



Australian Government

Commonwealth Environmental Water Office

# Macquarie River Valley 2020–21 Event Update #1

## A plan for drought recovery

Rainfall in 2020 has provided a welcome respite from the extreme drought of 2017 to 2019. The Macquarie valley landscape, river flows and water availability have all begun to recover. This spring as temperatures rise, the timing is right to add water for the environment onto rainfall and natural flows to help native fish and wetland vegetation bounce back.

## Key objectives

Commonwealth and NSW environmental water managers are working together to deliver water for the environment in 2020–21 for multiple objectives:

-  Support recovery of native fish by supporting breeding and recruitment of Murray cod and increasing movement and feeding opportunities for a range of species.
-  Inundate core areas of wetland vegetation, including reeds, mixed marsh, water couch and river red gum.
-  Maintain important breeding and foraging habitat for waterbirds, frogs and other aquatic animals.
-  Increase connectivity between the Macquarie River, Marshes and Barwon River.

## Delivery Plan

**Target Areas:** Deliveries will target multiple locations, including Murray cod breeding habitat in the mid-Macquarie River, the Macquarie Marshes and the Lower Macquarie River to the Barwon River.

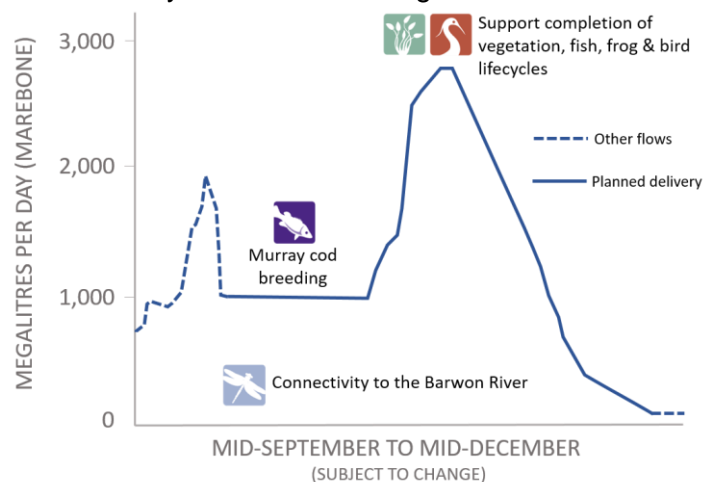
**Stable flow:** Releases from Burrendong Dam began at the start of October to provide a relatively stable flow in the Macquarie River (~1,000 ML/day at Marebone Weir).

These flows aim to support Murray cod nesting and provide breeding opportunities for other native fish such as carp gudgeon and un-specked hardyhead. Ensuring nests are not exposed or disrupted is important for successful nesting.



Murray cod, Macquarie River (Jerom Stocks, NSW DPI-Fisheries)

**Flow pulse:** A flow pulse in late October into December, will see water levels rise to increase the extent and duration of inundation in the Marshes (see figure below). This allows water-dependent plants enough time to grow and set seed and maintains key waterbird breeding sites.



Deliveries will be managed adaptively to maximise the benefits, minimise disruptive inundation and respond to changing conditions.



## Supporting Murray cod

Murray cod (Gugabul, Guduu\*) is a protected species under the *Environment Protection and Biodiversity Conservation Act 1999*. Murray cod have significant cultural value to the First Nations in the Macquarie River valley, and feature in Aboriginal dreaming and are an important food. Murray cod are also an important recreational fishing species.

Populations of Murray cod in the Macquarie valley have been impacted by water resource development, loss of habitat and the presence of barriers. Extremely dry conditions led to devastating fish death events in the Macquarie River earlier this year. Importantly last summer, passionate locals and NSW DPI Fisheries rescued and relocated hundreds of native fish including Murray cod to safer waterholes in the Macquarie River.



Rescued Murray cod (NSW DPI-Fisheries)

Water for the environment will support recovery of Murray cod following the drought. Deliveries will be used to provide suitable flows to maintain nests and support survival and dispersal of Murray cod.

Murray cod breed during spring when water temperatures are above 18°C. They lay eggs on logs, rocks or under tree rootballs and banks, where the male fish stays to guard the nest. During this time, relatively stable flows are needed to ensure the nest is not disturbed, smothered or exposed.

These flows will also help other native fish species to move and breed, including smaller fish species that are food for larger fish such as Murray cod. A healthy food web is important for a recovering system.

\*Gugabul means Cod in Wiradjuri language. Guduu means Cod in Gomilaroi and Wailwan languages.

## Partnerships

Planning for the delivery of water for the environment has been undertaken by CEWO, NSW Department of Planning, Industry and Environment and NSW Department of Primary Industries - Fisheries in consultation with the Macquarie Cudgegong Environmental Flow Reference Group. This group includes representatives from local landholders, irrigation, environment groups and the Aboriginal community.



Macquarie Marshes field visit (CEWO)

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