Australian Government
National Water Commission
Raising National Water Standards Program

Environmental Watering Protocols to Benefit Native Fish

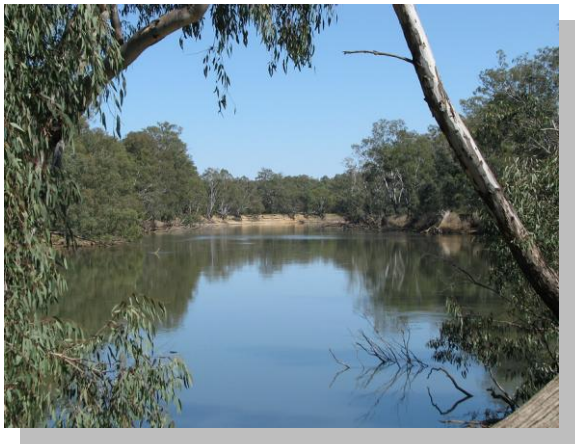
Raising National Water Standards Program **November 2009**

This information sheet summarises a project commissioned on issues relating to Australian water-dependent ecosystems. The project is funded under the Raising National Water Standards Program administered by the National Water Commission and will contribute to improved environmental water management and planning through a set of tangible, science-based outcomes.

Aims and objectives

The *Optimising Environmental Watering Protocols to Benefit Native Fish Populations* project, aims to provide critical information to water managers on how to make best use of environmental water to sustain native fish populations. A scarcity of information on the response of native fish to inundation events prevents water managers from setting applicable management objectives. Researchers are collaborating to evaluate the response of fish communities to inundation events in wetlands associated with the Murray River.

The project will result in a predictive decision-support tool enabling managers to make informed decisions regarding timing, duration and depth of inundation and method of water delivery to maximise benefits to native fish communities in river-floodplain ecosystems. Monitoring will also be recommended to aid in the development and selection of suitable indicators of fish production within wetlands.



Murray River: photo by A Brecknell

Activities undertaken

Researchers are evaluating changes in fish communities in response to different watering protocols in a series of actively managed and unmanaged wetlands in the Murray-Darling Basin (MDB) from Albury to the South Australian border. In addition, specific relationships between individual wetland variables and fish response variables are being investigated experimentally.

Strong stakeholder engagement is critical to the project's success and is being undertaken through individual consultation, workshops, steering and technical committee memberships, information sheets, conference presentations and scientific publications. To ensure the project is appropriately targeted and useful, the project team conducted a workshop involving water resource managers from across the MDB in March 2008. The team used this workshop to document current management practices with a focus on fish, and to engage with wetland managers.[1] The next stakeholder workshop will be held in November 2010.

Project progress

In August 2009, the team delivered a significant milestone detailing findings following the second "watering" of project wetlands. Early results reveal that the fish response to watering is highly variable among wetlands. The fish community in some wetlands undergo a great boom in production during the first six weeks post-watering, whereas others show a moderate or negligible response. Factors that appear to be important predictors include the season of watering and the method of water delivery (e.g. pumping vs regulator). Importantly, the project team has developed good relationships with local environmental water managers, facilitating productive exchange of information and knowledge.

Carp gudgeon: photo by A Price

[1] Meredith, S., and Beesley, L. (eds.) (2009) Watering floodplain wetlands in the Murray–Darling Basin to benefit fish: a discussion with managers.

Alignment with the National Water Initiative

The project aligns directly with key aspects of the National Water Initiative to implement principles for recovery of water in overallocated and overused systems and a return to sustainable levels of extraction. Robust scientific information will underpin policy decisions and provide a basis for defensible decision making around environmental water allocations.

Project benefits

The predictive tool developed through this project will enable environmental water managers to implement transparent and comprehensive management strategies to maximise benefits to native fish populations. Associated monitoring protocols will allow management agencies to better assess the condition of wetlands in determining the appropriate levels of inundation. This project will enhance the productivity of inland fisheries and help environmental managers to reverse the declining condition of many inland fish populations.

Black Swan Lagoon: photo by A Brecknell

Outcomes and deliverables

The project will produce a range of deliverables to support water managers and planners with adaptive management decisions in the face of increasing drought and climate change:

- predictive decision-support tool (Bayesian model)
- science report
- monitoring protocols
- NWC Waterlines publication
- demonstration wetland

Consortium partners

The project is being undertaken by the Murray-Darling Freshwater Research Centre (MDFRC), a multi-disciplinary research organisation based in Wodonga, Victoria, in partnership with the Arthur Rylah Institute for Environmental Research (Department of Sustainability and Environment, Victoria).
Other consortium partners are the Murray Catchment Management Authority (NSW), the NSW Murray Wetlands Working Group (recently incorporated into the NSW Department of Environment and Climate Change), Goulburn Broken Catchment Management Authority (Victoria), North-East Catchment Management Authority (Victoria) and the Murray-Darling Basin Authority.

Funding

Project funding totals $2,565,000 (plus applicable GST), including up to $1,845,000 from the Australian Government's RNWS Program and $720,000 from MDFRC and consortium partners.

Timelines

The project commenced in **August 2007** and concludes in **December 2010**. The next stakeholder workshop will be held in **November 2010**.

The Murray-Darling Freshwater Research Centre

Victoria
The Place To Be

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The National Water Commission is responsible for driving progress towards the sustainable management and use of Australia's water resources under our blueprint for water reform - the National Water Initiative.