



Lower Balonne Quarterly Snapshot – December 2024



Native fish

In October 2024, as part of the Lower Balonne Flow-MER Project, members of the University of New South Wales (UNSW) Centre for Ecosystem Science (CES) Flow-MER fish team undertook fish sampling at 11 Narran River and Lake sites.

Following an unusually wet period from 2021–2023, the Narran Lakes were inundated in March 2024. This provided an ideal opportunity to fill a significant gap in our understanding of the role Narran Lakes plays in supporting fish communities in the Northern Murray–Darling Basin.

The UNSW CES team was led by Dion Iervasi and Jackson Lamin from Austral Research and Consulting, assisted by Pat Johnson. CEWH representatives and Dharriwaa Elders Group River Rangers also participated in a sampling day.

Results

The species identified in this initial survey and data previously collected in 2008, add to our understanding of species at Narran Lakes. A second survey will take place next year, dependent on water being present.

Fish

Of the five native fish species caught, the most abundant was the bony bream (*Nematalosa erebi*), captured at all sites except Back Lake.

Spangled perch (*Leiopotherapon unicolor*) and golden perch (*Macquaria ambigua*) were captured at most sites, whilst Hyrtl's catfish (*Neosilurus hyrtlii*) were captured at just over half the sites.

Only one carp gudgeon complex (*Hypseleotris sp.*) was captured at Angledool Weir.

Golden perch caught across nine sites were 25 to 50 mm long and likely new recruits. No adults were captured.

Three exotic fish species were also captured. These were the Goldfish (*Carassius auratus*), European carp (*Cyprinus carpio*) and Eastern gambusia (*Gambusia holbrooki*).

Turtles

Two turtle species were captured, these were the Broad-shelled turtle (*Chelodina expansa*) and Murray short-necked turtle (*Emydura macquarii*).

Decapods

Two decapod (crustacean) species were caught, the most common being freshwater prawns (*Macrobrachium sp.*), captured across all sites except Back Lake and Clear Lake Midden. The common yabby (*Cherax destructor destructor*) was also captured across all sites except Back Lake.

Bivalves

One bivalve (mollusc) species was captured, being the Austral mussel (*Hyridella australis*).

Frogs

One unidentified frog species was also captured.



Clockwise from top left: Golden perch; Austral mussel; Broad-shelled turtle; and common yabby with freshwater prawns in net behind.

Top image: Sunset at Narran Lakes, May 2023.



The Flow-MER Program team acknowledges the Aboriginal communities of the Murray–Darling Basin and pays respect to Elders past and present. We acknowledge Aboriginal People as the Traditional Owners of the land, water and sky Country across the Basin and value the expertise, wisdom and enduring connections that have informed their care for Country over millennia. We recognise the intrinsic connection of Aboriginal People to Country, and we value the enduring cultural, social, environmental, spiritual, and economic connection to the rivers, wetlands, and floodplains of the Basin. Artist: Rebecca Salcole



Waterbirds – Acoustic data

Initial data has been retrieved from acoustic recorders installed at Narran Lakes (Dharriwaa) as part of the UNSW CES Lower Balonne Flow-MER waterbird studies.

Around two weeks of data from when the recorders were installed on 14 August through to 5 September, was retrieved from three acoustic recorders installed at Back Lake, Long Arm and South Arm.

The team then used Cornell University's BirdNET artificial intelligence models with coding and R (a programming language used for data analysis) to run the analyses and provide the preliminary findings.

A total of 190 species were identified with a >50 per cent confidence in accuracy. Of these, the presence of 138 species is supported by observational records from past surveys and historical records.

The diversity at each site was similar, being:

- Back Lake - 129 species, 15 unique to this site
- Long Arm - 131 species, 17 unique to this site
- South Arm - 145 species, 25 unique to this site.

The team will now undertake further analysis including listening to call records for those species that were identified as questionable.

With each future data retrieval, the researchers will be able to study changes in species composition at each site in relation to the season, water use, weather conditions and water in the landscape including the impact of Commonwealth environmental water. Ultimately providing information for water management decision-making.

The amount of data that will be collected during the project is expected to be so vast that UNSW's High-Performance Computing system will need to be used for the analysis.

Hear a sample of the recordings
by scanning the QR code or
visiting <https://bit.ly/4i26ude>



River flows and connectivity

In late November and early December, significant rainfall resulted in flows in the Lower Balonne, with water crossing the border from Qld into NSW a welcome benefit for the health of the wetlands. The flows were registered at Angeldool Weir gauge on the Narran River.



Cultural outcomes

To further build relationships, Dr Kate Brandis invited the Dharriwaa Elders Group to visit the Macquarie Marshes in October. They were also joined by UNSW students and Macquarie River and Marshes Flow-MER Cultural Outcomes lead, Danielle Flakelar (below centre right), who spoke to the group about the local Wayliwan People's long connection to the Marshes.



Photo courtesy Dharriwaa Elders Group, Walgett.



Waterbirds – Spring survey

In October, the UNSW CES Flow-MER waterbird team including partners from NSW Department of Climate Change, Energy, the Environment and Water and National Parks and Wildlife Service (NPWS), undertook the second Narran Lakes waterbird survey.

In total, 39 waterbird species were recorded in survey sites within the Narran Lakes Nature Reserve. Four threatened species were detected: a resident family of black-necked storks (*Ephippiorhynchus asiaticus*), seven brolga (*Grus rubicunda*), one freckled duck (*Stictonetta naevosa*) and around 15 sharp-tailed sandpipers (*Calidris acuminata*). Thousands of waterfowl were recorded, and grey teal (*Anas gracilis*) and black-tailed native hens (*Tribonyx ventralis*) were in abundance. More cryptic species not regularly observed were also detected including the Australian spotted crake (*Porzana fluminea*).

The recording of 39 species during this survey is the highest number of species recorded in one survey since the NPWS commenced monitoring the Nature Reserve in 2012.

The high number of species is directly related to the amount of water in the wetland and the types of habitats inundated. As a comparison, only five waterbird species were recorded when the wetland was mostly dry in 2023.

More information

Visit www.flow-mer.org.au or contact the UNSW's Flow-MER Communications Officer, Jane Howard on jane.howard@unsw.edu.au



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