



Australian Government

Commonwealth Environmental Water Office

Macquarie River Valley 2019–20 Water Use

2019–20 conditions

The Macquarie catchment experienced record-breaking drought conditions during 2019 and into January 2020. Commonwealth and NSW environmental water managers had no regulated water available to support the environment. It was a difficult year for native fish as rivers stopped flowing, refuge pools deteriorated, and fish deaths occurred.



Sinclair's Lagoon, September 2019 (CEWO)

Rainfall between February and April 2020 provided some welcome relief, with 200–600 mm falling across the catchment. This saw increased flows in rivers and creeks in the Macquarie River Valley, particularly downstream of Burrendong Dam.

The flows reconnected and replenished pools in the Macquarie River downstream of Warren where flows had previously been stopped. Much needed water flowed into parts of the internationally significant Macquarie Marshes. Further rain is needed to build on the benefits of these flows. It will take above average rainfall for months to recover from the drought.

Increased flows into wetlands

Inflows downstream of the dam in February and April enabled access to Commonwealth and NSW supplementary access licences along the Macquarie River. This provided an additional 4,583 ML of water for the environment through the mid-Macquarie River and into the Macquarie Marshes.

Expected outcomes

Supplementary water for the environment was a small proportion of the flow event. Nevertheless, this additional water helped to:



Inundate core areas of wetland vegetation, including mixed marsh, water couch and river red gum.



Inundate important breeding and foraging habitat for waterbirds.



Provide increased movement, feeding and spawning opportunities for native fish, and increase fish survival.



Increase connectivity between the Macquarie River and Marshes and maintain refuge habitat.



Macquarie River near Warren, February 2020 (CEWO)

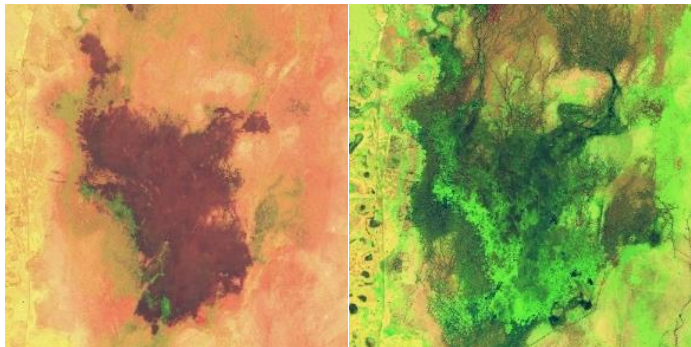
Early responses

Wetland inundation and vegetation

Widespread rainfall and flows in early 2020 benefited around 44,000 hectares of the Macquarie Marshes, including all the core wetland areas and some fringing vegetation. Flows inundated wetland plants that need water every 1–2 years, such as water couch, reeds, mixed marsh and river red gum trees. These areas had not been inundated since water for the environment was delivered in winter/spring 2018.



As water flowed through channels and spread out through the Marshes system, vegetation began to grow and improve in condition in areas that got wet. As shown in the satellite images below, inundation supported growth of reeds and vegetation in the North Marsh reedbed, large parts of which were burnt (dark brown areas in image on left) in October 2019. Rainfall and flows supported plant growth, condition and completion of life cycles.

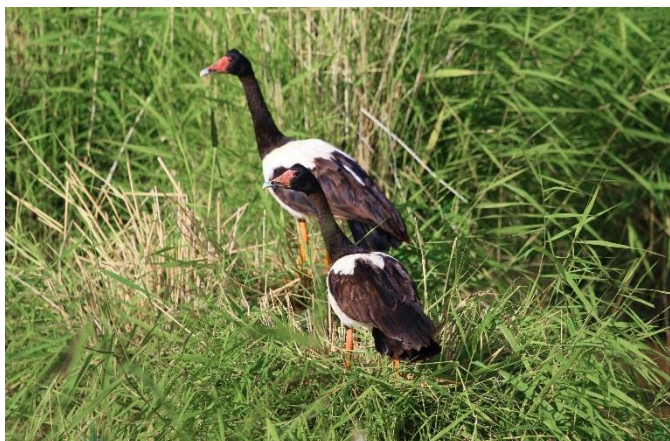


North Marsh reedbed, 2 January and 22 April 2020 (Sentinel Playground, Agriculture layer)

Follow-up rainfall and flows, particularly in spring and summer will be required to build on these benefits and support wetland recovery. Ideally these types of wetland vegetation would remain inundated for 3–6 months, to help support recovery from the drought. There are other areas in the Marshes where the water didn't reach, which will also require water in the future to improve their chance of recovery.

Waterbirds

Waterbirds responded well to the inundation of the Marshes. Large flocks of magpie geese and multiple small flocks of straw necked ibis were observed in May 2020. Hardhead ducks, plumed whistling ducks and pelicans were also observed, as well as one spotted harrier, which is listed as vulnerable in NSW.



Magpie geese in the Marshes (Nicola Brookhouse, NPWS)

Several bird species were observed breeding across Marshes, including magpie geese, black swans and darters.

The flows which were boosted by Commonwealth and NSW supplementary water helped support these waterbirds, by providing foraging and nesting habitat, and helping to increase food resources.

Connectivity

Rainfall and flows increased connectivity through the Macquarie River Valley to the Barwon River. Refuge pools were reconnected in the Macquarie River downstream of Warren and into the Marshes.

Water began flowing out of the Marshes at the end of February 2020, providing the first flows to that section of the lower Macquarie River since December 2018. These flows helped refresh and reconnect habitat and provided opportunities for native fish to move and survive.



Downstream of Bora Well, March 2020 (NSW DPIE)

Our partners

Delivery of water for the environment in the Macquarie River Valley is planned and managed by the Commonwealth Environmental Water Holder, NSW Department of Planning, Industry and Environment, and NSW DPI Fisheries.

The Macquarie Cudgegong Environmental Flow Reference Group, which includes community members from local interest groups and government, provides important local advice.

Local Engagement Officers

The Commonwealth Environmental Water Office has two Local Engagement Officers based regionally in the northern Murray–Darling Basin, who can be contacted for further information:

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