

Birds of a feather flock together in the Macquarie Marshes

A success story of natural inundation and effective water management



The winter-spring period of 2016 saw above average rainfall and river flows in the Macquarie valley, resulting in large-scale flooding and inundation of floodplain areas and the Macquarie Marshes. Floodwaters covered areas of the Macquarie Marshes that are often difficult to reach with managed environmental water flows. The inundation created the perfect conditions for wetland vegetation and nesting opportunities, resulting in a significant waterbird breeding event.

Why are the Macquarie Marshes ecologically important?

The Macquarie Marshes are a large and diverse wetland system on the lower floodplain of the Macquarie River 100 kilometres north-west of Dubbo. The Marshes provide essential habitat for hundreds of species of animals and plants, creating refuges in dry times and breeding habitats in wet times.

The Macquarie Marshes are recognised in the Ramsar convention and in migratory bird agreements with Japan, China and the Republic of Korea.

What was the ecological response to the recent inundation?

Mapping by the NSW Department of Planning, Industry and Environment (DPIE) indicates that a total area of 154,000 hectares was inundated across the northern, southern and eastern Macquarie Marshes.

Early natural flows primed the ecosystem and allowed the landscape to respond well to subsequent spring and summer conditions, producing high-quality habitat. This allowed a great number of water birds including ducks, magpie geese and species of waterhens to start breeding. Colonial waterbirds for which the Marshes are famous also began breeding in large numbers.

From October 2016 to January 2017, DPIE and University of NSW ground and aerial surveys confirmed at least 21 active waterbird colonies across the Marshes. A total of 15 colonial waterbird species were recorded nesting at these sites. The two largest colonies, with an estimated 30,000 nests, were dominated by straw-necked ibis with smaller numbers of Australian white ibis and glossy ibis.



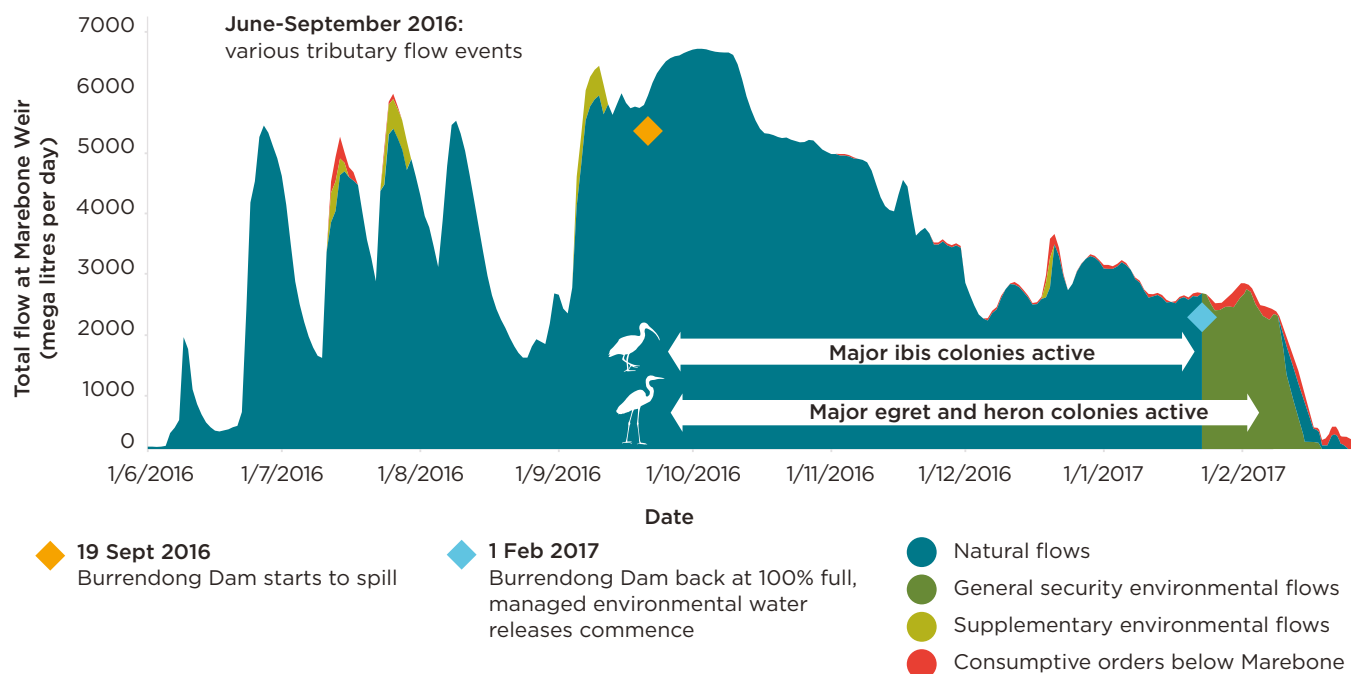
What was the water management response to the recent inundation?

In the Macquarie valley, recommendations about environmental water management and deliveries are made by the Macquarie–Cudgegong Environmental Flows Reference Group (EFRG). The EFRG is a community–government collaboration comprising various water users, landholders, Aboriginal and environmental groups and NSW Government departments. The Commonwealth Environmental Water Holder and Murray–Darling Basin Authority also have representatives as observers to EFRG meetings.

In the three years before this event, the catchments were very dry and water availability was low.

Therefore the EFRG managed environmental water conservatively, targeting beneficial flows to the river and to core marsh areas.

By winter–spring 2016, with Burrendong Dam reaching capacity and all water user accounts being full, the EFRG revised its previous watering strategy to that of a wetter scenario. Flood Mitigation Zone (FMZ) rules were also enacted (as per the Water Sharing Plan), allowing for water to be used for environmental benefit while minimising downstream impacts. DPIE provided advice to WaterNSW regarding the needs of waterbird colonies in the Marshes, so that beneficial flow releases could be considered in the FMZ release strategy.



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Cover photo: Royal spoonbills *Platalea regia*, J Spencer/DPIE. Above photos left to right: Macquarie Marshes, S Suter/DPIE, Intermediate egret *Ardea intermedia*, J Spencer/DPIE and Australian white ibis chicks *Threskiornis molucca*, J Spencer/DPIE.

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