

The themes that emerge in the articles for May's newsletter are the development of new partnerships through the Water Research Cluster, and the emergence of natural resource management as an important theme for water-related research.

An important event for the Water Research Cluster in the next few months will be the Planning Workshop to be held on June 3rd. Participation at this event is by invitation from our Advisory Board and will be an excellent opportunity for members of the Cluster to have an influence over the direction and activities of the Cluster.

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# The Advisory Board of the Water Research Cluster invite Members of the Cluster to a Planning Workshop

- To Review the Progress and Activities of the Cluster
- And establish a Vision and Plan for the Future.

**June 3rd 2005**

**National Wine Centre**

Cnr North Tce and Hackney Road

**9:00 to 12:30**

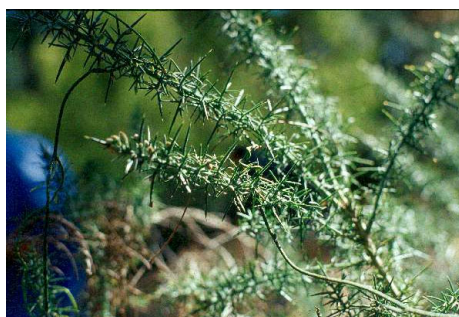
followed by lunch

RSVP May 26th 2005

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*C. pubescens* (twining, leafless vine that looks like string) on gorse



The effect of *C. pubescens* on gorse (i.e. dead gorse).

## A New Partnership to Reduce Chemical Contamination in Waterways

Gorse and Broom are intractable weeds along waterways, particularly in the Mt Lofty Ranges. It is proving difficult to control these weeds using herbicides, which poses risks to wildlife, water quality and the biological health of rivers and streams in the Mt- Lofty Ranges and the Adelaide Plains.

In recent years there have been numerous observations at different sites in the Mt Lofty Ranges of the native parasitic plant *Cassutha pubescens* growing on gorse and broom. The parasite appears to have a severe impact on the health and survival of these two weeds. However, the phenomenon has not been studied in any depth and almost nothing is known about either the association between *C. pubescens* and these hosts, or about the basic biology of *C. pubescens* itself.

Dr Jennifer Watling and Dr Jose Facelli from the Water Research Cluster at the University of Adelaide were initially approached by the Mt Lofty Ranges Animal and Plant Control Board (APCB), who wanted to involve the University in developing a project to investigate the potential of *C. pubescens* as a biological control agent for gorse and broom. Dr Watling and Dr Facelli and the APCB agreed to develop an ARC Linkage application with (DWLBC) and other potential partners were contacted. Interest in the project quickly spread and the partners now include five local Water Catchment Management Boards (WCMB), SA Water, two more APCBs, DEH and SA Forestry. All are interested in developing more cost effective and environmentally benign control methods for gorse and broom.

With some financial support from the Water Research Cluster to help prepare the application, the research team recently submitted an application to ARC Linkage for funding for a new research project, with co-investors from the many stakeholders and partners.

The aim of the project is to investigate the basic biology and ecology of *C. pubescens* and also the impact of this parasite on gorse and broom, both in the field and in controlled glass house experiments. Part of this work will also involve investigations into methods of propagation of *C. pubescens* so that it can be easily deployed if it proves to be a successful means of biological control for gorse and broom.

For more information, contact Jennifer Watling on 8303 6208 or Email [jennifer.watling@adelaide.edu.au](mailto:jennifer.watling@adelaide.edu.au)

# ICE WaRM: International Centre of Excellence in Water Resource Management

The International Centre of Excellence in Water Resources Management is now up and running and Richard Hopkins has been appointed as the new CEO. The Centre (through the operating company, WaterEd Australia Pty Ltd) has seven founding shareholders:

- University of Adelaide, South Australia
- Flinders University of South Australia
- University of South Australia
- Deakin University, Victoria
- University of Central Queensland, Queensland
- Centre for Groundwater Studies, and
- AITEC Corporate Education & Consulting

and committed SA State Government support, including:

- TAFE SA
- Department of Further Education, Employment, Science and Technology,
- Department of Land, Water and Biodiversity Conservation
- SA Water Corporation
- South Australian Research and Development Institute (SARDI)

with less formal but enthusiastic participation from a wide range of industry and research entities. The list of supporters and associates is continuing to expand.

The aim of the ICE WaRM is to provide a national focus and international gateway for Australian excellence in education, training and research in water resources management. To allow for long-term financial sustainability of the Centre, the initial attention has been on developing new products and new markets for water-related education and training, including post-graduate programmes and short courses. However, the CEO Richard Hopkins is also very interested in seeing ICE WaRM used as a vehicle for bringing the water research community in South Australia closer together.

*“South Australia has a real chance to show the way forward in Australia, with a Water Research Group that brings together the best minds of the state in water related research”.*

Richard Hopkins has written to the major water centres in South Australia, including the Water Research Cluster, to invite them to discuss the possibility of working more closely together to promote the state’s research capability, as well as educational products and services.

*“ICE WaRM provides an excellent vehicle for the major research bodies to apply for large research projects, because there are already legal instruments and agreements in place between the parties”.*

David Chittleborough from the Water Research Cluster has confirmed that the Management Panel of the Cluster is keen to meet with the other research organizations in South Australia to discuss the opportunities for working more closely together through ICE WaRM.

For more information, contact Richard Hopkins (CEO, ICE WaRM) on 8303 4324 or Email: [rhopkins@civeng.adelaide.edu.au](mailto:rhopkins@civeng.adelaide.edu.au)

## Retrospective Impact Assessment of SA Estuaries



*Craig McVeigh, Deborah Haynes, Derek Gollin (Njarrendjeri rep) and Peter Gell on a field trip to the Coorong to collect cores for sampling.*

Palaeolimnological techniques using fossil diatoms to determine past water quality conditions are now well established. In Australia they have been mostly applied to inland lakes including those within coastal dune systems. They have been applied to selected estuarine systems but to date there has been no attempt to use diatom-based palaeolimnology to determine recent change and establish comprehensive baseline conditions for estuaries at a regional scale.

Peter Gell’s research team within the Water Research Cluster of the University of Adelaide will use diatom based palaeolimnology to quantitatively assess the impact of human settlement on estuarine water condition. Pre-European and early post-European conditions can be used as rehabilitation targets or support efforts to determine suitable licence conditions.

For more information, contact Peter Gell on 8303 4774 or Email: [peter.gell@adelaide.edu.au](mailto:peter.gell@adelaide.edu.au)



## PROFILE: Bronwyn Gillanders

**Position:** Queen Elizabeth II Research Fellow  
**Research field:** Aquatic ecology

Dr Bronwyn Gillanders is a QEII Research Fellow at the University of Adelaide. The QEII Research Fellows are funded through the Australian Research Council. The top 50% of successful applicants for post-doctoral positions to the ARC receive QEII

Fellowships, which makes Bronwyn one of Australia's brighter up and coming researchers.

Bronwyn has a research interest in aquatic ecology in freshwater, estuarine and marine environments.

"I am particularly interested in tracking the movement and determining the population structures of fish and cuttlefish species and also do some work on the biodiversity of aquatic habitats".

One of Bronwyn's tools of the trade is to measure trace elements in the ear bones of fish which can reveal a wealth of information about the life history of the individual fish. This tool allows Bronwyn to track the movement of and determine the origins and population structure of fish. The chemical signature of earbones can be used to determine whether fish caught are from wild stock or hatchery produced, and can also be used to interpret the quality of water fish populations are exposed to in previous years.

This research interest leads to a surprisingly diverse range of applications. Bronwyn is involved in research in NSW and Victoria with Andrew Sanger (DPI NSW), David Crook (DSE Victoria) and University of Adelaide postdoctoral fellow Andrew Munro, investigating methods for marking freshwater fish and determining the abundance and size structure of stocked fish in rivers, as well as the proportion of stocked versus wild fish in river systems. In South Australia, Bronwyn is working with Steve Donnellan from the SA Museum on the stock structure and movement patterns of cuttlefish, which has led to the declaration of a conservation area for cuttlefish on a small reef near Whyalla, an important breeding ground for cuttlefish.

Recently, Bronwyn and her collaborators submitted an ARC application to undertake an ecological risk assessment for sharks in the Southern Australian waters with DPI in Victoria. In the next round of the ARC in November, Bronwyn is hoping to submit another application to the ARC for research funding to investigate the impact of terrestrial land use and urbanization on estuarine environments in South Australia. She is currently seeking industry matching funding to support her bid.

Bronwyn is living the dream of many in South Australia – she is paid to go fishing and scuba diving.

"I really enjoy getting out in the field to collect samples and data. But it is also very satisfying to contribute to the better management and conservation of our native fauna. One of the big challenges facing us in South Australia is that for estuarine and marine systems, we don't have sufficient background information to make sensible management decisions about the natural resources."

Growing up on a farm near Christchurch in New Zealand nurtured Bronwyn's interest in natural systems which she has developed into a life passion and career. Recently she accepted a position as a lecturer in the University of Adelaide, starting in 2006, which will allow her to continue her passion for research and a better understanding of aquatic systems.

Dr Bronwyn Gillanders can be contacted on 08 8303 6235 and [bronwyn.gillanders@adelaide.edu.au](mailto:bronwyn.gillanders@adelaide.edu.au).

## Information Session with Department of Water, Land and Biodiversity Conservation

The Department of Water, Land and Biodiversity Conservation (DWLBC) invited members of the Water Research Cluster to an information sharing session on April 27th. Staff from DWLBC presented research and investigations they were undertaking in the Mount Lofty Ranges, River Murray Floodplain, Upper South East and across the agricultural zone of South Australia:

- Bryan Harris,
- Amy George,
- Jason VanLaarhoven,
- Ash Greenwood,
- Volmer Berens,
- Cameron Dagleish and
- Andy McCord.

Members of the Water Research Cluster presented research they were involved with on the impact of land use on marine and estuarine systems, optimization modeling, the use of diatoms as indicators and markers of water quality and the use of geophysical tools for water resource management. The speakers were:

- Bronwyn Gillanders,
- Holger Maier,
- Peter Gell and
- John Joseph.

The day was a great success and helped build an awareness and understanding of the activities of the two organizations.

There was some interest from the Department in the research capability of the participants from the Water Research Cluster on the day.

Further information sharing sessions will be organized between the Water Research Cluster and DWLBC over the rest of this year to explore in more detail research activities and opportunities along the River Murray, in the Upper South East and Mt Lofty Ranges.

The Management Panel of the Water Research Cluster would like to thank Jim Barratt from DWLBC in particular for his efforts in organizing the event, and for providing lunch to all of the participants.

# Centre for Natural Resource Management

The Centre for Natural Resource Management has been established through funding from the National Action Plan for Salinity and Water Quality (NAP) to underpin state and regional natural resource management plans with high quality scientific information and research. It has sought to invest in the creation of innovative, regionally-based solutions to problems such as salinity and water quality. Its role has been to coordinate research programs and ensure that productive partnerships are created in South Australia between regional communities, research agencies, government agencies and private industry.

With the introduction of the NRM Act in South Australia and a recent internal review of the Centre, the Department of Water Land and Biodiversity Conservation which administers the Centre has made some changes to its operation. In particular, the Centre will shift its focus from administering funds for research projects to acting more as a facilitator and broker of the research needs of the NRM Boards with Research Organisations. It will also play a major role in aligning the research priorities of the state and providing policy and priority input into the State NRM Plan.

The Centre for Natural Resource Management has funded the following research projects:

- Lower Murray Landscape Futures (Thea Williams, University of Adelaide)
- Establishment of a commercial Aquaculture Park aligned to major saline groundwater interception schemes (SIS's) in South Australia (Stephen Clarke, SARDI)
- Development of Multipurpose Biomass Industries for the South Australian Murray Mallee (Rob Wallace, DWLBC)
- Managing horticultural production under a more saline environment (Gerrit Schrale, SARDI)
- Land Repair Fund (Institute for International Development)

Currently twenty eight project applications are being prepared by teams involving researchers, staff from regional Natural Resource Management Groups and regional staff from state government agencies. The Water Research Cluster is providing some assistance in the development of two of these projects:

- Understanding and ameliorating sub-soil limitations to reduce leakage and recharge and improve water quality in agricultural catchments of SA (David Chittleborough)
- Sensitivity analysis of models used to predict the effects of policy decisions on salinity levels in the River Murray (Holger Maier)

For more information of the Centre for Natural Resource Management, contact Neil Collins on 8303 9500 or Email: [collins.neil@saugov.sa.gov.au](mailto:collins.neil@saugov.sa.gov.au)

## Postgraduate Forum

Postgraduate Study is not just about submitting a thesis. It is an opportunity to expand your knowledge and find out about new ideas. Postgraduates from within the Water Research Cluster have proposed a Forum for postgraduates with an interest in water research to meet and exchange information and ideas.

**The next Postgraduate Forum will be held:**

**June 1st 11am - 1:30pm.**

**Staff Club on North Terrace.**

A cook your own BBQ Lunch will be provided.

### Agenda

1. Introduction
2. Report on Progress on Actions from last meeting
3. Overviews from each group
4. Discussion Session
5. Next Meeting
6. Any other business
7. Lunch

If you would like to attend the Forum, please contact Paul Dalby for catering purposes .

Telephone 08 8303 6697 or Email [paul.dalby@adelaide.edu.au](mailto:paul.dalby@adelaide.edu.au)

## Water Smart Australia

[http://www.nwc.gov.au/water\\_fund/water\\_smart\\_aust/guidelines.cfm](http://www.nwc.gov.au/water_fund/water_smart_aust/guidelines.cfm)

The Water Smart Australia Fund has \$1.6 billion to accelerate the development and uptake of smart technologies and practices in water use across Australia. Examples of the type of projects that could be eligible include:

- improve river flows for better environmental outcomes
- return groundwater aquifers to sustainable levels
- lead to water savings through improvements in irrigation infrastructure
- encourage or advance on-farm water use efficiency improvements
- desalinate water for use in cities and towns
- recycle and reuse stormwater, 'grey' water and wastewater from sewage
- provide more efficient storage facilities, such as underground aquifers
- provide alternatives to ocean outfalls and the better management of sewage in our coastal cities, and
- develop water efficient housing design.

These areas are obviously highly relevant to the Water Research Cluster and its partners. If you would be interested in participating in a workshop to develop ideas for funding submission to this program, please contact Paul Dalby on 08 8303 6697 or [paul.dalby@adelaide.edu.au](mailto:paul.dalby@adelaide.edu.au)

# Water Research Links - Funding Opportunities

Closing dates for grants: May - July

## Australian Academy of Science – Selby Fellowship

Internal Closing Date: July 2005

<http://www.science.org.au/internat/exchange/eurovis.htm>

Purpose: Fellowships are awarded to distinguished overseas scientists to visit Australia for public lecture/seminar tours and to visit scientific centres in Australia. Fellows are expected to increase public awareness of science and scientific issues and accordingly will be outstanding lecturers to the general lay public.

## Australian Academy of Science – Scientific visit to Japan

Closing Date: 24 June 2005

<http://www.science.org.au/internat/japan.htm>

Purpose: The proposed visit should initiate or consolidate long-term collaborations and facilitate the development of the applicant's career.

## Australian Academy of Science – Scientific visit to Korea

Closing Date: 24 June 2005

<http://www.science.org.au/internat/korea.htm>

Purpose: The proposed visit should initiate or consolidate long-term collaborations and facilitate the development of the applicant's career.

## Australian Academy of Science – Scientific visit to Taiwan

Closing Date: 24 June 2005

<http://www.science.org.au/internat/taiwan.htm>

Purpose: The proposed visit should initiate or consolidate long-term collaborations and facilitate the development of the applicant's career.

## Australian Academy of Science – Scientific visits to the United States of America, Canada and Mexico

Closing Date: 24 June 2005

<http://www.science.org.au/internat/usa.htm>

Purpose: The proposed visit should initiate or consolidate long-term collaborations and facilitate the development of the applicant's career.

## Australian Research Council (ARC) Linkage – International Awards

Internal Closing Date: Continuous

[http://www.adelaide.edu.au/ari/researchers/grants/ARC\\_LinkIntern.html](http://www.adelaide.edu.au/ari/researchers/grants/ARC_LinkIntern.html)

Purpose: Build links between research centres of excellence in Australia and overseas by funding extended collaborations

## Land and Water Australia – Managing Climate Variability

Closing Date: 3 June 2005

<http://www.lwa.gov.au/funding.asp?section=267>

Areas of interest: improving climate risk management in Australia's rural industries by developing seasonal climate forecasting techniques, developing tools for tactical decision making and enhancing access to climate information and training.

## Macquarie Bank Foundation

Internal Closing Date: Apply any time

[http://www.macquarie.com.au/au/about\\_macquarie/macquarie\\_in\\_the\\_community.htm](http://www.macquarie.com.au/au/about_macquarie/macquarie_in_the_community.htm)

Areas of interest: education, the arts, health research and health care, welfare and the environment. Opportunities that are innovative and genuinely responsive to the community's needs

## Middle East Desalination Research Center (Oman)

Internal Closing Date: Apply any time

<http://www.medrc.org>

Purpose: conduct, support and coordinate basic and applied R&D in water desalination and supporting fields, with the overall objective to reduce the cost of desalination.

## Myer Foundation

Internal Closing Date: Apply any time

<http://www.myerfoundation.org.au>

Areas of Focus: Arts and Humanities, "Beyond Australia", Water and Environment, Philanthropy, Social Justice

## Sarah Scaife Foundation (USA)

Internal Closing Date: Apply any time

<http://www.scaife.com/sarah.html>

Interest: public policy programs that address major domestic and international issues

Keep you eye out for new funding opportunities on the ARI website

<http://www.adelaide.edu.au/ari/researchers/grants/fundingopps.html>

If you would like to advertise

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in this Water Research Cluster

Newsletter, please contact

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