

Update

Australasian  
Centre of Excellence

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# Building scientific capacity and management capability

## Understanding an essential asset

The coral reefs of the Australasian region are highly significant resources. They are essential to the health of the regional economy, due to the fishing, tourism and protection they provide to coastal communities. The Great Barrier Reef underpins more than \$4 billion of economic activity each year. Within the larger Australasian region, coral reefs are critical platforms that support tens of millions of people through artisan fisheries and the subsistence gathering of resources.

Like reefs in most parts of the world, coral reefs within the Australasian region are under pressure from such factors as declining water quality, over-exploitation and climate change. Linking regions that face similar types of threats is one of the objectives of the Australasian CoE. This sharing of ideas and resources will allow for better management of coral reefs not only in the Great Barrier Reef but also for those reefs adjacent to developing countries. Many of the challenges facing reefs worldwide are being researched both in Australia and in regions outside the Great Barrier Reef.



## Supporting research, training partnerships

The Australasian CoE is linking the advanced infrastructure and intellectual capital available in Australia with the research projects and monitoring and assessment programs already in place in the larger region, in order to extend the knowledge base and management capabilities for coral reefs. This partnership advances the aim of the Australasian CoE to become a regional knowledge centre, as well as supporting regional collaborations in research and training.



The Coral Reef Targeted Research & Capacity Building for Management Program (CRTR) is a leading international coral reef research initiative that provides a coordinated approach to credible, factual and scientifically-proven knowledge for improved coral reef management.

The CRTR Program is a proactive research and capacity building partnership that aims to lay the foundation in filling crucial knowledge gaps in the core research areas of Coral Bleaching, Connectivity, Coral Diseases, Coral Restoration and Remediation, Remote Sensing and Modeling and Decision Support.

Each of these research areas are facilitated by Working Groups underpinned by the skills of many of the world's leading coral reef researchers. The CRTR also supports four Centers of Excellence in priority regions, serving as important regional centers for building confidence and skills in research, training and capacity building.

The CRTR Program is a partnership between the Global Environment Facility, the World Bank, The University of Queensland (Australia), the United States National Oceanic and Atmospheric Administration (NOAA) and approximately 50 research institutes and other third parties around the world.

# Sharing ideas, skills and resources

The Australasian Centre of Excellence (CoE) is one of four international centres under the Coral Reef Targeted Research & Capacity Building for Management (CRTR) Program. The Australasian CoE is based at the Centre for Marine Studies at The University of Queensland in Brisbane, Australia, and at the Heron Island Research Station. Heron Island Research Station will be re-opened in November 2008 after a destructive fire during March 2007. The station will be modern and spacious and will continue to attract high-profile researchers from around the world. Considering the Centre's access to leading international researchers, information, skills and expertise, it focuses upon exchanging expertise and information across the South Pacific, Indonesia and South Asia and is perfectly located to provide a sound platform for a variety of training activities. These include degrees, postgraduate studies, short courses, workshops, study tours and mentoring programs.



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# Building knowledge, networks and expertise

## How we're making a real difference

As a leading, international knowledge centre, the activities of the Australasian CoE focus on four areas:

1. Research
2. Capacity building, including training courses, secondments, study tours and mentoring programs
3. Communication and dissemination of research results and information
4. Building networks and collaborations

Specifically, the Australasian CoE's objectives are to:

- Provide a solid technical platform for the research and training activities of the various Working Groups within the CRTR Program.
- Establish critical equipment in preparation for research and training activities of bleaching, disease, connectivity and remote sensing Working Groups.
- Undertake research related to coral bleaching and climate issues, the development of stress markers, coral disease, genetic connectivity and remote sensing.
- Develop and run training courses for Australian and regional developing country students in advanced materials and techniques on coral reefs and environmental change.
- Stimulate and build regional networks across the Australasian, Indonesian and Pacific in research and training expertise.
- Support activities aimed at increasing regional capacity for understanding and managing coral reefs under rapid environmental stress.



Vitu Levu, Fiji

## Getting involved across the region

The Australasian CoE has been instrumental in undertaking a range of projects across several areas, including:

### Indonesia

A Memorandum of Understanding has recently been signed between The University of Queensland and Diponegoro University (Semarang), thereby formally affiliating students with an Indonesian university. The MOU includes training of postgraduate students; undertaking collaborative research projects, and; joint efforts between institutions to build capacity in the area of sustainable resource use and management in Indonesia.



Indonesia

The CoE, with support from the Packard Foundation, has a major research initiative in Indonesia focusing upon a tool package for managers for resilience-based reef management under Dr Ken Anthony. Following a scoping trip and fieldwork in the Karimunjawa Islands (Northern Java), the research team undertook assessment of the state of the reefs in the Karimunjawa Marine Park; selected field sites from different Marine Park zones subjected to a range of threats, and; obtained a deeper understanding of the environmental and socio-economic pressures that these reefs are faced with. Further results from this project will be released at the end of 2008 and in 2009.

### Maldives

The Australasian CoE is collaborating with the Maldivian Ministry of Environment, Energy and Water on a project titled 'Capacity building in ecosystem-based management approaches to coral reefs and coastal areas in the Maldives'. This collaboration has led to a program of training courses, study tours, and mentoring being developed which has led to the increased knowledge of Ministry staff in ecosystem-based management functions, and the planning and application of a management plan for an atoll.

### Thailand

An Australasian CoE-sponsored postgraduate student based at The University of Queensland spent three months in Thailand researching coral spawning and cross pollenisation of coral species.



Aq setting, Thailand

### Solomon Islands

The Australasian CoE is undertaking a project in the Solomon Islands under the CRTR Program's Local Government Initiative (LGI). Under this initiative the CoE will be working on-ground with local participants to increase understanding within the community of the benefits and costs of maintaining a healthy marine ecosystem.



## Key activities under the Australasian CoE include:

### 1. Research

The Australasian CoE is undertaking projects on:

- Climate change.
- Tracing the origins of stress in the symbionts of reef-building corals.
- Solar radiation and coral bleaching.
- Ecology, physiology and molecular microbiology of coral disease on the Great Barrier Reef.
- Great Barrier Reef water quality and connectivity between coral reef ecosystems.
- New tools for managing ecosystem responses to climate change on the southern Great Barrier Reef.
- Understanding the risk of ocean acidification for coral reefs.

### 2. Training

Sponsoring researchers and coastal managers from Southeast Asia and the Pacific Islands to attend professional development courses in subjects, including Coastal Resource Management, Tropical Marine Invertebrates and Marine Neurobiology.



Cross fertilize, Thailand

Sponsoring and hosting study tours for senior managers from the Maldives and the Cook Islands to look at issues focusing on policy issues concerning coastal and coral reef ecosystems and implementation; the practical application of marine protected areas; management of tourism operations in a sensitive environment; latest research into coral reefs, and climate change policies.

### 3. Networks

Hosting a major international forum of 55 postgraduate students from 17 countries to establish networks, discuss focal areas of interest relating to research, management and communicating coral reef issues.

### 4. Scholarships

Supporting and sponsoring 10 postdoctoral research fellows, 23 postgraduate students, two Masters students and three honours students, working across all research priorities.

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