

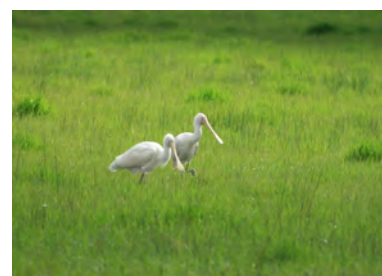


Research to support environmental watering: a collaborative approach in the Murray–Darling Basin

Background

The purpose of the MDB EWKR project is to improve the science available to support environmental water management within the framework of adaptive water management, and thereby contribute to achieving Basin Plan objectives.

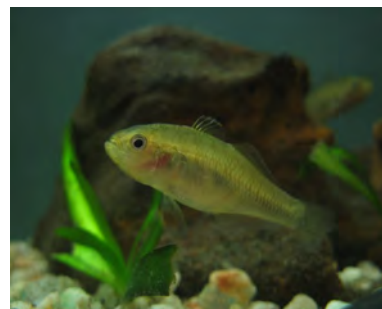
The MDB EWKR project is funded by the Australian Government's Commonwealth Environmental Water Office. The project is co-ordinated by The Murray–Darling Freshwater Research Centre (MDFRC) in collaboration with research institutions and government agencies.



Project Objectives

The objectives of the MDB EWKR project are to improve the understanding of:

1. How environmental flow management influences ecosystem function and thereby sustains biodiversity?
2. How the major drivers of system condition interact to affect biodiversity, ecosystem function, resilience and water quality?
3. How threats may reduce or prevent the expected ecological improvement from environmental flow?
4. How management of environmental flows influences environmental outcomes achieved over time: *what are the links between ecosystem responses to watering regimes and incremental changes in ecological condition?*
5. How complementary water management and natural resource management enhance the outcomes of environmental water management: *what are the links between ecosystem responses to management interventions and incremental changes in ecological condition?*



Research Priorities

Research priorities have been determined in consultation with State and Commonwealth government agency staff involved in managing environmental water and environmental sites, as well as scientists involved in research.

Research priorities are across four themes—vegetation, fish, waterbirds and food-webs.

Research focuses on better understanding the processes that drive the achievement of environ-

Contact

Dr Nikki Thurgate
Project Coordinator
Centre for Freshwater Ecosystems
La Trobe University
P: + 61 2 60 249690
E: n.thurgate@latrobe.edu.au
W: latrobe.edu.au/freshwater-ecosystems



Factors that influence the recruitment of long-lived floodplain vegetation (Red Gum, Black Box, Coolibah, Lignum)

- What flow regimes (particularly period between events) best support recruitment?
- How should flows be managed to support recruitment?

THEME 2: FISH

Factors that influence the recruitment of native fish

- How important are factors such as the habitat availability, food abundance and quality, connectivity between habitats, and predation/competition from exotic fish species?
- How should flows be managed to enhance these processes and native fish populations, and what complementary actions are required to manage other stressors?

THEME 3: WATERBIRDS

Factors that influence waterbird recruitment (fledging of chicks)

- How important are factors such as the availability of foraging habitat, abundance and quality of food, connectivity between habitats, and predation of chicks by foxes etc on recruitment?
- How do these factors interact to influence recruitment?
- How should flows be managed to enhance recruitment, and what complementary actions are required to manage other stressors?

THEME 4: FOODWEBS

The influence of food-web processes on the achievement of outcomes for fish and waterbirds?

- How do food-web processes vary according to flow conditions?
- How important is floodplain inundation and the associated carbon-nutrient mobilisation?
- Under what conditions do food-web processes influence fish and waterbird recruitment, compared to other factors (such as habitat availability)?

Research sites

MDB EWKR will involve on-ground research at four sites across the Basin:

- The Lower Balonne floodplain, including Narran Lakes

- The Macquarie Marshes
- The Upper Murray - centred around Barmah-Millewa Forest and potentially including adjacent areas
- The Lower Murray - centred around the Chowilla-Lindsay-Wallpolla Floodplain and potentially including adjacent areas

Selecting the sites was a difficult decision as there are many important and worthy sites. The selected sites were chosen for their capacity to build on existing research to get the best outcomes, and to understand if environmental responses differ according to climate and landscape etc. across the Basin.

Next steps

With the research plans complete the research partners are now working to implement the plans and research is now underway. The Waterbird, Fish and Food Web themes have all commenced sampling while the Vegetation theme has commenced data analysis and a laboratory experiment on seedling water requirements. A Communications and Adoption Strategy describing the proposed approach to working with stakeholders to support updates of the research outcomes is being finalised. There have been a number of workshops that have sought to engage managers in the development of adoption strategy and it is envisaged that this process will continue over the life of the project with continuous updates to the Communication and Adoption Strategy.



Keep in touch with MDB EWKR

- * EWKR Story space ewkr.com.au
- * latrobe.edu.au/centre-for-freshwater-ecosystems

