



Australian Government

Commonwealth Environmental Water Office



In partnership with:

Department of Planning,  
Industry and Environment

## Macquarie River Valley 2020–21 water use

<b>Objectives:</b>	Support the recovery of native fish, particularly Murray cod, and core wetland vegetation in the Macquarie Marshes
<b>Timing:</b>	September 2020 – February 2021
<b>Target areas:</b>	Mid-Macquarie River, Macquarie Marshes, lower Macquarie River
<b>Achievements:</b>	<ul style="list-style-type: none"> <li>• Successful spawning and recruitment of Murray cod</li> <li>• Inundated over 21,000ha of Marshes wetlands</li> <li>• Growth and recovery of wetland vegetation</li> <li>• Frog and waterbird breeding</li> </ul>



Thriving wetland vegetation at Loudon's Lagoon in the North Marsh Reedbed, November 2020 (CEWO)

## Supporting drought recovery

**Water for the environment supported threatened Murray cod populations and brought back to life parts of the iconic Macquarie Marshes following the record-breaking drought of the previous three years.**

The extreme drought conditions in the Macquarie Valley between 2017 and early 2020 severely impacted native fish and wetland ecosystems. A series of fish death events in early 2020 further reduced the native fish stocks of the Macquarie.

Conditions began to progressively improve following rainfall and a return to tributary flows in late January 2020. To continue the drought recovery started by tributary flows, a total of 137 gigalitres of NSW and Commonwealth water for the environment was delivered in late 2020 and early 2021.

### What was the response?

Plant, bird and frog surveys in the Macquarie Marshes were undertaken by the NSW Department of Planning, Industry and Environment. NSW Department of Primary Industries – Fisheries monitored Murray cod breeding and recruitment on behalf of the Commonwealth Environmental Water Office.

#### Native fish

The flow kept river levels reasonably stable during spring, preventing them from falling and compromising fish breeding. We found the larvae of five fish species, including Murray cod, Freshwater catfish, Golden perch, Australian smelt, plus young yabbies and freshwater mussels. Murray cod made up 88% of the larvae caught. Drifting endangered Silver perch eggs were also found. Monitoring in January and March showed Murray cod larvae had successfully recruited to juvenile fish. Juvenile catfish and Golden perch were also observed.



Juvenile golden perch and Murray cod from the Macquarie River near Gin Gin, March 2021 (NSW DPI – Fisheries)

### *Wetland inundation and vegetation*

Water for the environment helped inundate a maximum area of 21,573 ha in the Macquarie Marshes during the deliveries. This is over 10% of the entire Marshes. This supported wetland plant communities like water couch, reedbeds and mixed marsh that need water every 1 to 2 years.

Vegetation in the areas watered responded well, including in the North Marsh reedbed, which had been previously burnt. With the help of water for the environment, reeds were able to grow up to 2 to 3 metres high. Wetland vegetation grew vigorously in response to flows, which provided important frog and bird breeding and foraging habitat. While the response was positive in inundated areas, large areas of the Macquarie Marshes still need water to support their recovery.

### *Waterbirds*

A total of 48 species of waterbirds were recorded during spring surveys. These included nationally endangered Australasian bittern and Australian painted snipe, migratory species such as Sharp-tailed sandpiper and Latham's snipe, and brolga, which are listed as vulnerable in NSW. Water for the environment supported small-scale waterbird breeding including White ibis, Magpie geese, ducks, and likely Australian painted snipe.



*Little black cormorants in the Macquarie Marshes (Nicola Brookhouse, NSW National Parks and Wildlife Service)*

### *Connectivity*

Water for the environment helped to maintain connectivity along the Macquarie River, Macquarie Marshes and through the lower Macquarie River over spring and summer. There was also connection to the Barwon–Darling during the flow, providing opportunities for native fish to move between the catchments.

### *Frogs*

Eight frog species were identified in the Macquarie Marshes, including all 6 flow responsive species. High numbers of frogs were observed. Successful breeding was widespread across the survey sites.



*Kayaking in the Macquarie Marshes (CEWO)*

## Our partners

The delivery of water for the environment was undertaken by the Commonwealth Environmental Water Office and NSW Department of Planning, Industry and Environment in consultation with the Macquarie–Cudgegong Environmental Flow Reference Group. This group includes representatives from local landholders, the irrigation industry, relevant agencies, environment groups and the Aboriginal community.

## Contacts

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Previous event updates can be found at: [2020-21 Macquarie River Valley Updates](#)