



Australian Government

Commonwealth Environmental Water Office



In partnership with:

Department of Planning,
Industry and Environment

Macquarie River Valley 2020–21: Event Update #2

30 October 2020

Flows for fish and wetlands

Delivery of NSW and Commonwealth water for the environment in the Macquarie catchment began in early October 2020. This water is supporting the recovery of native fish, particularly Murray cod, and core wetland vegetation in the Macquarie Marshes.



Macquarie Marshes, spring 2020 (CEWO)

Why deliver water now?

Murray cod spawn from submerged nests during spring when water temperatures are above 18°C. Much of the spawning is expected to occur this year around Trangie. Providing relatively stable flows using water for the environment during this time to keep nests underwater will give these fish the best opportunity to successfully breed this year.

The timing and duration of flows to the Macquarie Marshes is also critical for the recovery of this internationally significant wetland system. Rainfall and tributary flows in early 2020 have helped to inundate parts of the Marshes and have primed many plants to be ready to grow, flower, and set seed. Plants in core wetland areas typically need 2–3 months of inundation over the post-frost months to allow them to flourish. This gives them a better chance to out-compete weeds such as lippia and

noogoora burr. More water is also needed in October and November to help wetland animals such as frogs and waterbirds to breed and young to grow and disperse. Some of these flows may come from tributaries downstream of Burrendong – we'll adapt to natural flows as they come.

Progress of the flow

Since early October this water has targeted a relatively stable flow between 1,000 to 2,000 ML/day in the mid-Macquarie River as planned to support Murray cod nesting. Water temperatures downstream of Dubbo have reached above 18°C for several weeks in October, which is suitable for cod breeding.



Murray cod larvae from the Macquarie River in October 2020 (NSW DPI – Fisheries)

Once the key spawning time of early October has passed, flows will increase in November to provide opportunities for newly hatched fish to disperse while still maintaining inundation in the Marshes and connection to the Barwon. The increased duration of a connection between the Macquarie and Barwon Rivers will provide opportunities for migratory fish species, such as golden, silver and spangled perch to move into the lower parts of the Macquarie River, through the Marshes and further upstream.



Monitoring the outcomes

A range of monitoring activities are underway to assess the outcomes of the flow. Plant, bird and frog surveys are being undertaken by NSW agencies in the Macquarie Marshes. This includes measures of diversity, abundance, breeding and recruitment. Changes in inundation in the Macquarie Marshes are tracked using remote sensing.

NSW Department of Primary Industries (DPI) – Fisheries are monitoring the breeding and recruitment success of Murray cod, particularly near Trangie. Monitoring is supporting ‘real time’ flow management and will inform future deliveries.



Larval sampling Macquarie River October 2020 (NSW DPI – Fisheries)

Early responses

The good news is that NSW DPI – Fisheries detected Murray cod larvae in the Trangie area in mid-October. Based on larval ages, hatching of eggs began at the start of October.

Preliminary results from waterbird surveys have shown that waterbird diversity in the Marshes is good, with moderate abundance given other nearby areas are also still wet this year. Birds observed included straw-necked ibis, herons, egrets, glossy ibis and grey teal. Although there are currently no large breeding colonies in the Marshes (which requires a larger flooding event), some small colonies of cormorants have been seen.

Vegetation is responding well in areas that have been inundated. Good growth in reeds has been observed. More growth and reedbed flowering is expected as flows continue into November.



DPIE vegetation monitoring in the Macquarie Marshes September 2020 (CEWO)

Frogs are also responding well to the flows, with a good diversity of species and tadpoles being found. Continuing to maintain inundation through the delivery of water for the environment will support frog recruitment, which is important following the severe three-year drought.

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Previous updates for this watering action can be found at:

<http://www.environment.gov.au/water/cewo/catchment/macquarie/2020-21-macquarie-river-valley-updates>