Fact Sheet #2
Update December 2016

Murray–Darling Basin Environmental Water Knowledge and Research (MDB EWKR) Project

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

Background

MDB EWKR is a 5 year, $10 million project to improve the science available to support environmental water management, and thereby contribute to achieving Basin Plan objectives. The project is funded by the Australian Government's Department of the Environment and Energy and co-ordinated by The Murray-Darling Freshwater Research Centre (MDFRC). For more information on the background and objectives of MDB EWKR, please go to the MDB EWKR section on the MDFRC website.

Where is MDB EWKR up to?

Through collaboration with water managers, asset managers, water planners, and scientists, research priorities have been determined, and research sites selected. This phase was followed by a period of review, conceptualisation and planning during which research partners collaborated to develop re-search plans. The focus is now on implementing the research plans.

Research priorities

MDB EWKR aims to address Basin-wide research questions and knowledge gaps, providing research outcomes that are useful across the Basin as much as possible, taking into account climatic and landscape differences. 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 and questions (see below) are associated with four broad themes—vegetation, fish, waterbirds and food-webs. In each case research will focus on better understanding the processes that drive the achievement of environmental outcomes, so that learnings may be applied to different management situations.

THEME 1: VEGETATION

Factors that influence the diversity of understory and wetland plant communities

- How important are factors such as the area of a wetland, the diversity of wetland habitats, connection between rivers/other wetlands, and the impacts of introduced pest animals?

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

- What flow regimes (particularly frequency, period between events, event duration) best support the survival and condition of floodplain vegetation populations?
- How do site characteristics (e.g. soil type and groundwater) influence flow requirements?

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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

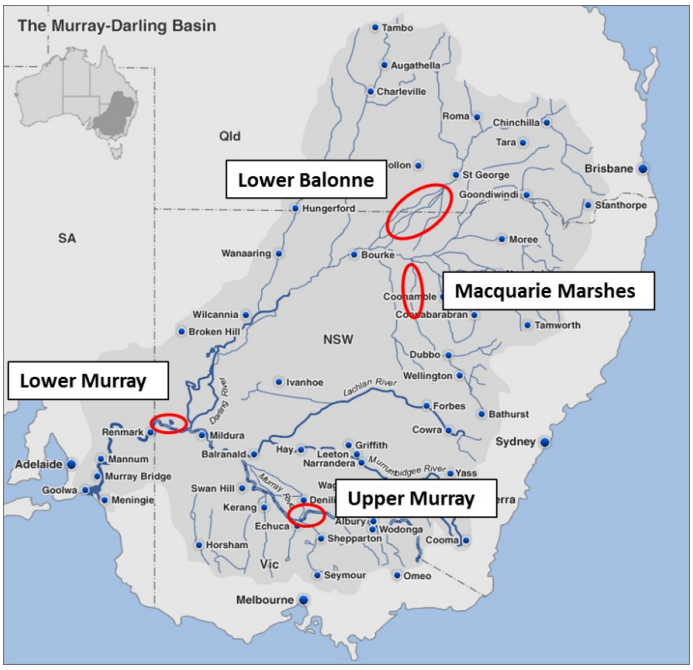
MDB EWKR will involve on-ground research at four sites across the Basin:

- 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.

Australian Government
Commonwealth Environmental Water Office

Keep in touch with MDB EWKR

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* A dedicated webpage http://www.mdfrc.org.au/projects/ewkr
* Subscribe to the MDB EWKR collaboration space for news