

In its first year of operation, the Water Research Cluster is evolving its identity and developing its profile as research projects get underway and its partners establish links.

A sample of the range of activities is presented in this Newsletter.



Exotic willows subject of research in River Laboratory

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Water Research Cluster Strategic Planning Workshop

by Dr Paul Dalby

A Strategic Planning Workshop for the Water Research Cluster was held on 3 June 2005 at the National Wine Centre. Mark Douglas from ETHOS AUSTRALIA was the facilitator for the workshop.

The purpose of the workshop was to:

- Provide a forum for the Advisory Board to meet with the members of the Cluster
- Review the activities of the Cluster over the first year
- Review the Strategic Plan
- Review the Key Performance Indicators set by the University
- Listen to Cluster member input and suggestions, and
- Agree on the Vision and future directions of the Cluster.

The Strategic Focus of the Water Research Cluster

It was decided that during 2005–2008 the Water Research Cluster will concentrate on three areas of focus, namely:

- 1 Integrated catchment management and economic development
- 2 Water requirements for functional ecosystems focused on the Lower Murray
- 3 Optimised efficiency of water delivery and use.

Since the Workshop, progress has already been made on these strategic strengths. In relation to Theme 2, the Cluster was instrumental in providing leadership and assistance with a major bid for funds to the CSIRO Flagships Collaboration Program for \$2.8M to undertake ecological research in the Coorong, Lower Lakes and Murray Mouth. This was an excellent collaborative effort led by Mike Geddes involving a large team from the Water Research Cluster, Flinders University, University of SA, SARDI, DEH, AWQC and DWLBC.

Members of the Cluster have started discussions with a potential industry partner about developing a large ARC Linkage project that fits under Theme 3.

The Management Panel has begun work on a redraft of the Strategic Plan following the Workshop and there will be more opportunities to develop the three themes over the coming few months.

The Management Panel would like to thank the Advisory Board for initiating the Workshop and to John Radcliffe for providing leadership in its development and implementation.

Finally, many thanks to Mark Douglas who did an excellent job in facilitating the Workshop and helped in the preparation of the final report.

Postgraduate Corner Water Research Cluster Postgraduate Forums

Last Forum 1 June

A lively meeting of postgraduates heard presentations from the Soil and Land Systems group, Geography & Environment Studies, and an inspirational poem written for the group by Joy Ricci, a postgraduate student of Chinese water poetry. The discussion session considered ideas for communicating among the group and how best to use future forums to meet postgraduate needs. There was strong support for the idea of accessing high-profile speakers who may be visiting the Cluster. Other priorities included information sessions designed to facilitate postgraduate life and research.

The Dean of Graduate Studies attended the meeting and indicated that the Graduate Centre could assist with the organization of workshops and circulation of information. Postgraduates are keen to be more inter-active with the Cluster, including inviting members of the Management Panel and Advisory Board to postgraduate forums.

*'Scientists arise
Use your learned skills
To unlock its secrets
To understand its will
Study its creatures
How they live and why
Preach to politicians
Lest fauna have to die
And flora shrivel up
For lack of good hydration'*

from the poem H2O by Roslyn Joy Ricci

Next Forum

Wednesday 7 September 11am – 1:30pm

Proposed venue: University of Adelaide Staff Club,
Hughes Plaza (still to be confirmed)

Meeting includes informal lunch sponsored by Water Research Cluster

All Water Cluster postgraduates welcome

Check the Water Research Cluster website for details of the agenda and location next forum at www.water.adelaide.edu.au.

There is a link to the postgraduates database through this website, and all postgraduates in the Water Research Cluster are encouraged to lodge their details to give a more complete cover of the skills and expertise available through the Cluster.

What is CLLAMM?

by Assoc Prof Mike Geddes, **CLLAMMecology Cluster leader**

CLLAMMecology stands for **Coorong, Lower Lakes and Murray Mouth ecology**. It is the name we have given to our South Australian bid for funds from the CSIRO Flagships Collaboration Fund under the Clusters Program.

The concept for **CLLAMMecology** was developed in close consultation between South Australian research and management agencies and the CSIRO Water for a Healthy Country Flagship program. The **CLLAMMecology** bid was submitted on June 30th, a few hours before the midnight deadline!

The University of Adelaide is the Host Institution for **CLLAMMecology**. The initiative for Adelaide to lead the bid came with support from the University of Adelaide Water Research Cluster. All of the major research institutions in the state, including the University of Adelaide, Flinders University, the University of South Australia, SARDI Aquatic Sciences, the Australian Water Quality Centre and the SA Department of Environment & Heritage, are research partners in the bid. The bid is supported by the SA Department of Water, Land & Biodiversity.

The bid is for \$2.8 million over four years. We expect to hear whether we have won the funding by the end of August and, if successful, to start the project in October 2005 and run through until early 2009.

The goal of the Water for a Healthy Country Flagship for the CLLAMM region is to produce a decision-support framework to assess the ecological, social and economic costs and benefits of different management options. This research framework would link the key levers for management with key biophysical (hydrodynamics, biogeochemistry, ecology) processes. For the Lower lakes, the levers for management include the operation of the barrages and the release of water from upstream storages. For the Coorong and Murray Mouth region, levers include barrage operation, releases from upstream storages, dredging of the Murray Mouth and releases from the Upper South East Drainage scheme.

There is currently no tool to assess the potential ecological outcomes that can be achieved from various different management scenarios. It is anticipated that the Flagship program will develop the overall system framework for the region, including its hydrodynamic function and social and economic assessment components. **CLLAMMecology** will complement these activities by addressing the critical knowledge needs to quantify the potential ecological costs and benefits of possible management action for the region.

This is a first in Australia for a whole-of-systems approach where the effectiveness of management actions (eg flow releases and barrage operations) is linked in a spatially and temporally explicit manner to changes in hydrodynamics (flow dynamics and water quality), biogeochemistry (transformation and food webs) and ecological responses.

CLLAMMecology will move well beyond the traditional boundaries of estuarine ecological research to:

- develop dynamic models of habitat availability and quality, rather than the standard static models used elsewhere
- develop spatially-explicit predictive models of ecological response to changed water flow, tidal forcing, food availability and water quality conditions
- work across ecosystem domains and consider time scales unprecedented in Australia
- study ecosystem processes using state-of-the-art techniques including otolith microchemistry to study fish migration patterns, stable isotope analyses to understand food-web structure, and ecological bioenergetics and stoichiometry to describe the limiting factors to ecological productivity
- carefully integrate field-based assessments with theoretical model development for the production of ecosystem response models for the region.

A key aim of **CLLAMMecology** is to provide Science to underpin policy and implementation of management in the Lower Lakes, Murray Mouth and Coorong. Informed management of this region is necessary to support the Significant Ecological Asset Management Plan for the CLLAMM region under the Living Murray program, for the Coorong and Lower Lakes Ramsar Wetland Plan for maintaining ecological character by wise use of wetland habitats, and for implementation of the Murray-Darling Basin Native Fish Strategy.

Honours Project Opportunities in Arid Environments

The Roxby Downs Town Council is seeking possible Honours projects that may involve:

- biological survey of wildlife in the town itself
- assessment of street tree health, species and condition
- water conservation measures in streetscapes

The City of Port Augusta is seeking possible Honours projects that may involve:

- assessment of street tree health, species and condition
- evaluation of irrigation systems and effectiveness in main parks
- assessment and evaluation of 'water mining' (see EcoVoice)

It is possible that accommodation may be included in the project 'packages'. It is possible to vary the above and suggest alternative projects.

For further information, contact Dr David Jones in the Landscape Architecture Program.



PROFILE: Introducing the River Laboratory Research Group

The Group focuses on the Environmental Science of Freshwater Systems, and features interdisciplinary studies, many with a River Murray focus. The special interests of the current members of the group are briefly profiled below.

Group Leader Assoc Prof Keith Walker

- Effects of flow regulation on River Murray and its floodplain
- Biology of riverine flora and fauna
- River ecosystem 'health'



Visiting Fellow Assoc Prof Mike Geddes

Ecology of the Coorong:

- Barrage outflow & ecology of Murray Mouth & Coorong
- Ecological health of the Coorong
- Trophic Ecology
- Fish Biology



PhD Students

Anne Jensen

Response of Murray floodplain seedbank to flooding – river red gum, black box and lignum

Nadine Kelly

The hydraulic environment of the lower River Murray and the effects of serial weirs
Scottie Wedderburn

Ecology of the Murray hardyhead

Melissa Barrett

Carbon uptake by selected macrophytes

Sue Gehrig

Factors that influence the establishment & dispersal of exotic willows on the Lower River Murray (SA)

Michael Hammer

Conservation biology of small native fish, especially pigmy perch, in south-eastern Australia



Honours Students

Alys Stevens

Potential significance of post-regulation biofilm composition in the local extinction of the River Snail *Notopala sublineata hanleyi* from the Lower River Murray

Katherine Cheshire

Monitoring movements of congolli using otolith chemistry



Launch

International Centre of Excellence in Water Resources Management – ICE WaRM

The official commencement ceremony was held for ICE WaRM on 2 August with a short official reception at Ayers House for invited guests and representatives from water resources networks. The recently created ICE WaRM provides a national focus and international gateway to Australia's education, training and research expertise in water. The Water Research Cluster is part of the group through the University of Adelaide being a shareholder, and the Management Panel of the Cluster is exploring opportunities for projects through the linkages provided by ICE WaRM (see May Water Research Cluster Newsletter for more details or website www.icewarm.com.au).



The National Water Initiative

by Dr John Radcliffe

Chairman, University of Adelaide Water Cluster Advisory Board

Commissioner, National Water Commission

The Intergovernmental Agreement

In June 2004, all of the Australian States and Territories except Western Australia and Tasmania signed the 108-clause Intergovernmental Agreement on the National Water Initiative with the Australian Government. Tasmania has signed more recently. The agreement is at www.coag.gov.au/meetings/250604/iga_national_water_initiative.pdf.

The agreement includes sections encompassing:

- Water access entitlements and a planning framework
- Water markets and trading
- Best practice water pricing and institutional arrangements
- Integrated Management of Environmental Water
- Water Resource Accounting
- Urban Water Reform
- Community Partnerships and Adjustment
- Knowledge and Capacity Building.

The Agreement identifies areas where there are significant knowledge and capacity building needs for its ongoing implementation. These include:

- regional water accounts and assessment of availability through time and across catchments
- changes to water availability from climate and land use change
- interaction between surface and groundwater components of the water cycle
- demonstrating ecological outcomes from environmental flow management
- improvements in farm, irrigation system and catchment water use efficiency
- catchment processes that impact on water quality
- improvements in urban water use efficiency
- adoption of urban sensitive water design in new developments and independent reviews of the knowledge base.

The needs for scientific, technical and social aspects of water management are seen as multi-disciplinary and extend beyond the capacity of any single research institution.

Since March 2004, most states have released new water strategies affecting Australia's major cities. The strategies all encompass aspects of water recycling, with Canberra, Melbourne and Perth having set formal recycling targets of 20% by 2010-12.

The National Water Commission

The Parties to the Intergovernmental Agreement on the National Water Initiative agreed to the establishment of a National Water Commission (NWC) (www.nwc.gov.au) to assist with the effective implementation of the Agreement. The NWC, established under the National Water Commission Act 2004 (Cwlth), held its first meeting in March 2005. The Commission will accredit implementation plans under the National Water Initiative to ensure consistency with an agreed implementation timetable.

The National Water Commission has also taken over responsibility from the National Competition Council for the annual National Competition Policy Review of how the states are approaching water management and services, and the extent to which they are achieving the expectations of the 1994 Water Reform Agenda. In subsequent years, compliance with the Intergovernmental Agreement on the National Water Initiative will also be considered.

The Australian Government Water Fund

The National Water Commission Act 2004 also established the Australian Government Water Fund (http://www.nwc.gov.au/water_fund/index.cfm). The National Water Commission is responsible for advising the Prime Minister on the use of this fund for the \$1.6 billion Water Smart Australia Programme to accelerate the development and uptake of smart technologies and practices in water use across Australia, as well as managing a \$200 million Raising National Water Standards Programme to advance Australia's national capacity to measure, monitor and manage its water resources. The \$200 million Water Fund Communities Programme, administered by the Departments of Agriculture, Fisheries & Forestry and Environment & Heritage, is also supported from the Australian Government Water Fund. Applications are open to State and Territory governments that are signatories to the Intergovernmental Agreement on the National Water Initiative, and to local government, the private sector, industry and other organisations and community groups. Projects are expected to achieve outcomes consistent with the Intergovernmental Agreement on the National Water Initiative. The Commission has just begun appraising proposals that were submitted to the Water Smart Australia Programme in response to the first call for projects closing on 30th June 2005.

Water Research Links - Funding Opportunities

Australian Research Council (ARC) Linkage – International Awards

Internal Closing Date: Continuous

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

Conservation, Food & Health Foundation

Internal Closing Date: 18-Oct-05

<http://www.grantsmanagement.com/cfhguide.html>

Interest: to assist in the conservation of natural resources, the production and distribution of food, and the improvement and promotion of health in the developing world. The Foundation is especially interested in supporting projects which lead to the transfer of responsibility to the citizens of developing countries for managing and solving their own problems and developing the capacity of local organizations.

George Alexander Foundation

Internal Closing Date: 2-Nov-05

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

Interest: The George Alexander Foundation has an emphasis on helping talented young people, especially those experiencing economic disadvantage, to achieve educational and employment goals. Mr Alexander spent many years working in rural Australia and conservation of the environment is another important interest.

Macquarie Bank Foundation

Internal Closing Date: Apply any time

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

Vetlesen (G. Unger) Foundation

Internal Closing Date: 31-Oct-05

<http://www.monellvetlesen.org/vetlesen/default.htm>

Interest: voluntarily aiding and contributing to religious, charitable, scientific, literary, and educational uses and purposes, in New York, elsewhere in the United States and throughout the world.

Keep your 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

or send material for inclusion

in this Water Research Cluster

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