councillors) of the Institute during the year were:

- ☐ Mr A E de N Rogers (Chairman)
- ☐ Mr B McKay
- ☐ Dr W Craik
- ☐ Mr B Guthrie
- ☐ Prof M Sleigh
- ☐ Dr J Bell (Resigned 20 October 2000)
- ☐ Prof S Hall (Appointed 14 November 2001)

The aggregate remuneration of Directors is disclosed in Note 13.

NOTES TO AND FORMING PART OF THE
FINANCIAL STATEMENTS

for the year ended 30 June 2001

14. RELATED PARTY DISCLOSURES (continued)

Loans to Directors and Director-related entities

There were no loans made to any Director or Director-related entities during the period.

Other Transactions with Directors or Director-related entities

There were no other transactions with Directors or Director-related entities during the period.

2001	2000
<u>\$</u>	<u>\$</u>

15. REMUNERATION OF OFFICERS

The aggregate amount of total remuneration of Officers 427,837 401,343

The number of Officers who received or were due to receive total remuneration of \$100,000 or more:

	Number	
<input type="checkbox"/> \$120,001 – \$130,000	—	2
<input type="checkbox"/> \$130,001 – \$140,000	2	—
<input type="checkbox"/> \$140,001 – \$150,000	—	1
<input type="checkbox"/> \$150,001 – \$160,000	<u>1</u>	<u>—</u>
	<u>3</u>	<u>3</u>

The Officer remuneration includes all officers concerned with or taking part in the management of the economic entity during 2000-2001 except the Director. Details in relation to the Director have been incorporated into Note 13 – *Remuneration of Directors (members of council)*.

2001	2000
<u>\$</u>	<u>\$</u>

16. REMUNERATION OF AUDITORS

Remuneration to the Auditor-General for auditing the financial statements for the reporting period.

41,150 38,500

No other services were provided by the Auditor-General during the reporting period.

NOTES TO AND FORMING PART OF THE
FINANCIAL STATEMENTS
for the year ended 30 June 2001

17. FINANCIAL INSTRUMENTS

Table A. Terms, Conditions and Accounting Policies

Financial Instruments	Notes	Accounting policies and methods (Including recognition criteria and measurement basis)	Nature of underlying instrument (Including significant terms and conditions affecting the amount, timing and certainty of cash flows)
Financial Assets	7	Financial assets are recognised when control over future economic benefits is established and the amount of the benefit can be reliably measured.	
Deposits at Call (Cash)	7A	Deposits are recognised at their nominal value. Interest is credited as it accrues.	
Receivables for Goods and Services	7C	These receivables are recognised at the nominal amounts due less any provisions for bad and doubtful debts. Provisions are made when collection of the debt is judged to be less rather than more likely.	Credit terms are 30 days (1999-2000 30 days)
Term Deposit	7B	The deposit is recognised at cost. Interest is accrued as it is earned	Various term deposits are with the Institute's banks, with a maximum maturity of seven months from June 30 2001. The term deposits earned an average annual interest rate of 6.77%
Financial Liabilities		Financial liabilities are recognised when a present obligation to another party is entered into and the amount of the liability can be reliably measured.	
Trade Creditors	9	Creditors and accruals are recognised at their nominal amounts, being the amounts at which the liabilities will be settled. Liabilities are recognised to the extent that the goods or services have been received (and irrespective of having been invoiced).	Settlement is usually made based on the settlement period established for individual trade creditors, being 7, 14 or 30 days.

NOTES TO AND FORMING PART OF THE
FINANCIAL STATEMENTS
for the year ended 30 June 2001

17. FINANCIAL INSTRUMENTS (continued)

TABLE B. Interest Rate Risk

Financial Instrument	Notes	Floating Interest Rate	Fixed Interest Rate 1 Year or less	Non-Interest Bearing	Total	Weighted Average Effective Interest Rate
		00-01 99-00 \$'000 \$'000	00-01 99-00 \$'000 \$'000	00-01 99-00 \$'000 \$'000	00-01 99-00 \$'000 \$'000	00-01 99-00 % %
Financial Assets (Recognised)						
Cash at Bank	7A	366 521	— —	— —	366 521	4.53 3.60
Cash on Hand	7A	— —	— —	5 5	5 5	n/a n/a
Deposits at Call	7A	134 5	— —	— —	134 5	5.25 5.00
Receivables and Accrued Income	7C,7D	— —	— —	1,552 1,053	1,552 1,053	n/a n/a
Term Deposit	7B	— —	8,519 12,829	— —	8,519 12,829	6.77 5.71
Total Financial Assets (Recognised)		500 526	8,519 12,829	1,557 1,058	10,576 14,413	— —
Total Assets		— —	— —	— —	48,280 48,395	— —
Financial Liabilities (Recognised)						
Trade Creditors	9C	— —	— —	1,202 1,175	1,202 1,175	n/a n/a
Total Financial Liabilities (Recognised)		— —	— —	1,202 1,175	1,202 1,175	— —
Total Liabilities		— —	— —	— —	6,731 10,544	— —

NOTES TO AND FORMING PART OF THE FINANCIAL STATEMENTS

for the year ended 30 June 2001

17. FINANCIAL INSTRUMENTS (continued)

TABLE C. Net Fair Values of Financial Assets and Liabilities

		2000-2001		1999-2000	
		Total Carrying Amount \$'000	Aggregate Net Fair Value \$'000	Total Carrying Amount \$'000	Aggregate Net Fair Value \$'000
	Note				
Financial Assets					
Cash at bank	7A	366	366	521	521
Cash on hand	7A	5	5	5	5
Deposits at call	7A	134	134	5	5
Receivables and accrued income	7C, 7D	1,555	1,555	1,053	1,053
Term deposits	7B	8,519	8,519	12,829	12,829
Total Financial Assets		10,579	10,579	14,413	14,413
Financial Liabilities (Recognised)					
Trade creditors	9C	1,202	1,202	1,175	1,175
Total Financial Liabilities		1,202	1,202	1,175	1,175

Financial Assets

The net fair values of cash, deposits on call and non-interest bearing monetary financial assets approximate their carrying amounts.

The net fair value of term deposits are based on discounted cash flows using current interest rates for assets with similar risk profiles.

Financial Liabilities

The net fair values for trade creditors, which are short term in nature, approximate their carrying amounts.

Credit Risk Exposure

The Institute's maximum exposure to credit risk at the reporting date in relation to each class of recognized financial asset is the carrying amount of those assets as indicated in the Statement of Financial Position.

The Institute has no significant exposure to any concentrations of credit risk. All figures for credit risk referred to do not take into account the value of any collateral or other security.

NOTES TO AND FORMING PART OF THE
FINANCIAL STATEMENTS*for the year ended 30 June 2001*

	<u>2001 Number</u>	<u>2000 Number</u>
18. EMPLOYEE EQUIVALENTS		
The number of full-time equivalents employed for the year	156	160

SUPPLEMENTARY FINANCIAL INFORMATION

for the year ended 30 June 2001

UNAUDITED

REVENUE COMPARISON

	2001	2000	1999	1998	1997
	\$'000	\$'000	\$'000	\$'000	\$'000
Consultancies and grants	4,401	4,623	4,889	5,284	5,494
Interest	860	626	498	294	327
Other revenue	169	91	70	109	44
Sub-total	5,430	5,340	5,457	5,687	5,865
Appropriation operating	16,788	16,703	16,506	16,388	16,445
Appropriation asset replacement	1,148	1,439	—	—	—
Appropriation capital & infrastructure	3,486	2,994	1,996	—	—
Appropriation Capital use charge	4,635	3,817	—	—	—
Total appropriation	26,057	24,953	18,502	16,388	16,445
Abnormal income	—	—	3,328	—	—
Total Revenue	31,487	30,293	23,959	22,075	22,310
External earnings ratio	20%	20%	23%	24%	25%

EXTERNAL EARNINGS TARGET

In 1990 the Commonwealth Government set external earnings targets for the three science agencies (AIMS, CSIRO and ANSTO). The specific aim of the targets was to encourage closer relations between the researchers, industry and other potential users. It was foreseen that this would, among other things, lead to benefits arising from research being more available to Australian Industry. AIMS' external earnings target is 20 percent of total revenue adjusted for unrelated revenue.

The actual external earnings ratio has been calculated by excluding interest and other revenue from the external sub-total and excluding capital & infrastructure and capital use charge from the appropriation total.

SUPPLEMENTARY FINANCIAL INFORMATION

for the year ended 30 June 2001

UNAUDITED

SOURCE OF EXTERNAL EARNINGS BY INDUSTRY

	2001	2000	1999	1998
	\$'000	\$'000	\$'000	\$'000
Australian government	427	458	759	874
Australian joint government/industry	1,925	2,200	2,069	2,271
International governments	742	477	378	218
Australian industry	612	895	992	1,505
International industry	155	581	679	416
International joint government/industry	2	12	12	—
Book sales	538	—	—	—
	4,401	4,623	4,889	5,284

COOPERATIVE RESEARCH CENTRE (CRC)

In 1994 the Institute entered into agreement with two Cooperative Research Centres, Ecologically Sustainable Development in the Great Barrier Reef (known as CRC Reef) and CRC Aquaculture.

Comparison of contribution resulting from CRCs are:

	2001	2000	1999	1998	1997
	\$'000	\$'000	\$'000	\$'000	\$'000

AIMS contribution in kind to the two CRCs were:

CRC Reef	2,885	2,147	1,605	1,499	2,208
CRC Aquaculture	141	499	511	543	479

Research income received from CRCs were:

CRC Reef	1,189	1,090	981	1,260	1,470
CRC Aquaculture	74	336	313	295	323

EMPLOYEE STAFF YEARS

Comparison of staff years for the last five years:

	2001	2000	1999	1998	1997
Science appropriation	81.50	81.20	74.00	68.81	74.32
Science external	11.10	16.90	29.70	39.16	35.45
Science	92.60	98.10	103.70	107.97	109.77
Support	63.10	61.60	58.70	58.14	61.78
Total Institute	155.70	159.70	162.40	166.11	171.55

SUPPLEMENTARY FINANCIAL INFORMATION

for the year ended 30 June 2001

UNAUDITED

COST OF OUTPUT BY RESEARCH PROJECTS

	2000-2001				
	Variable	Salaries	Fixed	Overheads	Total
	\$'000	\$'000	\$'000	\$'000	\$'000
Predicting climate impacts upon marine ecosystems					
Appropriation	1,016	1,346	205	1,896	4,463
External	176	253	39	356	824
Total	1,192	1,599	244	2,252	5,287
Exploring and conserving marine biodiversity					
Appropriation	872	855	130	1,203	3,060
External	757	158	24	223	1,162
Total	1,629	1,013	154	1,426	4,222
Sustaining marine living resources					
Appropriation	934	1,057	161	1,488	3,640
External	314	90	14	126	544
Total	1,248	1,147	175	1,614	4,184
Measuring human impacts in coastal marine ecosystems					
Appropriation	1,020	1,420	217	1,999	4,656
External	277	197	30	277	781
Total	1,297	1,617	247	2,276	5,437
Deriving benefits from marine biotechnology					
Appropriation	505	1,367	208	1,925	4,005
External	250	93	14	132	489
Total	755	1,460	222	2,057	4,494
Total summary					
Appropriation	4,347	6,045	921	8,511	19,824
External	1,774	791	121	1,114	3,800
Total	6,121	6,836	1,042	9,625	23,624

Science projects were restructured in the current year, with eight projects consolidated to five, comparison of individual projects to previous year is not possible.

NB: The Corporate and Support Section expenditure has been apportioned to Research Projects in proportion to salary incurred by each project and it is shown as overheads.

APPENDICES

Appendix 1 — Freedom of Information Statement

The *Freedom of Information Act 1982* (FOI Act) requires each Commonwealth 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 this annual report, particularly in the section About the Australian Institute of Marine Science (pp. 1-6) and in the Report of Operations: Part C – Institute Structure and Governance (pp. 37-48).

Documents Available for Inspection

Copies of the Institute's publications and reports are available on request (see table below), generally free of charge except for final project reports. Some other information may be subject to assessment of access for such matters as commercial confidentiality or personal privacy.

Facilities for reviewing documents are provided at AIMS. The Institute's publications are on display for the public and may be purchased through the AIMS Bookshop. General inquiries 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 Qld 4810
Telephone: (07) 4753 4319
Facsimile: (07) 4772 5852

Strategic Directions	Files, publication*
Research Plan	Files, publication*
Annual Operational Plan	Files, unpublished document
Project details	Database, 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 document
Mailing lists	Database

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

Appendix 2 — Triennium Agreement

Performance Indicators

In 1995, AIMS began to trial a set of Performance Indicators as a means of demonstrating the Institute's linkages with users of its research. These performance indicators were established to ensure that external earnings targets did not distort the efforts of the Science Authorities (AIMS, ANSTO and CSIRO) and limit them to a narrow range of their overall functions.

A refined set of indicators was agreed as part the 2000-2003 Triennium Resource Agreement signed between AIMS and the Ministers of Finance and Administration and Industry, Science and Resources. The current Agreement was signed on 7 November 2000. Reporting against these indicators is provided in Part B of the Report of Operations (pp. 27-36).

The indicators included in the 2000-2003 Triennium Resource Agreement are consistent with the Institute's legislative foundation and mission and are a measure of the quality and quantity of the Institute's agreed output: ***Research products and services for users of marine resources***. The indicators also reflect the effectiveness of AIMS output, particularly Adoption by Users of Practices, Instruments and Processes Developed by AIMS (Number 7 below).

Indicators in the 2000-2003 Resource Agreement are grouped into areas that reflect major objectives or strategies of government-funded R&D.

☐ Research and development

To maintain and encourage the highest level of research (both at the national and international levels) that will meet the future needs of industry and other users, and ensure the effective and

efficient use of resources to conduct that research.

☐ Liaison and collaboration

To encourage the transfer of research outputs through liaison and collaboration with industry, government and other users (including scientific and general communities).

☐ Technology transfer and commercialisation

To encourage and facilitate the application of knowledge and technology developed by the Agency by industry and other users, for the maximum long-term benefit to Australia.

☐ Customer satisfaction

To ensure a high level of customer satisfaction.

Achievements against these broad objectives are a measure of the effectiveness of AIMS activities during the reporting period.

Indicators of performance agreed for this triennium contribute to our agreed outcome:

Enhanced scientific knowledge supporting the protection and sustainable development of Australia's marine resources.

I. Research and development

- 1) Shift of Resources to Agreed Priority Areas
- 2) Scientific Publications
 - a) Publication level measured by number and categorised by types of publication.
 - b) Retrospective citation analysis using Science Citation Index (five yearly).
 - c) Number of patents held reported by the number of separate technologies.
- 3) Other e.g. Distinguished awards, Major prizes, Nomination as host agency by internationally recognised researchers.

II. Liaison and collaboration

- 4) Contribution to Australia's Research Future Through Teaching and Training
 - a) Number of postgraduate students supervised by AIMS.
 - b) Number of conjoint teaching positions undertaken with universities.
- 5) Coordination of research and linkages with decision-making bodies
 - a) Number of collaborations.
 - b) Input to policy making and provision of advice.

III. Technology transfer and commercialisation

- 6) External Earnings for Research Services, Consistent with the Institute's Mission
- 7) Adoption by Users of Practices, Instruments and Processes Developed by AIMS
- 8) Joint ventures and strategic alliances
- 9) Spin-off businesses

IV. Customer satisfaction

- 10) Contracts Successfully Completed

Appendix 3 — Publications List for 2000

Theses

- Dommissie M. The potential nutritional value of detritus fluxing onto coral reefs. PhD Thesis, James Cook University, Townsville.
- Johnson JE. The effect of elevated local hydrocarbon concentrations on sediment microbial communities in bioherms on Australia's northwest shelf. MSc Thesis. James Cook University, Townsville.
- McIlwain J. Replenishment patterns of coral reef fish to Ningaloo Reef, Western Australia. PhD Thesis, University of Western Australia.
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- Webster NS. The microbial ecology of the Great Barrier Reef sponge *Rhopaloeides odorabile*. PhD Thesis, James Cook University, Townsville.
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Appendix 4 — AIMS Scientists' Membership of External Committees and NGOs

	97/98	98/99	99/00	00/01
International Forums				
Biodiversity Convention Scientific Committee (Australian Representative)			✓	
Coral Reef Degradation in the Indian Ocean (CORDIO) Project, Steering Committee			✓	✓
Coral Reef Research Advisory Committee, RIS Japan			✓	✓
Diversitas – Scientific Steering committee	✓	✓	✓	
GMS Pathfinder Committee (NASA)	✓	✓	✓	✓
ICLARM, Aquatic Environments Program, Scientific Advisory Committee	✓			
IGOS Coral Reef Theme Committee				✓
International Association for Genetics in Aquaculture (Executive)		✓	✓	
International Coral Reef Initiative – Co-ordination and Planning Committee	✓	✓	✓	✓
International Society for Reef Studies (Executive)		✓	✓	✓
IUBS, Committee on Reproductive Biology in Aquaculture		✓	✓	
Packard Foundation, Biodiversity Project for Western Pacific, Steering Committee	✓	✓	✓	✓
Royal Society of New Zealand Standing Committee for Environmental Research	✓	✓	✓	✓
SCOR Working Group on Coral Reefs and Global Climate Change (finished 1999)		✓	✓	
SCOR Working Group on Muddy Coasts and Sea Level Rise		✓	✓	
Steering Committee, EURESCO Conferences on Marine Coastal Biodiversity			✓	
National Research Council Committee on Effect of Trawling on Seabed, US NAS				✓
Domestic Forums				
AATSR, Scientific Advisory Group (ESA)	✓	✓	✓	✓
Australian Academy of Sciences, CLIVAR sub-committee	✓	✓	✓	✓
Australian Academy of Sciences, Oceans Board		✓		
Australian Academy of Technological Sciences and Engineering (Councillor)				✓
Australian Coral Reef Society (Executive)	✓	✓	✓	✓
Australian Ocean Colour Working Group	✓	✓	✓	✓
Australian National Sportfishing Association (ANSA), Scientific Research Foundation	✓	✓	✓	✓
Australian Research Council (ARC)			✓	
Commonwealth Committee for Atmospheric and Ocean Studies	✓	✓	✓	
Commonwealth Marine Protected Areas Committee	✓	✓	✓	✓
Commonwealth IDC on access to biodiversity and benefit sharing	✓	✓	✓	✓
Commonwealth State of the Environment Report, Steering Committee		✓	✓	✓

CRC Reef Scientific Advisory Group	✓	✓	✓	✓
CRC Reef Task Review Committee	✓	✓	✓	✓
Dry Tropics Aquaculture Advisory Group		✓		
Environment Australia Biodiversity, Access and Benefit Sharing, Review Committee			✓	✓
Fisheries Research and Development Corporation	✓	✓	✓	
GBRMPA Representative Areas Program (working group)		✓	✓	✓
GBRMPA Fisheries Research Advisory Committee			✓	✓
GBRMPA Water Quality and Coastal Research Advisory Committee			✓	✓
Industry Commission on Ecologically Sustainable Land Management		✓		
Industry Research and Development Board (IR&D Board)			✓	
Marine Science Advisory Group	✓	✓	✓	✓
National facility (ORV Franklin), Scientific Advisory Committee		✓	✓	✓
National Oceans Advisory Group		✓	✓	
QDNR Water Allocation Management Plan, Technical Advisory Panel		✓	✓	✓
QFS – HarvestMac (science adviser)	✓	✓	✓	✓
QFS – ReefMac (science adviser)	✓	✓	✓	✓
QFS – Townsville ZAC (science adviser)	✓	✓	✓	✓
Regional Consultative Group for the Wet Tropics Region Coastal Management Plan		✓		
Sugar Industry Infrastructure Review		✓		
Task Force for Marine Protected Areas	✓	✓	✓	✓
WA Marine Parks and Reserves Scientific Advisory Committee			✓	✓
WA Dept of Environmental Protection, NWS JEMS Steering Committee		✓	✓	✓
WA Dept of Environmental Protection-CSIRO Marine, NWS JEMS Technical Advisory Committee				✓
WA Physical Oceanographic Coordinating Group (WAPOCG)		✓	✓	✓

Appendix 5 — The Institute's Legislative Foundation and the Exercise of 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* (AIMS Act).

The Institute is responsible to the Minister for Industry, Science and Resources.

Functions

The functions of AIMS, as defined in Section 9 of the AIMS Act, are to:

- (a) Carry out research and development in relation to marine science and marine science technology;
- (b) Encourage and facilitate the application and use of the results of research and development of that kind;
- (c) Arrange for carrying out research and development of that kind;
- (d) Co-operate with other institutions and persons in carrying out research and development of that kind;
- (e) Provide any other institution or person with facilities for carrying out research and development of that kind;
- (f) Collect and disseminate information relating to marine science and marine technology and, in particular, to publish reports and other papers;
- (g) Provide and sell goods (whether produced by the Institute or purchased or otherwise acquired by the Institute) and services in connection with matters related to its research and development activities in marine science and marine technology;
- (h) Make available to others, on a commercial basis, the knowledge, expertise, equipment and facilities of the Institute;
- (i) Do anything incidental or conducive to the performance of any of the functions in paragraphs (a) to (h).

Powers of the Institute

Subject to the AIMS Act, the Institute is empowered under Section 10 of the Act 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 technology.

Ministerial Powers of Direction

Under Section 10 (1) of the *Australian Institute of Marine Science 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. Determining terms and conditions of Director's leave of absence (Section 25(2));
- 6. Approving the Director to undertake paid employment outside the duties of his or her office (Section 29(1) and (2));
- 7. Appointing a person to act as Director and determining his or her terms and conditions of appointment (Section 30);
- 8. Approving the appointment of staff who are not Australian citizens (Section 33(2));
- 9. Approving the Institute to enter into a contract involving the payment of Institute funds of an amount exceeding \$100,000 (Section 42);
- 10. Appointing a Committee to assist Council and approving the terms and conditions of members (Section 45);
- 11. Approving the Institute to make available any discovery, invention or improvement in lieu of payment of fees or royalties (Section 48);
- 12. Approving the payment of bonuses for discoveries and inventions by officers and employees (Section 49).

Appendix 6 — Acronyms and Glossary

Acronyms

AAUQ	Associate Accountant of the University of Queensland	FRACI	Fellow of the Royal Australian Chemical Institute
ACRS	Australian Coral Reef Society	FTSE	Fellow of the Academy of Technological Sciences and Engineering
AGSO	Australian Geological Survey Organisation – Geoscience Australia	GAICD	Graduate of the Australian Institute of Company Directors
AIMS	Australian Institute of Marine Science	GBR	Great Barrier Reef
AMJ	Australian Marine Jurisdiction	GBRMPA	Great Barrier Reef Marine Park Authority
AMPTO	Association of Marine Park Tourism Operators	GBRWhA	Great Barrier Reef World Heritage Area
ANSTO	Australian Nuclear Science and Technology Organisation	GCRMN	Global Coral Reef Monitoring Network
ANU	Australian National University	ICLARM	International Centre for Living Aquatic Resource Management
APPEA	Australian Petroleum Production and Exploration Association	IDC	Inter-Departmental Committee
CLIVAR	Climate Variability and Predictability (part of World Climate Research Program)	ITAG	Innovation Technology Advisory Group
CMR	CSIRO Marine Research	IUBS	International Union for Biological Sciences
CompIEAust	Companion of the Institution of Engineers, Australia	JCU	James Cook University
CRC	Cooperative Research Centre	MAICD	Member of the Australian Institute of Company Directors
CRC Reef	CRC for the Great Barrier Reef World Heritage Area	NGO	Non Government Organisation
CSIRO	Commonwealth Scientific and Industrial Research Organisation	NRSMPA	National Representative System of Marine Protected Areas
DIVERSITAS	IUBS/SCOPE/UNESCO Program on Biological Diversity	NOAA	National Oceanic and Atmospheric Administration
EEO	Equal Employment Opportunity	OH&S	Occupational Health and Safety
EEZ	Exclusive Economic Zone	QSIA	Queensland Seafood Industry Association (formerly Queensland Commercial Fishermen’s Organisation)
ENSO	El Niño Southern Oscillation (see El Niño in the Glossary of Terms)	QDPI	Queensland Department of Primary Industries
FAICD	Fellow of the Australian Institute of Company Directors	QFS	Queensland Fisheries Service
FCA	Fellow of Chartered Accountants	ROV	Remotely Operated Vehicle
FIEAust	Fellow of the Institution of Engineers, Australia	SCOR	Scientific Committee on Reefs
FOI	Freedom of Information	UNESCO	United Nations Educational, Scientific and Cultural Organisation
		WA	Western Australia

Glossary of Terms

Ascidians: sessile filter-feeding animals, commonly called sea squirts.

Agrichemical: artificially produced chemical used in modern, intensive agriculture systems.

Bioactive: biochemical isolated from an organism with useful activity (e.g. anti-tumour, anti-viral, or herbicidal activity).

Biota: all the organisms at a given area.

Biodiscovery: when the collection and analysis of organic samples seeking bioactive compounds.

Biodiversity: the variety of all life forms, including the different plants, animals and micro-organisms, the genes they contain, and the ecosystems they form.

Biogeography: relating to large regions with distinct landscapes/seascapes, flora and fauna.

Biotechnology: any technological application that uses biological systems, living organisms, or derivatives thereof, to make or modify products or processes for specific use.

Broodstock: mature spawners producing juveniles for aquaculture.

Biosynthesis: the manufacture of a chemical by a biological system.

Bioindicators: biological indicators that can be used to assess environmental quality and/or physiological stress.

Biomass: the total mass of material in an organism or group of organisms, particularly those at a given level in a food chain.

Database: data or information organised in categories to facilitate retrieval and analysis, now commonly in electronic form.

Ecosystem: biological communities and their non-living environment interacting as a functional unit.

El Niño: the extensive warming of the central and eastern Pacific that leads to a major shift in weather patterns across the Pacific. In Australia (particularly eastern Australia), El Niño events are associated with an increased probability of drier conditions.

Greenhouse (effect): the trapping of the sun's warmth in the lower atmosphere of the earth by an increase in pollutants such as carbon dioxide and methane.

In situ: in the original location.

La Niña: the extensive cooling of the central and eastern Pacific Ocean – the opposite of El Niño. In Australia (particularly eastern Australia), La Niña events are associated with increased probability of wetter conditions.

Marine pollution: the harmful introduction by humans of substances or energy into the marine environment.

Modelling: numerical techniques and computer technology used to develop a schematic description of a system or phenomenon that accounts for its known properties and can be used for further study of its characteristics.

Monitoring: routine counting, testing or measuring of environmental factors or biota to determine their status or condition and to assess changes over time.

Outcome: the result, impact or consequences of actions by AIMS on the community.

Primary productivity: the formation of organic matter from inorganic constituents, usually through photosynthesis.

Recruitment: the replenishment of a population by the addition of new members.

Output: the goods and services produced by AIMS.

Strategic basic research: experimental and theoretical work undertaken to acquire knowledge directed towards specified broad areas in the expectation of useful discoveries. It provides the broad base of knowledge necessary for the practical solution of recognised problems (Industry Commission definition, 1994)

Upwelling: the rise to the surface of cold nutrient-rich water from ocean depths.

INDEXES

Compliance Index

This Annual Report has been prepared using the *Commonwealth Authorities and Companies Orders 1998*. Some of the items included in the *Requirements for Departmental Annual Reports* (updated May 1999) which is issued by the Department of the Prime Minister and Cabinet have been included where they were relevant and improved the access and readability of the report.

Alphabetical index	106
Audit Committee	41
Certification	20
Compliance index	105
Contact details	ii
Council members (Directors)	37
Customer Service charter	48
Developments since the end of the financial year	35
Enabling legislation and responsible Minister	37
Financial statements	49
Freedom of Information (FOI)	48
Functions of AIMS	101
Glossary	103
Governance	44
Indemnities and insurance policies for officers	45
Judicial decisions and reviews by outside bodies	45
Letter of transmission	iii
Ministerial directions	37
Mission	1
Occupational Health and Safety (OH&S)	47
Operational and financial results	27
Outline of structure	41
Performance Indicators	5, 27, 88
Powers of the Institute (Appendix 5)	101
Review of Operations and future prospects	21
Scientific publications	27
Social justice and equity	46
Staff Consultation	47
Staffing Overview	42
Table of Contents	v
Workplace Diversity (see Social Justice and Equity)	46

Alphabetical Index

AIMS Council	2, 19, 21, 23, 25, 37, 39, 40, 41, 44, 45, 78, 88, 102
AMRAD Corporation Ltd	64
Antioxidant	16, 90
Apache Oil Company	97
Association of Marine Park Tourist Operators (AMPTO)	10, 31
Audit Committee	41, 44
AustraliaQuest	33
Australia's Marine Science and Technology Plan	2, 21
Australia's Ocean Policy	21
Australian Petroleum Production and Exploration Association (APPEA)	38
Benefit sharing	9
Clients	5
Climate change	8, 27, 31
Collaboration	8, 16, 21, 28, 31, 33, 88, 89
Compliance Index (Appendix 1)	105
Contamination	10, 11
Coral Reef Symposium	7, 10, 28, 32, 33
<i>Corals of the World</i>	9, 29, 33, 91
Corporate Governance	44, 45
Council	37
CRC Aquaculture	85
CRC for the Great Barrier Reef World Heritage Area	6, 24
CRC Reef	7, 8, 10, 11, 12, 24, 25, 31, 33, 56, 85
Crown-of-thorns starfish	10, 93
CSIRO Marine Research (CMR)	24, 100
Customer service charter	48
Currents	12, 32, 95, 97
Department of Industry, Science and Resources	6, 39
Environmental matters	48
Equal Employment Opportunity (EEO)	46
Exclusive Economic Zone (EEZ)	2, 9, 15, 21
Executive Committee	39, 42, 44
External earnings	34, 84, 85, 88, 89
Financial Statements	49
Fisheries Research and Development Corporation (FRDC)	15, 17, 100
Food chains	13, 16
Freedom of Information (FOI)	iv, 48, 87
Freshwater inputs	13
Freshwater influences	11
Functions of AIMS (Appendix 5)	101
Great Barrier Reef Marine Park Authority (GBRMPA)	8, 24, 31, 32, 33, 38, 97, 100
Herbicides	16, 22, 93
Infrastructure	22, 34, 66, 84

Institute structure	37, 41, 87
ITOCHU	24
James Cook University (JCU)	13, 16, 30, 31, 33, 35, 90
Land use impacts	11
Ministerial Powers of Direction (Appendix 5)	102
Mission	1, 44, 45, 88, 89
Monitoring	7, 8, 10, 11, 15, 25, 32
Nautronix Pty Ltd	35
NOAA	24, 31
Nufarm Australia Ltd	16, 35
NW Cape	14
Occupational Health and Safety (OH&S)	47
<i>Oceanographic Processes of Coral Reefs</i>	18, 33
Overview of performance	iv, 4, 5, 22, 27, 88
Paralytic shellfish poisoning	16, 30, 93
Partnerships	24, 31, 34
Patents	29, 88
Pearl oyster	15, 96
Performance indicators	27
Performance Planning and Reporting	4
Plans for the future	25
Powers of the Institute (Appendix 5)	101
Prawn domestication	3, 16, 32
Queensland Department of Primary Industries (QDPI)	31, 33
Remote sensing	8, 12, 13
Research Focus	2
Deriving benefits from marine biotechnology	3
Exploring and conserving marine biodiversity	2
Measuring human impacts in coastal marine ecosystems	3
Predicting climate impacts upon marine ecosystems	2
Sustaining marine living resources	3
Research Approach	4
Research Plan	iv, 2, 4, 7, 25, 27, 33, 87
<i>Review of Marine Research in Tropical Australia</i>	21, 35
Rock lobster	15, 23, 96
<i>RV Cape Ferguson</i>	22, 23, 26, 42
<i>RV The Harry Messel</i>	26, 42
<i>RV Lady Basten</i>	22, 42
Scientific publications	4, 22, 28, 88
Sea cucumbers	15
Sediment	2, 11, 12, 13, 14, 31, 32
Social Justice and Equity	46
Sponges	14, 17, 90, 95
Staff	28, 30, 31, 42, 45, 46, 47, 102
Strategic Directions	iv, 2, 4, 5, 45, 87

Strategic Directions (AIMS research)	
Ecologically sustainable development	2, 5
Marine biodiversity	2, 5
Marine living resources	2, 5
Technological innovation	2, 5
The ocean environment	2, 5
Sunscreen Technologies Pty Ltd	35
Sustainable aquaculture	5, 18
Teaching and training	30, 89
Technology Advisory Group (ITAG)	24
Trepang	15
Triennium Agreement Performance Indicators (Appendix 2)	88
WetPC Pty Ltd	34, 35
Wonky holes	13
Woodside Energy Pty Ltd	14, 97
Workplace Diversity (see Social Justice and Equity)	46