Institute for Land, Water and Society
Charles Sturt University

research for a sustainable future

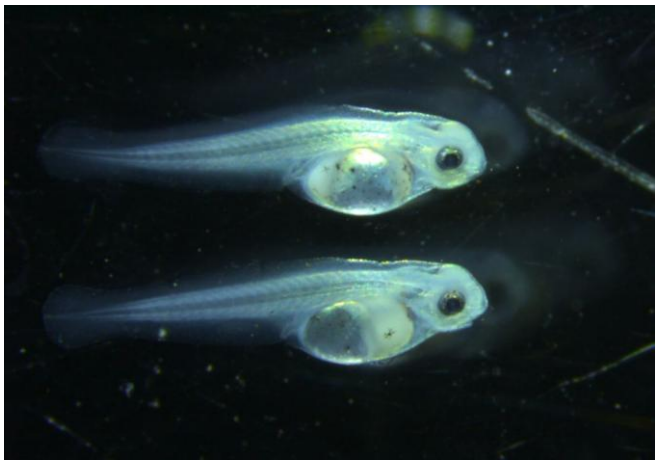
Murrumbidgee Long-Term Intervention Monitoring Project (LTIM Project)

The Long Term Intervention Monitoring (LTIM) Project for the Murrumbidgee River system is funded by the Commonwealth Environmental Water Holder ($3.7M 2014-2019) and is being delivered as a collaborative partnership led by Charles Sturt University (Institute for Land, Water and Society) with NSW Department of Primary Industries (Fisheries), University of NSW, NSW Office of Environment and Heritage, and Riverina Local Land Services.

The Murrumbidgee LTIM Project is designed to provide a robust framework to evaluate the ecological outcomes of Commonwealth environmental water within the mid and lower Murrumbidgee River and connected wetlands. Monitoring activities target multiple taxonomic groups and ecological processes with a focus on indicators of high ecological significance, such as large bodied native fish, waterbirds, and endangered species.

Monitoring activities within wetlands are focused on the responses of fish, frogs, tadpoles, turtles, microcrustacea (a component of the zooplankton), waterbirds, vegetation, along with the changes in water quality, carbon and nutrients metrics associated with black water and algal bloom risks, and hydrology measured before during and after environmental watering. The riverine component includes intensive monitoring of native fish breeding and fish community responses to environmental watering actions, along with microcrustacea, stream metabolism (stream productivity) and water quality metrics associated with black water and algal bloom risks, and hydrology.

Broad Objective	River	Wetlands
Hydrology	River hydrology	Wetland hydrology
Supporting ecosystem function	Stream nutrients, carbon, CHL a Nutrients	Wetland nutrients, carbon, CHL a nutrients
	Water quality Temp., DO, Cond. pH, NTU	Water quality Temp., DO, Cond. pH, NTU
	Stream metabolism	
Fauna communities, breeding and recruitment	Microcrustacea	Microcrustacea
	Fish Community	Fish Community
	Larval fish	Turtles
	Fish recruitment	Frogs and tadpoles
		Waterbirds
Flora communities, condition, recruitment		Vegetation Diversity



Larval golden perch from the Murrumbidgee River

Australian Government
Commonwealth Environmental Water

NSW Government Office of Environment & Heritage

NSW Government Local Land Services Riverina

NSW Government Department of Primary Industries

UNSW Australia

The Murrumbidgee Selected Area

The Murrumbidgee LTIM Project is being undertaken across three key ecological regions within the Murrumbidgee, the mid and lower Murrumbidgee River channel and adjacent mid-Murrumbidgee wetlands between Narrandera and Hay, and the Lowbidgee floodplain downstream of Maude which is further divided into separate monitoring "zones" representing areas with common ecological and hydrological attributes.

The framework includes 12 fixed monitoring sites across three key wetland types, oxbow lagoons of the Mid-Murrumbidgee, lignum-black box wetlands through the Nimmie-Caria system and river red Gum-spike rush wetlands through the Redbank systems and six fixed sites in across the mid and lower the Murrumbidgee River channel.

River red gum-spike rush wetland Lowbidgee floodplain

Setting nets Telephone Creek

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About the LTIM program

The Commonwealth Environmental Water Holder (CEWH) is responsible under the *Water Act 2007* (Cth) for managing Commonwealth environmental water holdings. The holdings must be managed to protect or restore the environmental assets of the Murray-Darling Basin. The Long-Term Intervention Monitoring Project (LTIM Project) is the primary means by which the Commonwealth Environmental Water Office (CEWO) will undertake monitoring and evaluation of the ecological outcomes of Commonwealth environmental watering.

The LTIM Project is implemented at seven Selected Areas over a five years from 2014-15 to 2018-19 as detailed in the Long-Term Intervention Monitoring Project Logic and Rationale Document.

The LTIM has five high-level outcomes:

- Evaluate the contribution of Commonwealth environmental watering to the objectives of the Murray-Darling Basin Authority's (MDBA) Environmental Watering Plan
- Evaluate the ecological outcomes of Commonwealth environmental watering at each of the seven Selected Areas
- Infer ecological outcomes of Commonwealth environmental watering in areas of the Murray-Darling Basin not monitored
- Support the adaptive management of Commonwealth environmental water
- Monitor the ecological response to Commonwealth environmental watering at each of the seven Selected Areas.

For more information, visit
http://www.environment.gov.au/water/cewo/monitoring

Investigators

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