

# Research

*Goal: to concentrate the University's research effort and achieve national and international distinction in ways that advance University priorities.*

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## **Mobilise research capacity and infrastructure around Regional Engagement and Sustainability issues**

### **Research Futures**

In 2006 the University initiated the Research Futures process to strategise research development. Outcomes included a decision to concentrate the University's research effort around the themes of 'sustainability' and 'regional engagement'. Several external specialists in these fields were commissioned to prepare papers defining these concepts and to suggest research niches that could be exploited by the University. A working party of the Research Management Committee delivered an interim report in December 2006. This synthesised definitions and research niches.

Other working parties recommended a comprehensive funding model for areas of research strength, and approaches to the development of research infrastructure.

### **Research and Research Training Plan**

In line with the Research and Research Training Plan, support for research expanded significantly in 2006. In particular, the Office of Learning, Teaching and Research (OLTR) was restructured as Teaching and Research Services (TARS). This created an Office of Research with a manager and range of new positions to support researchers and higher degree by research students and their supervisors.

### **HMAS Brisbane**

In July 2006 USC senior lecturer Dr Thomas Schlacher conducted an environmental study of the former Navy destroyer HMAS Brisbane. He found that marine life was thriving on the ship, scuttled off the Sunshine Coast in 2005. The study, commissioned by Queensland's EPA and conducted in partnership with the Queensland Museum, proved that the wreck was an important addition to nearshore habitats, supporting a rich biodiversity in the area.

In 2006 the University held an inaugural University Research Conference. Keynote speaker Dr David Falvey (right)—the Executive Director, Physics, Chemistry and Geoscience at the Australian Research Council—addressed delegates on the topic 'Research impact: benefiting society'. Other presenters included:

#### **Dr Gary Crew**

Taking Responsibility for Extinction

#### **Dr Ann Parkinson**

Getting active with active learning: an interactive demonstration of neural concepts using the 'Mexican wave'

#### **Ms Gillian Cowden**

How and why the Internet changes the way people gather and consume news

#### **Mr Graham Lumley**

Improving Operator Support and Selection Processes

#### **Ms Sacha Fulton**

Measuring the Kick in Freestyle Swimming

#### **Mr Kenneth Wasmund**

Microbial communities associated with a shallow hydrocarbon seep in the tropical Timor Sea, Australia

#### **Dr Jennifer Carter**

Making 'sense' of 'place'

#### **Dr John Whiteoak**

The Relationship among Group Process Perceptions, Goal Commitment and Turnover Intention in Small Committee Groups.

#### **Mr Jack Tucker**

Molecular methods for the detection of virulent bacteria in environmental and clinical samples

#### **Ms Sheila Peake**

Communication of conservation messages in an Ecotourism setting

#### **Ms Wendy Spinks**

Baby boomers and beyond: The changing mature market's evaluation of services

The conference aimed to showcase and celebrate the University's research and research training activities and achievements; to provide a training opportunity where students can receive critical feedback in a friendly and supportive environment; and to promote the quality and impact of the University's research, particularly in the region.

In late 2006, planning began for the next conference, scheduled for 31 October 2007.



## RUBRIC project

The University signed on as a partner institution in the RUBRIC (Regional Universities Building Research Infrastructure) project throughout 2006 and 2007. The Department of Education, Science and Training (DEST) sponsored project aims to develop new processes and tools for establishing sustainable research infrastructure in regional universities in the area of e-research, by developing institutional digital repositories.

## Collaboration

Existing research efforts related to sustainability and regional engagement continued to develop in 2006. These included collaboration with the Queensland Environmental Protection Agency and the Queensland Museum over the scuttled HMAS Brisbane (page 30), and collaboration with the Department of Primary Industries and Fisheries (DPIF) allowed USC researchers to work at DPIF Forestry in Gympie and DPIF Aquaculture at Bribie Island. Continuing work on Fraser Island included the completion of a PhD thesis, and further work is planned for fire management strategies on the island.

## Enhance research quality and impact

### Research Quality Framework trial

In addition to the comprehensive processes of Research Futures, the University advanced research quality and impact in 2006 by taking part in the New Generation Universities' (NGU) Research Quality Framework (RQF) trial. In concert with other members of the NGU group, USC gathered research portfolio information on all active researchers with significant research outputs, subjected these portfolios to internal assessment against draft RQF criteria, and benchmarked the outcomes with the rest of the NGU group.

Through Research Futures, USC has built RQF quality and impact measures into its research concentrations funding model and other aspects of research support, including internal research grants.

In 2006 the University began appointing senior researchers whose roles focus primarily on research. This practice will expand in 2007, and already has boosted external competitive research income and demand for higher degrees by research.

### Research Support Group

The University established a Research Support Group within its Information and Communication Technology (ICT) governance structure to contribute to effective planning and implementation of ICT services supporting research activities.

## Increase research income and output

### Research performance

Research income reported in 2006 remained steady while research publications reported in 2006 increased by about one-third. In 2006, research and research partnerships maintained a strong regional focus with projects undertaken including:

- 'Indigenous Attachment, Engagement and Protocol in Natural and Cultural Heritage Management', with Dr Jennifer Carter's work funded by the Burnett Mary Regional Group
- 'Maroochy Waterways Monitoring Program: Fish Health Assessment', with Dr Thomas Schlacher's work funded by Maroochy Shire Council
- 'Biological Baseline Survey of ex-HMAS Brisbane Artificial Reef', a project undertaken by Dr Thomas Schlacher in cooperation with the Queensland Museum, Queensland Parks and Wildlife Service and the Environmental Protection Authority

Other significant projects in genomics and cell biology were also undertaken by Associate Professor Abigail Elizur and Dr Lesley Brooker in conjunction with partners in the aquaculture industry.

During 2006, one masters by research and two doctoral candidates completed their programs.

## Summary of research performance and performance-based funding 1998–2007

Year	Research performance			Performance-based funding			
	Research income \$	HDR enrolments (EFTSU)	HDR completion	Research publications (weighted)	Institutional Grants Scheme \$	Research Training Scheme \$	Research Infrastructure Block Grant \$
1998	100,857	13.25	0	37.64			
1999	184,504	18	1	40.63			
2000	319,289	22.5	2	50.04			
2001	415,885	27	3	38.39	111,080	192,000	481
2002	582,020	34.75	1	63.64	119,186	305,954	3,997
2003	699,056	44.25	3	62.1	128,019	434,959	5,092
2004	757,969	45.5	4	60.76	137,834	566,925	41,880
2005	731,364	48.5	9	88.07	185,415	695,971	72,389
2006					207,478	673,735	61,116
2007					240,710	652,849	50,629

Please note: research performance on the left-hand side of the table determines, by formulae, the performance-based funding outcomes on the right-hand side of the table with a two-year lag.

## Nursing research

### Living is for Everyone framework

As the leader of a research consortium, University of the Sunshine Coast Adjunct Professor Peter Bycroft won a \$600,000 contract from the Commonwealth Department of Health and Ageing to revise Australia's 'Living is for Everyone' framework. The team, which includes Sunshine Coast organisations and USC academics, will develop a national policy framework for the prevention, intervention and bereavement counselling of suicide.

Key players in the same consortium developed the National Activities in Suicide Bereavement Project, a \$260,000 consultancy that was delivered to the Commonwealth Government in August 2006.

### Mental health research

In 2006, health researchers at the University of the Sunshine Coast received a \$225,192 grant from the Golden Casket Foundation for a world-first study involving mental health nursing staff across Queensland. The study, to be conducted by USC academics Professor Edward White and Associate Professor Julie Winstanley during 2007 and 2008, will involve staff at 24 centres in metropolitan and regional areas of Queensland. About 50 project teams applied for Golden Casket Foundation grants in 2006, and only six were awarded funding.

## Foster regional, national and international research collaborations

### Research links

Plans to develop research links with major partners (such as Queensland's Department of Primary Industries and Fisheries, and Kingfisher Bay Resort on Fraser Island) advanced significantly in 2006. Agreement was reached with the DPIF to investigate and identify opportunities for long-term research collaboration, and planning commenced to upgrade the University's Kingfisher Bay Research and Education Facility at Kingfisher Bay Resort, and the Environmental Education Camp at Dilli Village on the other side of the Island.

### Partnerships

Research collaborations reported in 2006 included the University's first significant international partnership, a steady increase in national partnerships and a healthy rise in regional partnerships. New links with the University of Wyoming included staff exchanges and research project development. Expanded national collaborations included projects involving Paspaley Pearling Company Pty Ltd and the National Seniors Association. At the regional level, University staff increased working connections with local councils and community organisations, and the Department of State Development, Trade and Innovation.

### United Nations report

University of the Sunshine Coast academic Dr Thomas Schlacher was part of an international team of marine biologists reporting to the United Nations General Assembly in New York in November. The UN-commissioned team was led by scientist Malcolm Clark, from New Zealand's National Institute of Water and Atmospheric Research, and Zoological Society of London Senior Research Fellow Dr Alex Rogers. The team's report—which took a year to compile—on the impact of human activity on deep-sea ecosystems is likely to be used by the UN to assess a way forward towards international regulations on fishing near undersea mountains known as 'seamounts'.

## Increase the number of higher degree enrolments and the comprehensiveness of research training

### Enrolments and training

In 2006 the University enrolled 14 new doctoral and four new masters by research candidates.

Research training (beyond supervision) activities included:

- a one-week intensive program on research design, methodologies and methods, and thesis/exegesis development for higher degree by research candidates
- a one-week intensive program on aspects of supervision practice
- two-hour workshops on topics such as project management, time management and writing literature reviews
- seminars on using research tools such as SPSS, NVivo and EndNote
- the establishment (by the Deputy Vice-Chancellor on the advice of the Research Management Committee) of the Graduate Centre, managed by TARS, to boost services for research students and supervisors—innovations included developmental programs and appropriate shared spaces and facilities



- Fraser Island, a World Heritage-listed area located off the south-eastern coast of Queensland, is a complex ecosystem of sand dunes, lakes and subtropical forests growing solely on sand.
- This constitutes an outstanding example of continuing biological and geological processes. The Kingfisher Bay Research and Education Facility, located at Kingfisher Bay Resort, is a base for advanced environmental and eco-tourism research. The Environmental Education Camp is located at Dilli Village, on low sand dunes 400 metres from the beach. The Village provides accommodation and access to field study sites for students and staff from primary and secondary schools and tertiary institutions.

## Focus on innovation and its implementation with relevance to regional circumstances

### Climate change training

The University signed an agreement with Climate Risk Pty Ltd (Australia/UK) and CLIMsystems Ltd of New Zealand to provide the first-known accredited climate change training in Australia. This will deliver professional and technical programs for public and private sector clients, to facilitate informed decisions about managing risks related to climatic variability and change. The agreement was completed at the South East Queensland Climate Change Adaptation Demonstration Project inaugural workshop at the University in December.

### Innovation Centre collaboration

In conjunction with the Innovation Centre, the University moved further towards commercialising research and development related to the application of voice recognition technology in education.

Researchers and research students continued collaborations with tenants of the Innovation Centre.

### Health and Technology Centre

During 2006 the University furthered plans for construction of a Health and Technology Centre. The Centre will be used to develop and test new technologies that allow remote wireless monitoring of human movement and function, and to investigate ways of applying these new technologies to real-life clinical practice settings. Centre staff will seek to complement regional priorities and meet community needs by addressing the health issues of three priority patient groups: members of the aged population, children, and elite sports people (school representatives to international level). The USC Health and Technology Centre will emphasise and aid the University's teaching-research nexus, community engagement goals, and the creation of sustainable businesses in the Sunshine Coast region.

## Key performance indicators

### ■ Increased publications per academic staff member

A minor downturn in 2004 was reversed in 2005.

Year	Research publications (weighted)	per FTE*
2000	50.04	0.74
2001	38.39	0.52
2002	63.64	0.86
2003	62.10	0.73
2004	60.76	0.69
2005 <sup>#</sup>	88.07	0.95

\* Full-time equivalent academic staff member.

<sup>#</sup> Reported in 2006.

### ■ Increased research income per academic staff member

Until 2005, this indicator was increasing. The drop in 2005 is largely attributable to the National Seniors Productive Ageing Centre income no longer being included.

Year	Research income \$	per FTE* \$
2000	319,289	4,315
2001	415,885	5,620
2002	582,020	7,865
2003	699,056	9,447
2004	757,969	10,243
2005 <sup>#</sup>	731,364	9,883

\* Full-time equivalent academic staff member.

<sup>#</sup> Reported in 2006.

### ■ Increased number of completing higher degree students

The substantial increase in higher degree by research completions in 2005 is indicative of increased enrolments in 2003.

Year	HDR completion
1998	0
1999	1
2000	2
2001	3
2002	1
2003	3
2004	4
2005 <sup>#</sup>	9

<sup>#</sup> Reported in 2006.

### ■ Increased proportion of timely higher degree completions

All higher degree by research study was completed on time.

### ■ Increased number of research projects with:

- a regional partner or client
- a national partner or client
- an international partner or client

The year-on-year trend data from the Higher Education Research Data Collection returns is summarised below. Data from 2006 will be available in mid-2007.

### Trend data—international, national and regional partner or client

	2003	2004	2005
International partner or client	-	-	4
National partner or client	3	4	6
Regional partner or client	10	17	26