Macquarie’s environmental scientists enjoy an international reputation as leaders in their fields. In the Excellence in Research for Australia (ERA) 2012 evaluation our environmental sciences research received a rating of 5 out of 5 – ‘outstanding performance well above world standard’, as did our research in the sub-disciplines of ecological applications, and environmental science and management.

Additionally, Macquarie is the number 1 institution in Australia in environmental sciences and ecology research (ESI, 2013). This places the University alongside Woods Hole Oceanographic Institute (USA) and University of Chicago (USA) in terms of the international impact of our research.

Our researchers operate at the interdisciplinary interface between biological, Earth and environmental sciences, and social and policy implications. Our research strengths are concentrated in five key, interrelated areas:

- Climate change and impacts
- Earth surface process dynamics (hydrology, oceanography, geochemistry, aeolian)
- Geomorphology and landscape evolution (river, coastal, desert and polar environments)
- Human impacts on the environment and rehabilitation/management responses
- Quaternary environmental change

As an HDR candidate you will be encouraged to take an interdisciplinary approach to addressing contemporary environmental challenges, many of which intersect with other fields. With such an approach, your research will be finding the answers to questions yet to be asked, and solving the big problems that matter to business and society.
Highlights

• Macquarie hosts the ARC Centre of Excellence for Core to Crust Fluid Systems, Australian Research Institute in Education for Sustainability and Risk Frontiers: Natural Hazards Research Centre. We are also a partner in the Environmental Biotechnology Cooperative Research Centre, National Climate Change Adaptation Research Facility and Sydney Institute of Marine Sciences; and lead the Australian Animal Tagging and Monitoring System.

• We undertake cross-departmental and cross-institutional collaborative research with colleagues in the fields of biology, climate science, Earth system science, geochronology and ancient history.

Support

We give HDR candidates strong academic and administrative support. This includes:

• Commencement and completion programs
• Discipline-specific research training units, including workshops in research communication, presentation skills, academic writing skills, thesis planning and poster preparation
• Experienced supervisors and department-based higher degree research directors
• Financial support for research project costs, including top-up scholarships from industry
• Regular progress reports and interviews, and/or work-in-progress presentations in which research candidates receive feedback on their work from a panel of academics in their field.

Research leaders

Macquarie is home to many internationally renowned researchers, including:

Professor Peter Nelson has more than 30 years’ experience researching the assessment and control of air pollution; and on environmental issues associated with energy use with emphasis on toxic organics from industrial and vehicular sources, trace elements and waste management. Much of this research is undertaken directly with industry, for example ARC-Linkage projects with RioTinto, CRC program, Australian Coal Association Research Program, and NSW Power Generators; and government, for example with the Australian Greenhouse Office, Department of Environment Water Heritage and the Arts, and the NSW Departments of Environment and Climate Change, and Water.

Associate Professor Damian Gore is an environmental scientist who has undertaken research across the globe in geomorphology and environmental quality. Specifically, his research has involved studies of geomorphic processes and the use of geochemical techniques to gain insights as to how and when sediments were deposited; high latitude fieldwork in Alaska, Antarctica, Canada and Iceland; and investigations of contaminant transport and mitigation within Antarctica. He has also been involved with the rehabilitation of contaminated sites, particularly base metal mines, within Australia; as well as assessments of tank rainwater quality in towns near Newcastle, acid mine drainage and metal pollution elsewhere in New South Wales, and ongoing research in contaminant stabilisation.