

Institute for Sustainable Water Resources



Welcome to the ISWR Newsletter

28 April 2005

Positive feedback on ISWR strategic plan

The ISWR “**Strategy for enhancing academic, industry and public outcomes**”, developed through the workshop held in February, has had very positive feedback from the Associate Dean of Research, amongst others. Maryann is now working to update the ISWR website to reflect the conclusions reached in this document. As a reminder, the agreed vision of the Institute is:

The Institute for Sustainable Water Resources is a centre of excellence, for research, teaching and postgraduate training, in areas related to the sustainable management of water resources, with a focus on urban sustainability. We will have a national and international standing and be known for our collaborative and multi-disciplinary approach. Strong demand for our research and training will lead to the Institute’s members being widely-published, well-supported by research grants, and having a strong industry and public profile. We will make a significant contribution to the sustainability of urban areas.

French-Australian PhD student to come to Monash

Ana Deletic and Tim Fletcher have been invited to co-supervise a PhD student (Sebastien Le Coustumer) from INSA de Lyon (France), who is working on the behaviour of infiltration systems. The abstract for his work is as follows:

Infiltration techniques are now widely used to manage stormwater in highway, commercial, residential, and industrial zones. These techniques are used and recognized around the world for their many advantages, such as decreasing stormwater flow in sewer systems and recharging groundwater. But numerous cases of infiltration devices that failed after a few years of operation are still being reported and their impact on the environment is still not well determined. This study, which is based on site-monitoring of operational infiltration systems, is part of the Experimental Observatory for Urban Hydrology (OTHU). The main goals of this study are i) to improve knowledge of long-term hydraulic behaviour, especially as it concerns the clogging speed and the quality of the runoff; and ii) to assess their removal efficiency by doing mass balances on conservative flux.

Whilst at Monash (scheduled for early 2006, for 12 months), Sebastien will investigate the role of plant roots in the clogging and pollutant removal performance of infiltration / biofiltration systems. Currently, we are trying to get Sebastien jointly enrolled at Monash and INSA de Lyon through the co-tutelle program, where he will receive a PhD award from both institutions. Information on the co-tutelle program is available on the Monash website: <http://www.monash.edu.au/phdschol/forms/academic/cotutelle/>.

Invited Book Chapter

Grace Mitchell, Tim Fletcher and Ana Deletic have been invited to write a book chapter for McGraw Hill, on Integrated Urban Water Management (IUWM). A draft outline has been sent to the editor (Larry Mays, who is Professor of Civil and Environmental Engineering at Arizona State University). The material will also be useful for preparation of the new fourth year unit on IUWM.

Publications

Andre Taylor delivered a paper last week to the Stormwater Industry Association's 2005 Regional Conference in NSW (paper titled: 'Sustainable Stormwater Management: What is it and Are We on Track?').

Successful STI bid.

The *Australasian Facility for Stormwater Biofilter Technologies* will provide new technologies for better and safer solutions for the on-site treatment and management of Stormwater.

The project brings together partners and investors from the public and private sectors to research, develop, and demonstrate innovative water filtration technologies. These technologies will enable integrated Stormwater harvesting and treatment to become a practical, safe and cost-effective proposition.

Objectives include:

- Determining how biofilters can be more effective for specific applications including road sides and new housing developments
- Providing viable alternative water sources where potable-water quality is not needed such as urban irrigation
- Promoting increased adoption of biofilter technologies in environmentally sensitive areas.

The project will provide various regulatory bodies, industry and community stakeholders with the knowledge, tools and skills to make informed decisions about the efficient and effective management of Stormwater resources.

Funding:

\$1.46 million over three years towards the design and demonstration of second generation biofilters for the treatment of Stormwater in different environments, such as residential estates, road sides and water supply catchments. Total project value is estimated at \$4.265 million.

Trial of Draft Triple Bottom Line Assessment Guidelines for Proposed Stormwater Projects



An expert panel begins its work in Brisbane as part of the trial of the recently drafted 'triple-bottom-line assessment guidelines' for proposed stormwater projects. This project was explained by André Taylor in a recent ISWR newsletter.

For more details contact André on ph. 02 6582 0762 or andretaylor@iprimus.com.au.

From Gavin Mudd:

Teaching - Going strong, teaching 3rd year civil and environmental engineering students the basics of groundwater resources and management. Additionally, a number of 4th year research projects are being undertaken in the water field, including groundwater-dependent ecosystems, first flush effects on water quality standards and a variety of others.

Research Grants - I submitted an application with Assoc Prof Ian Cartwright (Monash Geosciences) for the DSE PhD scholarships under "Our Water Our Future". The topic is on the relationships between urban surface water and groundwater, using geochemistry to identify key processes. It was placed in the 'water resource systems'.

Conferences - I'm off to Albi, southern France, in mid-May for the "1st International Conference on Engineering for Waste Treatment", giving 3 oral presentations. Two are related to unsaturated moisture behaviour of coal ash and one on sustainable mining.

News from Tony Ladson

One of the things keeping me busy is helping to organise a conference on the Barmah-Millewa Forest, the largest red gum forest in the world. There is a lot going on with red gums at present. The Victorian Environmental Assessment Council is about to begin its Riverine Red Gum Forests Investigation which will review management of public land (where the forests are) along the Murray, Goulburn Loddon, Ovens and several other rivers. And the Murray-Darling Basin Commission just released a report that shows that many red gums are stressed because of lack of water, and things have got worse over the last 2 years.

The conference I'm involved in will be run by the Royal Society of Victoria (the group that organised the Burke and Wills expedition back in the 1860s). The title is *Indigenous Heritage Ecological Challenge* and a range of cultural, historical, hydrological and ecological issues will be covered. Proceedings will be published by the Royal Society.

So, don't just sit there beside your open fire, warmed by the ancient sunlight stored in a red gum log, come to the conference and learn about the best way to manage this unique resource.

For more information on the conference go to the Royal Society of Victorian website <http://www.sciencevictoria.org.au/> and click on the link "Barmah-Millewa Forest"

For information on the VEAC investigation <http://www.veac.vic.gov.au/>

Survey of the health of river red gums along the Murray River
http://www.mdbc.gov.au/naturalresources/barmah_millewa/river-red-gums-report-April05%20.PDF

Continuous Deflective Separation Traps - Frank Winston

The hydraulics laboratory at Monash University has been engaged to carry out research on a method to screen out unwanted fish eggs and hatchlings from reservoir releases using a CDS trapping unit. This issue has long presented problems as the spread of pest species such as European Carp is exacerbated by environmental flow releases from dams. Conventional screens rapidly become blocked with leaves and other debris leading to large head loss across the screen, overtopping, high mechanical loading or even failure of the screen. CDS (Continuous Deflective Separation) traps, typically employed as litter traps do not suffer from these problems as the screen is self-clearing, thanks to the continuous rotational motion of the water in the unit. Tests so far show a very good capture rate of Carp eggs and hatchlings. It was found that the few eggs that do pass through the screen are often damaged and hence not viable.



Rapid rotation of water within CDS unit at 10L/s



A sample of Carp eggs