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Committee Secretary  
Senate Rural and Regional Affairs and Transport Committee  
Department of the Senate  
Parliament House  
Canberra ACT 2600  
Australia

29 November 2005

Dear Committee Secretary

## **RE SUBMISSION TO INQUIRY INTO WATER POLICY INITIATIVES**

WWF-Australia submits the attached documents for consideration by the Committee during its Inquiry into Water Policy Initiatives. In particular, the information relates to the “methods of protection for rivers and aquifers” being considered by the Committee under its Terms of References.

WWF-Australia is a leading nature conservation organisation in Australia. WWF works on-the-ground, in policy development and through advocacy across Australia. The organisation has over 80, 000 members in Australia.

WWF has taken a lead role in the past several years in developing and advocating workable solutions for Australia’s water policy imperatives. For example, WWF convened the Wentworth Group of Concerned Scientists which developed a *Blueprint for a National Water Plan* in 2003. Then in 2004 WWF developed a Model Bill for national water reform to guide discussions regarding the development of the Council of Australian Governments’ National Water Initiative (NWI). A document outlining key steps water towards security in Australia was subsequently released clearly setting out ways forward in implementing the NWI.

Two key attached documents represent a further step in advancing a workable national water reform agenda:

1. The executive summary of the to-be-released report *Securing Australia’s natural water infrastructure assets. Solutions for protecting high conservation value aquatic ecosystems*. A policy proposal. WWF-Australia, November 2005.
2. A 4-page plain English summary to the abovementioned full report, titled *Key steps to securing Australia’s natural water infrastructure assets. Solutions for protecting high conservation value aquatic ecosystems. Proposal summary*. WWF-Australia, November 2005.

Both documents are **unpublished drafts** and WWF requests that they not be circulated outside the Committee until after their release, expected for February 2006.



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If release of the report occurs prior to the Inquiry's public hearings, I would be happy to provide copies of the full report at that time and discuss the reports at the hearing.

When the final full report and summary document are released, they will represent WWF's policy position on a national policy framework and nationally consistent approaches for identifying and protecting high conservation value aquatic ecosystems in Australia.

The documents are provided as WWF's submission to the Inquiry into Water Policy Initiatives.

In addition, a relevant policy statement by the Australian Society for Limnology, a professional scientific society, regarding Freshwater Protected Areas, is attached.

Should you wish to discuss this submission, please do not hesitate to contact me on tel 02 9281 5515 or email [sblanch@wwf.org.au](mailto:sblanch@wwf.org.au).

Yours faithfully

Dr Stuart Blanch

Freshwater Manager

Enclos.



**DRAFT – NOT FOR CIRCULATION**

**Executive summary to full report**

# Securing Australia's Natural Water Infrastructure Assets

Solutions for Protecting High Conservation  
Value Aquatic Ecosystems

A policy proposal

Dr Stuart Blanch

November 2005

*There is no comprehensive or systematic protection of rivers of high conservation value in Australia or its constituent jurisdictions.*

Protecting Australia's rivers, wetlands and estuaries,  
Kingsford *et al.*, 2005<sup>i</sup>

*We need to identify rivers and groundwater systems that have not been degraded and develop management strategies to protect them.*

Wentworth Group of Concerned Scientists, Blueprint for a National Water Plan, 2003<sup>ii</sup>

*It is acknowledged throughout the world that it is significantly easier and more cost effective to carefully manage healthy habitats rather than rehabilitate them when their condition has deteriorated.*

Native Fish Strategy for the Murray-Darling Basin 2003–2013

*Water use has increased to 24 000 GL in 1996/97 from 14 600 GL in 1983/84.*  
Australian Water Resources Assessment 2000<sup>iii</sup>

*Actions that maintain natural systems and biodiversity are preferred over remediation, as they return far more benefits per dollar invested. Our analyses suggest that it costs between ten and a hundred times more to repair a damaged natural system than it does to maintain it.*

Sustaining Our Natural Systems and Biodiversity, report to the PM's Science, Engineering and Innovation Council, 2002.

*Estimated number of species saved by investing \$1 M in protecting the health of rivers that are least disturbed: 98 (This is the highest return on investment of any form of biodiversity conservation.)*

Setting Biodiversity Priorities, report to the PM's Science, Engineering and Innovation Council, 2002.

*The Parties agree that, once initiated, their water access entitlements and planning frameworks will ...identify and acknowledge surface and groundwater systems of high conservation values, and manage these systems to protect and enhance those values; ...*

Intergovernmental Agreement on a National Water Initiative, 2004

*The current understanding of freshwater biodiversity in relation to CAR to be reviewed and an agreed approach finalised....to ensure freshwater ecosystems are appropriately incorporated within the National Reserve System (by 2005)*

Directions for the National Reserve System, Direction 8,  
Natural Resource Management Ministerial Council, 2005

*Develop ...as part of an integrated catchment/watershed/river basin management approach, protected area systems (aquatic reserves, Ramsar sites, heritage rivers, etc.), which can contribute in a systematic way to the conservation and sustainable use of biological diversity, and to maintaining overall ecosystem function, productivity and "health" within each drainage basin*

Programme of Work on Biological Diversity of Inland Water Ecosystems, Convention on Biological Diversity, Action 1.2.4

*...achievement by 2010 of a significant reduction in the current rate of loss of biological diversity...*

Report of the World Summit on Sustainable Development,  
Johannesburg, 2002

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For copies of this report or a full list of WWF-Australia publications on a wide range of conservation issues, please contact us on [publications@wwf.org.au](mailto:publications@wwf.org.au) or call 1800 032 551.

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### **Acknowledgements**

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Helen Foard, Caroline McFarlane, Ralph Ashton, Russell Kelly, James Duggie, Tanya Vernes, Michelle Handley, Andreas Glanznig, Jacqueline McArthur, Charles Stevens, Peter Cullen, John Williams, Janet Stein, Jim Tait, Iona Millar, Rachel Walmsley, Jon Nevill, Richard Kingsford, Bill Phillips, Peter Cosier, David Hebbelthwaite, Brendan Fletcher, Bruce Cummings, Peter Taylor, Peter Cotsell, Louise Rose, Tony Slatyer, Chris Schweizer, Peter Burnett, Geoff Larmour, Bruce Gray, Deb Callister, Simon Smalley, Derek White, Ross Dalton, Ken Matthews, Colin Chartres, Anne-Marie Wilson, Tom Aldred, Blair Wood, Clare Taylor, Nick Heath, Joanna Muldoon, John Amprimo, Andrew Higham, Larissa Cordner and Amy Hankinson.

## **Foreword**

Australia has three million kilometres of rivers and creeks, at least 16 million hectares of nationally important wetlands, and over 1,560 estuaries. These aquatic ecosystems are our natural water infrastructure assets and provide the foundation for Australia's economic growth, society's well-being and our unique biodiversity.

Of 14,000 river reaches assessed in intensively used catchments by the *Australian Catchment, River and Estuary Assessment 2002*, one third have impaired aquatic biota, and over 85% had significantly modified environmental features. Only 14% of the rivers assessed were regarded as largely unmodified. We have not looked after these natural assets and many of them are now in need of urgent restoration.

We know that repairing damaged ecosystems costs about 10 times more than stopping them from being damaged in the first place. We are spending large sums through the National Action Plan for Salinity and the Natural Heritage Trust, but restoration is slow and difficult. We will never return these rivers to their pristine state, but many communities are now seeking to return their rivers to a healthy working condition.

Prevention is better than cure. The *Sustaining Our Natural Systems and Biodiversity 2002* report to the Prime Minister's Science, Engineering and Innovation Council says 'Our analyses suggest that it costs between ten and a hundred times more to repair a damaged natural system than it does to maintain it'.

The Prime Minister and Premiers signed the historic National Water Initiative agreement in June 2004 that provides the framework for managing and investing in our natural and man-made water infrastructure. The Initiative specifies that 'The Parties agree that, once initiated, their water access entitlements and planning frameworks will... identify and acknowledge surface and groundwater systems of high conservation values, and manage these systems to protect and enhance those values.'

WWF-Australia, and the author of this report Dr Stuart Blanch, are to be commended for developing a way forward to convert this fine rhetoric into a reality. They stress the urgency of getting on with the job given the few remaining un-impacted river systems, provide some ways forward in selecting and managing the high conservation rivers and provide some targets for Governments to assess their progress. The report also stresses the need to develop some common language around high conservation rivers to avoid the mistakes of last century when every state did its own thing with the railways. Surely in the 21<sup>st</sup> century we can have a nationally consistent approach to protecting and nurturing our aquatic ecosystems infrastructure just as we have done with national parks and with marine parks.

Achieving this vision will cost money, but much less than it will cost if we allow the remaining rivers to be damaged and then seek to repair them. Regional groups have already identified many high value aquatic assets. More funds and assistance should be provided to help these communities to manage them. We should be paying landholders to protect aquatic ecosystems in good condition.

Our rivers face many threats. Issues of climate change and over exploitation can be managed through catchment planning. Catchment and Landcare groups have done

much in restoring the riparian vegetation that protects our riverbanks. Significant threats also come from the introduction of exotic plants and animals and these can be managed through periodic surveys and rapid response to infestations, but catchment bodies need resources for such management.

Our rivers and waterways are a legacy we leave to our children. Our choice is whether to leave them healthy rivers or huge repair bills. We can manage and protect our remaining high quality rivers. This is a choice our society must make and we commend WWF for outlining a way forward on this important issue.

Peter Cullen and John Williams  
Members  
Wentworth Group of Concerned Scientists

## Abbreviations

AUSLIG	Australian Surveying and Land information Group
AWRC	Australian Water Resources Council
AWDIP	Australian Water Data Infrastructure Project
CAPAD	Collaborative Australian Protected Area Database
CAR	Comprehensive, adequate and representative
CBD	Convention on Biological Diversity
COAG	Council of Australian Governments
DEH	Department for the Environment and Heritage (Australian Government)
EPBCA	<i>Environment Protection and Biodiversity Conservation Act 1999</i> (federal)
EPHC	Environment Protection and Heritage Committee
EU	European Union
HCV	High Conservation Value
HCVAE	High Conservation Value Aquatic Ecosystem
IABRA	Interim Aquatic Biogeographic Regionalisation of Australia
IBRA	Interim Biogeographic Regionalisation of Australia
IMCRA	Interim Marine and Coastal Regionalisation of Australia
IPA	Indigenous Protected Area
IUCN	World Conservation Union – International Union for the Conservation of Nature
MNES	Matter of National Environmental Significance (under the EPBCA)
MDB	Murray-Darling Basin
NAP	National Action Plan for Salinity and Water Quality
NHT	Natural Heritage Trust
NLWRA	National Land and Water Resources Data Audit
NOTs	National Objectives and Targets for Biodiversity Conservation
NRM	Natural Resource Management
NRMCM	Natural Resource Management Ministerial Council
NRMSC	Natural Resource Management Standing Committee
NFPS	National Forest Policy Statement
NRS	National Reserve System
NRSP	National Reserve System Program
NRSMPA	National Representative System of Marine Protected Areas
NWC	National Water Commission
NWI	National Water Initiative
RFA	Regional Forest Agreement
WSRA	<i>Wild and Scenic Rivers Act</i> (US)



## **Executive Summary**

### **Aquatic ecosystems – natural water infrastructure assets worth protecting**

Rivers, wetlands and estuaries provide very valuable ecosystem services to Australians, such as fresh water and recreation, and support some of the most biodiverse environments in Australia.

Aquatic ecosystems – rivers, creeks, wetlands, floodplains and estuaries – are the natural water infrastructure assets that underpin Australia's biodiversity, way of life, agriculture and industry.

Yet Australia has no national policy framework for the identification and protection of such aquatic ecosystems that are of high conservation value.

In other words, we have no national asset management and maintenance program that ensures we look after our primary assets in a coordinated and integrated way.

Aquatic ecosystems are defined for the purposes of this proposal to include rivers, creeks, wetlands, marshes, fen, peatland, floodplains, fresh and saline lakes, groundwater dependent ecosystems, karst, mound springs and estuaries.

### **New national targets**

WWF urges Governments to commit to identifying and protecting all high conservation value aquatic ecosystems by 2010. This means identifying and protecting all aquatic ecosystems of conservation significance at the International, Australian and State / Territory scale.

Such a national target and timeframe is consistent with various commitments and goals under the National Water Initiative, the Natural Heritage Trust's Rivercare and Coastcare Programs, Convention on Biological Diversity, Ramsar Convention, Directions for the National Reserve System approach, World Summit on Sustainable Development and Millenium Development Goal 7.

Current river and wetland protection efforts are inadequate. Most aquatic ecosystems in Australia are in a state of disrepair, with a third of river reaches assessed by the *Australian Catchment, River and Estuary Assessment 2002* having impaired aquatic life. Ninety percent had nutrient and sediment levels higher than natural.

Of the nearly three million kilometres of rivers and creeks in Australia (at a scale of 1:250, 000), only 6.0% are protected, or have been proposed for protection, under State / Territory wild river protection laws and programs.

Similarly, only 7.2% occur within protected areas (see Tables 9 and 15).

WWF proposes both these levels be raised to 15% by 2010 through the adoption of national aquatic ecosystem conservation targets to assist implementation of a broad range of policies and programs.

Achieving the first target would require approximately trebling the area of wild river catchments to 15% of the Australian landmass, or almost 120 million hectares, from the current 4.5%.

Of the more than 860 wetlands of national importance, just 7.4% have been listed as Wetlands of International Importance under the Ramsar Convention (64 sites). WWF believes a target of 100 Ramsar sites by 2011 is achievable and would assist implementation of Australia's obligations under the convention.

The area of nationally important wetlands protected within the National Reserve System should be increased to 80%, from the current 55% (or 8.87 Mha of a total 16.11 Mha).

Long-term targets also need to be agreed that ensure samples of different types of rivers and wetlands are adequately protected across Australia through a bioregional conservation planning approach.

The term 'protecting' is used in this proposal in its broadest meaning. It doesn't mean simply creating new national parks but rather using the broad mix of existing and emerging tools to provide adequate and effective protection. The term means using the full range of tools and processes available to communities and governments, including legal and voluntary, site-specific and management planning. These include natural resource management, land use planning and development assessment.

### **Better coordination, more efficient program delivery**

While many policies and programs exist, there is no overarching plan or process for ensuring these programs are aligned and working towards the same goals. Rather, Australia has a jumble of jigsaw pieces in the 'aquatic ecosystem management puzzle' that need to be put together (see Figure 1).

No single initiative or program, including the National Water Initiative, National Resource Management Program or National Reserve System Program, provides on its own a national approach to comprehensively identifying and conserving high conservation value aquatic ecosystems.

Enhanced coordination and implementation of existing initiatives and programs could achieve significant improvements in the conservation of aquatic ecosystems in Australia.

Around three-quarters of what is needed is simply making existing initiatives work better. No new public institutions are needed, but rather existing agencies and jurisdictions must learn to talk the same language and adopt consistent approaches and over-arching goals across State borders, as well as between government agencies and catchment groups within States.

A fundamental challenge to identifying and protecting high conservation value aquatic ecosystems is the large number of agencies across three levels of government, and increasingly natural resource management authorities and groups, which have responsibility for addressing the issue. By way of example, at the State / Territory Government level agencies with responsibility for the following areas have significant jurisdiction: water and vegetation management; protected areas and biodiversity

conservation; aquatic habitats and fisheries management; and land use planning and development control. Such agencies often approach the issue from very different perspectives. Agency paradigms that are often conflicting include sustainable use versus protection, regulation versus incentives, and statutory planning versus extension.

### **National consistency and new national policy**

WWF-Australia urges Commonwealth, State and Territory Governments to agree to cooperatively develop a National Policy Framework and National Action Plan to ensure nationally-consistent and integrated approaches to identifying and protecting high conservation value aquatic ecosystems.

This does not mean that States should adopt the same processes, but rather ensure compatibility and consistency across borders.

Prevention is better than cure. It is also much cheaper. Protecting rivers in near natural condition was found to be the most cost effective form of biodiversity conservation by the Prime Minister's Science, Engineering and Innovation Council.<sup>iv</sup>

Why should Australian, State and Territory Governments agree to nationally consistent approaches? The rationale for compatibility includes the national importance of water, better implementation and monitoring of major existing programs, greater efficiencies in program delivery, international obligations and consistent management of transboundary watercourses. See Table 8 for more information.

The effects of uncoordinated and inconsistent approaches to protecting high conservation value aquatic ecosystems across Australia include degradation of the Murray River, pollution of Gippsland Lakes and the Brisbane River, weed invasion of tropical wetlands, and poor water quality in the Great Barrier Reef lagoon. See Table 5 for more information.

Major existing policies, programs, databases and condition assessments that provide elements of a nationally coordinated approach to the identification and protection of high conservation value aquatic ecosystems are:

- **Policies and Programs**  
National Water Initiative, Living Murray Initiative, Natural Resource Management Program (incorporating the Natural Heritage Trust, particularly the Rivercare and Coastcare programs, and National Action Plan for Salinity and Water Quality), National Reserve System Program, National Objectives and Targets for Biodiversity Conservation, Regional Forests Agreement, Ramsar Wetlands program, National Representative System of Marine Protected Areas (estuarine aspects), and the National Water Quality Management Strategy;
- **Databases and Assessments of Aquatic Ecosystem Condition**  
Assessment of River Condition, Assessment of Estuary Condition, Australian River Health Database, national water accounts being developed under the National Water Initiative, Australian Water Data Infrastructure Project, Australian Wetlands Database, and Australian River and Catchment Condition Database,

See Figure 6 for more information.

### **Identifying high conservation value aquatic ecosystems**

WWF proposes a new comprehensive approach to identifying and protecting aquatic ecosystems in Australia. The conservation significance of all aquatic ecosystems should be assessed, if not already done so, and assigned a conservation value based upon the spatial scale of significance: International, Australian, State / Territory, Regional or Local significance.

Based on the simple approach shown in Figure 2 and Table 1, aquatic ecosystems of conservation significance at the:

- International, Australian and State / Territory scale should be assigned as being of high conservation value for Australia;
- Regional scale (e.g catchment or bioregion, as appropriate) should be assigned as being of medium conservation value for Australia; and,
- Local scale should be assigned as being of low conservation value for Australia.

This approach does **not** mean that aquatic ecosystems of Regional or Local conservation significance are ecologically unimportant. They are particularly significant to regional and local communities, landholders and local government in their own right. Cumulatively they are the majority of aquatic ecosystems in Australia.

Rather, this ranking provides a simple but powerful approach for determining which rivers, wetlands and estuaries are the most deserving of investment at a national scale.

**Table 1. Proposed five-tiered hierarchy of national conservation value, simple process for defining high conservation value systems, and primary responsibilities.**

<b>Spatial scale of conservation significance</b>	<b>National Conservation value</b>	<b>Primary responsibility for identification and protection, through cooperation with other levels of government, with NRM groups and landholders.</b>
International	High	Australian, State and Territory Governments
Australia	High	Australian, State and Territory Governments
State / Territory	High	State / Territory Governments
Regional	Medium	Natural Resource Management Groups & Local Governments
Local	Low	Natural Resource Management Groups & Local Governments

### **Protecting aquatic ecosystems – horses for (water)courses**

The suite of tools used to protect a high conservation value aquatic ecosystem should reflect its level of conservation significance, how the site and catchment are used and the aspirations of the local community.

An aquatic ecosystem that is of international conservation value may be best protected through designation as Ramsar wetland site, a water management plan and establishment of a nature reserve. For an aquatic ecosystem that is of State / Territory conservation value the most appropriate protection mechanism may be through designation under a heritage / wild river law and riparian zone management. An aquatic ecosystem that is of conservation value at the local scale may best be protected through zoning for habitat protection by local government and a conservation agreement put in place by the landholder and supported through extension services and rate rebates.

For any particular aquatic ecosystem, a large number of tools may be applied to protect aquatic values, using a 'horses for (water)courses' approach to choose the best mix of tools for each particular catchment.

WWF proposes that an Australian Aquatic Ecosystem Tool Kit and Decision Support System be developed to assist landholders, regional groups and governments to know about the full range of tools at their disposal, and what mix of tools is most appropriate for their property or catchment.

For most high conservation value aquatic ecosystems no single tool or management approach will adequately protect its values. Rather, a range of tools and management approaches should be selected by the landholder, community, catchment group and government agencies that best suits the conservation significance and uses of the high conservation value aquatic ecosystem. Three broad categories of tools exist:

- natural resource management through non-regulatory processes and stewardship incentives, tax and rate incentives and community education;
- regulation of activities on a site or activities that may affect a site; and,
- protected areas.

Four steps to nationally consistent approaches to identifying and protecting high conservation value aquatic ecosystems are:

Step 1. Governments Agree to develop a National Policy Framework and consistent approaches

Step 2. Help landholders and catchment groups with new tools, support and information

Step 3. Manage knowledge better by developing new technical and scientific tools

Step 4. Use existing policies and pass stronger laws

See Table 7 for more information.

Benefits to a broad range of Australian stakeholders from the proposal, key outcomes and proposed actions and targets are shown in Table 4.

### **Aquatic conservation lagging behind land and marine conservation**

Efforts to identify and protect high conservation value aquatic ecosystems have fallen a long way behind those for protecting terrestrial and marine ecosystems of high conservation value. National policies, principles and conservation criteria exist for developing comprehensive, adequate and representative networks of protected areas on and land and in the sea. However no single coordinated national policy exists explicitly for protecting high conservation value aquatic ecosystems.

National biodiversity conservation targets exist for the land and sea, but not for aquatic ecosystems.

Whilst there are a broad range of protective management mechanisms and catchment and land use planning processes for protecting high conservation value aquatic ecosystems, there is no over-arching policy framework, comprehensive inter-jurisdictional working group or nationally-agreed principles, criteria, objectives and targets. Though there are various agreements by the Council of Australian Government and Natural Resources Management Ministerial Council relating to aspects of the issue, there is often a lack of information sharing, coordination and integration between these programs.

### **International drivers for aquatic ecosystem protection**

Various international conventions and recommendations provide strong guidance on the importance of identifying and protecting high conservation value aquatic ecosystems, such as the Convention on Biological Diversity, Ramsar Convention, recommendations from the 2004 IUCN World Conservation Congress, and the 2003 IUCN World Parks Congress. In particular, the Convention on Biological Diversity's Programs of Work on Inland Waters and Protected Areas provide the Australian Government with a strong mandate to lead States and Territories in developing a nationally coordinated approach to identifying and protecting high conservation value aquatic ecosystems.

The framework proposed in this paper does not specifically address the identification and protection of aquatic ecosystems of cultural value, either for Indigenous or non-Indigenous Australia. However, the framework provides significant opportunities for addressing such priorities.

### **Report structure**

Part 1 of the report contains WWF-Australia's proposal for a National Policy Framework and National Action Plan for identifying and protecting high conservation value aquatic ecosystems.

Part 2 is a review of current and emerging tools and approaches to identifying and protecting high conservation value aquatic ecosystems. Information contained in this part is referred to in Part 1.

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### **References**

<sup>1</sup> Kingsford, R., Dunn, H., Love, D., Nevill, J., Stein, J., and Tait, J, 2005. *Protecting Australia's rivers, wetlands and estuaries of high conservation value: a blueprint*, Report to Land and Water Australia, Canberra, 110 pp (draft).

<sup>ii</sup> Wentworth Group of Concerned Scientists, 2003. *Blueprint for a National Water Plan*, WWF-Australia, Sydney.

<sup>iii</sup> National Land and Water Resources Audit, 2000. *Australian Water Resources Assessment 2000*, Commonwealth of Australia, Canberra.

<sup>iv</sup> Prime Minister's Science, Engineering and Innovation Council, 2002. *Sustaining our Natural Systems and Biodiversity*, Canberra.



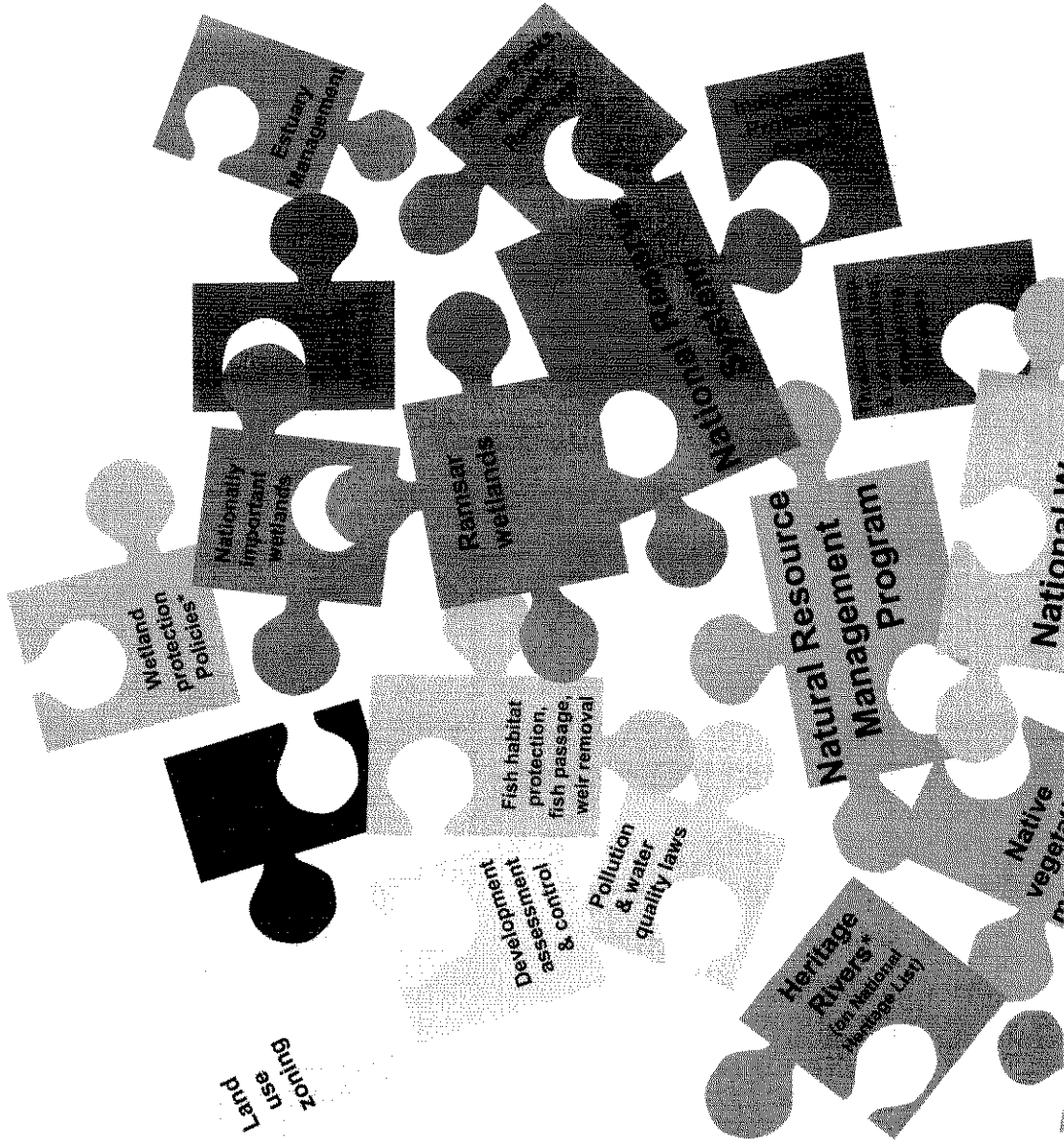
# DRAFT KEY STEPS TO SECURING AUSTRALIA'S NATURAL WATER INFRASTRUCTURE ASSETS

Solutions for Protecting High Conservation Value Aquatic Ecosystems

Targets are needed to guide actions:  
 - assessing and assigning all local conservation significance and on-ground actions.  
 - **conservation value** (ie, on-ground works.  
 (see target above).  
 and creeks in Australia:  
 only 6.0% is currently protected or managed.  
 - **15%** of the Australian continent  
 - **1 M ha** of a total 16.1 M ha). Only  
 - **10%** have been declared from a  
 - **10 types** of ecosystems, and  
 - **10** supporting landholders.

## Targets in Australia

National Conservation Value <sup>1</sup>	Lead Coordination Role <sup>2</sup>
High	Australian, State and Territory Governments
High	Australian, State and Territory Governments
High	State & Territory Governments
Medium	NRM Groups and Local Government





# RING AUSTRALIA'S NATURAL WATER INFRASTRUCTURE ASSETS

etlands, floodplains and estuaries – are the natural water infrastructure assets that underpin Australia's biodiversity, time and industries. Yet Australia has no national policy for identifying and protecting aquatic ecosystems of high value. We have no asset management program ensuring the health of our primary aquatic ecosystem assets in a coordinated way.

## ee to develop a National Policy Framework and consistent approaches

governments agree to a **national policy framework** and **national action plan** for protecting high conservation value aquatic assets together – through the Natural Resource Management Ministerial Council (NRMCMC) or Council of Australian Governments (COAG).

**The Aquatic Ecosystem Task Group** to propose ways forward to the NRMCMC and guide implementation.

enhance protection efforts under the National Water Initiative, Natural Resource Management Program, National Reserve System and other policies and programs to protect high conservation value aquatic ecosystems.

**Approaches** that build on and learn from existing State approaches and move towards greater compatibility where required. Agreeing on national principles, objectives and targets, and compatible criteria and significance thresholds.

**Clear conservation significance** as being either of International, Australian, State / Territory, Regional or Local conservation significance. A **priority list** (see over) provides a simple process for prioritising high conservation value aquatic ecosystems for investment and protection.

## and catchment groups with effective tools, support and information

to coordinate the development of agreed **aquatic ecosystem asset registers** for each of the 60 NRM regions in Australia. Under the Natural Resource Management Program and National Water Initiative who want to protect high conservation value assets, such as through paying them stewardship payments, providing extension services and better information.

**Protection Toolkit and Decision Support System** to provide information about the broad range of tools available, and their property or catchment – a flexible, 'horses for (water)courses' approach.

**System Information System** as the single easy-to-use public access point to databases and information, such as the National Water Initiative, national water accounts being developed under the National Water Initiative, Australian Wetlands Database, Australian River Health Database, and the Australian River and Catchment Condition Database.

## e better by developing innovative technical and scientific tools

**Base** that stores standardised information about the conservation significance of the three million kilometres of rivers and creeks. **Tools** should be able to find out about the ecological values of their river or creek with a few clicks of the mouse.

**Information System** that brings existing State systems together into a consistent national approach.

**Geographic Regionalisation of Australia** to provide the nationally agreed spatial framework for aquatic conservation, and **tools** for terrestrial and marine conservation.

*"We know that repairing damaged ecosystems costs about 10 times more than stopping them from being damaged in the first place. Surely in the 21st century we can have a nationally consistent approach to protecting and nurturing our aquatic ecosystems in national parks and with marine parks....WWF-Australia, and the author of this report Dr Stuart Blanch, are to be commended for fine rhetoric into a reality. They stress the urgency of getting on with the job given the few remaining un-impacted river systems and managing the high conservation rivers and provide some targets for Governments to assess their progress...."*

In a foreword by Peter Cullen and John Williams, members, Wentworth Group of Concerned Scientists



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# Aquatic Protected Areas for the protection of inland aquatic ecosystems of high conservation value



The 44th ASL  
Congress  
28th November - 2nd  
December 2005,  
Hobart, Tasmania  
[\[more...\]](#)

## Introduction

While most aquatic ecosystems in Australia have been degraded to some extent (NLWRA, 2002) and protecting less-disturbed river systems is considered the most cost effective form of biodiversity conservation (Possingham *et al.*, 2002), Australia has no national policy for protecting high-conservation-value aquatic ecosystems (HCVAE) (Nevill & Phillips, 2004; Kingsford *et al.*, in press).

The Australian Society for Limnology proposes the establishment of a nationally coordinated network of Aquatic Protected Areas (APAs) to ensure the protection, management and rehabilitation of HCVAEs across Australia.

Aquatic ecosystems for the purposes of this Policy include freshwater and non-marine saline aquatic ecosystems such as lakes, rivers, creeks, wetlands, floodplains, groundwater dependent ecosystems, karst, subterranean caves, waterfalls, hyporheic zones, sinkholes, and estuaries that rely on freshwater inflow.

Protected areas are central to biodiversity conservation and in turn, provide the ecosystem services that maintain economic, social and cultural values. They play key roles in providing

ecologically based benchmarks vital for assessing the long-term sustainability of management programs (ESA 2003).

### **What is an Aquatic Protected Area?**

There are many types of protected areas that help conserve aquatic ecosystems and species. Some focus on aquatic ecosystems, such as Ramsar wetlands and Heritage Rivers. Others such as National Parks, Marine Protected Areas, World Heritage Areas and Indigenous Protected Areas protect a range of ecosystems including aquatic ecosystems.

To paraphrase the most broadly accepted definition (IUCN 1994) the term 'protected area' means an area of either public or private land where at least some major threats can be managed in an effective way. To be considered as an APA the protective management arrangements must be consistent with one of the six categories of protected areas defined by the World Conservation Union (IUCN 1994).

Aquatic ecosystems may also receive some protection under management arrangements such as nature reserves, water catchment zones, conservation agreements, protective covenants, World Heritage Sites or forest reserves. Whether the protection afforded by such management arrangements are comprehensive, adequate or representative (as defined by the National Reserve System (NRS)) remains unknown.

Protected areas are about establishing boundaries within which at least some threatening processes can be effectively controlled. Given the effects that poor catchment and water use can have on downstream aquatic ecosystems, the effective protection of aquatic ecosystems within APAs means ensuring these processes help to reduce or prevent such impacts.

### **Why Australia needs a national policy and coordinated network of Aquatic Protected Areas**

#### **a) Threats to aquatic ecosystems**

One of the main drivers for an APA Framework is the prevention of the continued loss and degradation of aquatic ecosystems. Worldwide,

freshwater biodiversity is experiencing extinction rates that exceed those for forest or marine ecosystems (WWF 2004). In Australia, many species considered common a couple of decades ago are now threatened with extinction (eg Murray Cod, Silver Perch and Murray Crayfish). Entire aquatic ecosystems are listed as being endangered or becoming extinct (eg all lowland regulated river systems in inland New South Wales and all coastal floodplain vegetation in NSW).

Over much of Australia, inland aquatic ecosystems are either already in crisis or are rapidly approaching a crisis situation. Introduced plants and animals present intractable problems. The spread of agriculture has been accompanied by drainage, diversions and extractions that have altered the hydrological regimes of aquatic ecosystems. Coupled with land clearing, the complex morphology of pristine streams with deep holes, submerged timber and gravel and rock beds has disappeared under sediment loads from eroding catchments. Grazing of wetlands and riparian areas is destroying terrestrial and dependent aquatic ecosystems. Unsustainable extraction has seen the disappearance of springs, wetlands and ephemeral streams. Poorly designed irrigation schemes and the clearance of deep-rooted vegetation has seen salinity levels rise in streams over increasing areas of Australia. Sand mining and urban sprawl has destroyed coastal wetlands. Increasing reliance on groundwater is compounding the stresses on groundwater-dependent ecosystems. These and other threats to inland aquatic ecosystems are discussed in a variety of references, including the 1996 State of the Environment Report and the technical background papers.

It is clear that inland aquatic ecosystems are under increasing threat. As the pervasive and intractable nature of threats makes them difficult to manage, avoidance through protection mechanisms is hugely cost-effective and beneficial. Given that aquatic ecosystem degradation is ubiquitous and increasing, the identification and protection of ecosystems, especially rivers of high conservation value, is urgent.

b) International and National obligations and existing management arrangements

Following on from the Convention on Biological Diversity 1992, Australia as a signatory developed the National Strategy for the Conservation of Biological Diversity 1996. All Australian States are a party to this Strategy. Signatory nations to the Convention agreed to 'establish and maintain comprehensive, adequate and representative systems of protected inland water ecosystems within the framework of integrated catchment/watershed/river-basin management'. The outcome of the CDB was the establishment of the National Reserve System that aims to conserve 'comprehensive, adequate and representative' ecosystems in Australia's bioregions. This task has occupied most Australian nature conservation agencies over the last decade in protecting terrestrial and marine ecosystems. However, establishment of protected areas explicitly focussing on inland aquatic ecosystems has lagged in Australia.

In spite of international, national and State commitments to the establishment of representative systems of inland aquatic protected areas, only a few jurisdictions have made serious attempts. Victoria led the nation with its Heritage Rivers Act 1992. However, the initial vision of the Victorian program has not been fully realised. Tasmania also initiated a program in 2002 to protect freshwater ecosystems, both by reservation and by alternative approaches, and the Australian Capital Territory has also created some impressive protected areas.

Australia's remaining five jurisdictions have not developed strategic programs to implement their commitments using accepted approaches to systematic conservation planning (Margules and Pressey 2000). The focus of the National Reserve System at the bioregional and landscape level may have diverted attention from the finer spatial scale of many inland aquatic ecosystems. Although some representative examples of freshwater ecosystems are contained within existing protected areas, no systematic national review has been conducted to identify gaps in the reserve network and it is likely that many freshwater ecosystems are not adequately protected – particularly rivers and aquifers.

With regard to the Ramsar Convention, all States are yet to meet their full obligations. Jurisdictions are developing comprehensive

inventories of freshwater ecosystems, but these remain incomplete. Implementation of some management plans has been slow. The definition of "wetlands" under the Ramsar convention covers all aquatic ecosystems from the intertidal zone through to ephemeral salt lakes and other temporary aquatic ecosystems. This makes the commitments under this international agreement highly relevant to the coordinated protection of APAs sought in this ASL Policy.

Other tools for freshwater protection exist under various State water, catchment and fisheries legislation, but these provisions lie largely unused (Nevill & Phillips 2004, Table 1.1 and Appendix 4). The reluctance of relevant management authorities to embrace environmental responsibilities that they now have a mandate to do may relate to this historically being the province of nature conservation agencies and a slow realisation that this is now core business.

The overall situation is, however, starting to be recognised at the Commonwealth level. The National Reserve System Taskforce recently acknowledged that aquatic ecosystems were not sufficiently addressed by the NRS and recommended that 'the current understanding of freshwater biodiversity in relation to CAR be reviewed and an agreed approach be finalised' (NRMMC 2005). The National Water Initiative (2004) under the Council of Australian Governments (CoAG) also requires States and Territories to identify, protect, enhance and manage aquatic ecosystems of high conservation value.

### **Important considerations for the establishment of Aquatic Protected Areas**

There are many considerations for selecting and managing protected areas and this is especially the case for aquatic ecosystems. The following are some key issues:

*What would be the criteria for an Aquatic Protected Area ?*

Criteria for determining important wetlands have been drawn up by the ASL (ANZECC Wetlands Network 1994) and are a good starting point. In

the context of this Policy, we recommend that an Aquatic Protected Area meets one or more of the following criteria:

- is a good example of a type occurring within a biogeographical region in Australia;
- plays an important ecological or hydrological role in the natural functioning of an aquatic system;
- is an important habitat for plant or animal taxa at a vulnerable stage in their life-cycles, or provides a refuge when adverse conditions such as drought prevail;
- supports 1% or more of the national population of any native plant or animal taxa;
- supports native plant or animal taxa or communities which are considered endangered or vulnerable at the national level; and
- is of outstanding historical or cultural significance.

The process of identifying and selecting reserves for conservation planning are largely transferable across terrestrial, freshwater and marine habitats. The process is not unidirectional but entails many feedbacks and reasons for altering decisions. The methodology of Margules and Pressey (2000) could form the basis of a national strategy aimed at establishing systems of representative APAs, but would need modification to recognise issues specific to inland waters. Size, linearity and connectivity of streams, rivers and wetlands, as well as isolation and endemism (eg arid waterholes, mound springs, alpine tarns) are vital to understand for the effective conservation of plant and animal species, and selection and management of APAs.

#### *The catchment context*

All protected areas are affected to some extent by activities outside their boundaries and given the connectivity between aquatic ecosystems and their surface water and groundwater catchments, the issue of defining the boundary is critical (Saunders et al. 2002). For these reasons, we recommend that commitments to protect inland aquatic biodiversity be closely tied in with Integrated Catchment Management and NRM Planning. For example, land reserves and aquatic reserves could be closely aligned, or buffer

zones ensured between aquatic reserves and heavily modified surrounds. Where permanent water has been a feature, especially in arid areas, over long periods of time, locally endemic species with poor dispersal mechanisms are typical. Species with restricted distributions are difficult to cater for by APAs. Protection could be afforded by sound NRM (eg maintaining water flow, riparian vegetation and excluding exotic species and grazing). This type of situation illustrates the need for an APA policy and approach to engage with regional NRM planning.

#### *The social and cultural context*

As the values and functions of aquatic ecosystems extend beyond those of biological diversity, the concept of an APA needs to be contextualised in the social and cultural environment as well as the geographic and hydrological catchment. People will be part of the solution for managing APAs. Indigenous communities will often have the rights to maintain customary resource management and this involvement is central to the goal of protecting APAs.

### **Overarching Recommendation**

A national framework and policy be established by the Commonwealth, State and Territory Governments to develop a systematic and scientifically-based network of APAs to protect, manage and rehabilitate aquatic ecosystems of high conservation value.

### **Underpinning Recommendations**

- Establish and protect a comprehensive, adequate and representative network of APAs as part of the National Reserves System (cf, NRMCC, 2005).
- The degree to which protected areas currently protect aquatic ecosystems, habitats and species should be reviewed and assessed under the auspices of the National Water Initiative and the NRS.
- Establish national objectives and targets for the protection of high conservation value aquatic ecosystems, such as through



the National Objectives and Targets for Biodiversity Conservation process (Possingham et al. 2002, Morton et al. 2002).

- An Australian Heritage Rivers System should be established, potentially modelled on the successful Canadian Heritage Rivers System (Kingsford et al. in press, Nevill & Phillips 2004).
- The establishment of a comprehensive network of Ramsar wetlands across Australia should be completed, with adequate resources to develop and implement management plans.
- The development of existing inventories of aquatic ecosystems should be accelerated, using nationally agreed classification methods, to encompass all major inland aquatic ecosystems and to include data on value, condition and threat.
- A nationally consistent classification system of aquatic ecosystems is required to guide the establishment of a national network of APAs (Kingsford *et al.*, in press). Such a classification should include an aquatic analogue to the terrestrial Interim Biogeographic Regionalisation of Australia.
- Australian aquatic ecosystems should be identified and mapped at ecologically meaningful scales, with a focus on northern and central Australia where relatively little scientific information has been collected.
- National protocols should be established for the collection and storage of information regarding freshwater ecosystems to support the development of nationally compatible ecosystem classifications and inventories.
- The Directory of Important Wetlands in Australia should be reviewed for its adequacy in representing all wetland types across Australia.
- The role of catchment/regional planning

should be reviewed and strengthened with regard to the protection of aquatic ecosystems, supported by easily accessible and comprehensive ecosystem inventories.

- In all areas, the Commonwealth needs to play a lead role, particularly with respect to promoting and funding programs and interstate working groups to address issues in a coordinated way. These actions could be initiated within the cooperative frameworks of the National Reserve System and the NRM Ministerial Council.

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