Macquarie River Murray Cod Monitoring: Progress Update

18 December 2020

Commonwealth and NSW environmental water managers are delivering water for the environment in the Macquarie to support the recovery of native fish and core wetland vegetation in the Macquarie Marshes. Deliveries were designed to support Murray cod nesting and dispersal in addition to outcomes for vegetation, waterbirds and fish in the Marshes.

Flow event updates on the delivery of water for the environment in the Macquarie in 2020–21 and the environmental response can be found at: http://www.environment.gov.au/water/cewo/catchment/macquarie/2020-21-macquarie-river-valley-updates

Monitoring

The Commonwealth Environmental Water Office has contracted NSW DPI Fisheries to monitor spawning and recruitment of Murray cod in response to deliveries of water for the environment in the Macquarie River from spring 2020.

Fisheries technician retrieving a larval drift net (DPI Fisheries).

Five weeks of larval fish sampling was undertaken for at four sites on the Macquarie River downstream of Dubbo (between Wambool and Warren), an important location for Murray cod breeding. This sampling included light traps to attract the fish larvae.

A light trap containing glow stick used for the collection of larval fish (DPI Fisheries).

Preliminary Findings

Monitoring found that Murray cod successfully spawned in the mid-Macquarie River during the delivery of water for the environment in spring.

Larval Murray cod collected from the mid-Macquarie River, October-November 2020 (DPI Fisheries).

Preliminary analysis found larvae of at least five fish species and crustaceans. These included Murray cod, freshwater catfish, yabbies, and mussels. Whilst larval carp were also detected, they were in much lower numbers than Murray cod larvae. The water temperature was warm enough for spawning.

Top photo: Larval species from the mid-Macquarie River (October-November 2020). Top photo, top to bottom: Yabby, Murray cod, freshwater catfish and carp. Bottom photo: a mussel from the mid-Macquarie River (DPI Fisheries).

Although recovery of Murray cod populations may take years, these findings are important and promising.

Next Steps

This study will test and refine our understanding of the conditions when Murray cod hatched. This will help improve our understanding of Murray cod spawning and recruitment in the Macquarie River.

Additionally, to determine if these larval Murray cod survived to juveniles, young-of-year sampling will be undertaken during summer and autumn. The next round of sampling will occur in late December 2020 and January 2021.

Gin Gin Bridge Reserve sampling site (DPI Fisheries)

Adaptive management

The larval monitoring provided "real-time" information to environmental water managers on presence of larval Murray cod. In response, water managers altered their original water delivery plans (extended the period of stable flow) to provide the right water conditions, for Murray cod nesting success.

Information from this study will be used to continue to improve planning and delivery of water for the environment in future to benefit native fish communities in the Macquarie River, in line with adaptive management.

Submerged rootballs are a favourite place for Murray cod to use for breeding sites, Macquarie River, Dubbo (CEWO)

Contacts

NSW DPI – Acting Fisheries Senior Fisheries Manager:

Rod Price (Dubbo)
📞 02 6881 1284
@ rodney.price@dpi.nsw.gov.au

NSW DPIE Senior Wetland and Rivers Conservation Officer:

Tim Hosking (Dubbo)
📞 02 6883 5329
@ tim.hosking@environment.nsw.gov.au

CEWO Local Engagement Officers:

Jason Wilson (Walgett)
📞 0418 210 389
@ jason.wilson@awe.gov.au

Jane Humphries (Moree)
📞 0437 141 495
@ jane.humphries@awe.gov.au

The CEWO also acknowledges the Traditional Owners of the Macquarie catchment and their continuing connection to land, waters and community. We pay our respects to them and their cultures and to their elders both past and present.