



**Proceedings of the**  
**5<sup>th</sup> Australian Stream Management Conference**  
*Australian rivers: making a difference*

**21-25 May, 2007**

**Albury, New South Wales**

Edited by  
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## Welcome

Welcome to Albury/Wodonga and to the NSW Murray and North East Victoria regions for the 5th Australian Stream Management Conference.

Our conference is being held at one of the most challenging and exciting times for river/ stream management practitioners. Almost all of the rivers in southern Australia are severely stressed.

In the Murray-Darling Basin, the combined effects of diversions for irrigation and drought have brought these issues into the national spotlight. At the same time, there has been increased awareness of climate change and considerable discussion of the implications for river inflows and ecosystem health. In response, the Australian government has proposed a radical restructuring of water governance in the Murray-Darling Basin that is to be accompanied by a massive public investment in irrigation infrastructure, both at the district and farm scales. These initiatives overlay existing large-scale investments by State and Australian governments to improve river and floodplain health, including through the *Living Murray* and the *Natural Heritage Trust*.

Many river and stream frontages and large areas of floodplains are managed by private landholders and their commitment and investment of resources is often critical to improving river and floodplain health. This conference also acknowledges the critical role that staff working in regional bodies, local government, and state and Australian governments play in facilitating change. Researchers and educators also play important roles by providing a large part of the knowledge base that underpins management. As is the case with many natural resource management challenges, improvements in stream and floodplain management require the cooperation of the different practitioners represented at this conference.

Outstanding keynote speakers have been invited to address the “big picture” issues of water reform and climate change. However, the focus of the conference is reflecting on practitioner experience with river and stream management so that we can learn from experience: our own and that of others at the conference.

Particular thanks to the Conference Committee members who have supported us; our principal sponsors in Land and Water Australia, the Murray-Darling Basin Commission, Water for Rivers, and EarthTech; and the co-ordinators and sponsors of the conference field trips.

Conference Convenors  
*Professor Allan Curtis*  
*A/Prof Robyn Watts*

May, 2007

## Conference Sponsors

*The Organising Committee gratefully acknowledge the generous contribution of our Principal Sponsors:*



### **Earth Tech**

Earth Tech is a leading global consulting, infrastructure management and environmental services company with an international reputation for delivering innovative and quality solutions across a wide range of projects in the water resources sector.

Forty specialist waterway management and design professionals are based in six offices across four States (Victoria, Queensland, NSW and the ACT). From these offices Earth Tech service clients across Australia and the Asia Pacific region. Earth Tech provides a multi-disciplinary approach to waterway management with in-house expertise including engineers, educators, ecologists, environmental scientists, flood modellers, and fluvial geomorphologists. A dedicated spatial information technology team provide valuable support services in the provision of electronic field data capture technology and web enabled mapping.

Our demonstrated experience in conditional assessment, strategic planning, and delivery of works programs for aquatic, riparian and terrestrial systems, reflects a commitment to achieving innovative and cost-effective management solutions, within the application of sound scientific principles.



**Australian Government**  
**Land & Water Australia**

### **Land & Water Australia**

Australia's landscapes, climates, soils and biota are unique. We have to develop our own solutions for our own problems. Our natural resources are invaluable and irreplaceable, and Land & Water Australia is working to ensure that they are

sustained for future generations of Australians. We are a national governmental organisation dedicated solely to investing in and managing R&D to underpin sustainable resource use and management.

Our vision for the future is the sustainable use and management of natural resources for the benefit of primary industries and the Australian community. Through carefully targeted and well-managed research we aim to:

- generate the uniquely Australian knowledge needed to improve Australian farming systems and consequent profitability
- manage our natural resources more sustainably
- inform large public investments in natural capital
- help governments balance competing demands on natural resources and rural landscapes.

Land & Water Australia's core business is as a research investor, gaining knowledge for managing Australian landscapes which is useful for the sustainable management and use of Australia's natural resources. We also act as a leading research broker, organising collaborative R&D programs and managing knowledge for adoption. We work to increase knowledge, understanding and informed debate. We want to inspire innovation and action in managing our natural resources sustainably.



### **The Murray-Darling Basin Commission**

The Commission is the executive arm of the Murray-Darling Basin Ministerial Council and is responsible for managing the River Murray and the Menindee Lakes system of the lower Darling River, and advising the Ministerial Council on matters related to the use of the water, land and other environmental resources of the Murray-Darling Basin (MDB).

The main functions of the Commission are to:

- advise the Ministerial Council in relation to the planning, development and management of the Basin's natural resources;
- assist the Council in developing measures for the equitable, efficient and sustainable use of the Basin's natural resources;
- coordinate the implementation of, or where directed by Council to implement, those measures; and
- implement any policy or decision of the Ministerial Council.

The Commission is also required to equitably and efficiently manage and distribute the water resources of the River Murray in accordance with the MDB Agreement. It aims to obtain the highest achievable quality and efficiency of use of the Basin's resources.

The Commission works cooperatively with the partner governments, committees and community groups to develop and implement policies and programs aimed at the integrated management of the Murray-Darling catchment and managing and distributing the water of the River Murray in accordance with the MDB Agreement.



## Water for Rivers

'Our vision is to have made a significant contribution to sustainable environmental flows

and healthy river systems for our future generations.'

Water for Rivers was established by three member Governments (New South Wales, Victoria and the Commonwealth), with a charter to achieve specified targets of water savings by way of water efficiency infrastructure projects, innovation and technology and where appropriate, by acquisition of water entitlements, all of which will in turn enable those savings to provide increased environmental flows to the Snowy River and River Murray systems.

The staff at Water for Rivers are in a unique position to bring together and interact with a wide range of stakeholders and business partners. These include Governments and their Agencies, irrigation organisations, local government and associated bodies, private sector industry and business, various community groups and individuals to achieve the water savings necessary to meet the governments' environmental flow targets for the Snowy River and the River Murray.

We can invest in water saving ideas, providing funds to firstly investigate the idea and if viable, invest in it in return for water entitlement. Water savings come in all forms; Water for Rivers is especially interested in large-scale ideas and can invest in ideas within the Murrumbidgee, Goulburn, Loddon, Campaspe Rivers and Murray Rivers.

If you have a water saving idea, we would like to hear from you. Why not seek out a member of the Water for Rivers team at this conference or make contact with us through our website [www.waterforrivers.org.au](http://www.waterforrivers.org.au).

*The Organising Committee also acknowledges the generous assistance of our Partners with the conference field trips:*



## Foreword from the Editors

*Australian rivers: making a difference.* The central theme for the 5<sup>th</sup> Australian Stream Management Conference issues a challenge to participants to consider how their research and practises have made an impact on river management. More than a decade has passed since the first Stream Management Conference in 1996, so it is timely to reflect on the progress that has been made in river science and management and to identify the challenges that lie ahead. The breadth and diversity of river management challenges are highlighted by the following key areas discussed at the 5<sup>th</sup> Australian Stream Management Conference:

- What is the science underpinning restoration practises?
- Is new policy evidence based and are new policy initiatives working?
- What have been the outcomes of restoration investments?
- Are we really doing adaptive management?
- How effectively are we building capacity and investment to enable action?

Over 150 abstracts were submitted for presentation at the conference and, despite their high quality, not all papers could be accommodated in the four days of the program. The Conference Organising Committee undertook the difficult task of assessing abstracts and accepted final papers based on their relevance to the conference themes, the quality of the paper and the number of papers submitted by individual authors.

Two independent reviewers and the editors have assessed each paper in these Proceedings. In most cases, recommendations from the reviewers were accepted by authors and incorporated into their amended papers. This process has improved the quality of the papers published and we sincerely thank the many reviewers who generously gave their time to provide constructive reviews.

We would like to thank all those who have contributed to the production of these Proceedings. In particular, we are enormously grateful for the tireless efforts of Jennie Meiklejohn and Kate Roberts, who provided invaluable support from beginning to end. Our thanks also go to Penny Cooke for assistance with manuscripts, Tony O'Neill and Peter Hope from the CSU Reprographics Unit and Craig Poynter from CSU SPAN.

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