

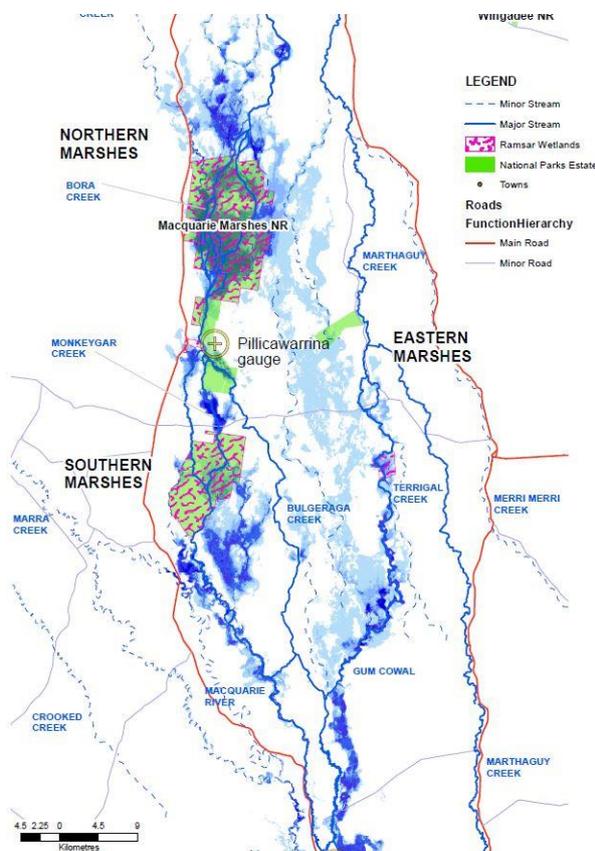
Background

On the 5 April 2020, the department allowed supplementary access for water users in sections of the Lower Macquarie River system for a limited period of time. This decision was made after careful consideration of the critical environmental needs and the volumes and timing of inflows into the Macquarie River system.

Under the *Water Management Act 2000* and the rules of the Macquarie regulated river water sharing plan, the department can permit access to supplementary flows when higher priority needs have been met. These are the environmental provisions of the plan, basic landholder rights, domestic and stock replenishment flows, town, domestic and stock and high security licence needs and, in the Macquarie, when flows are also above 5,000 megalitres (ML)/day at Warren.

With the environmental water rules suspended in the Macquarie to reserve supplies for critical human needs and very limited supplies in Burrendong Dam, the normal environmental allowances to water the Macquarie Marshes have not been available in 2019-20. Use of some 70 gigalitres (GL) of environmental water has been suspended. The last managed environmental release to the Marshes (prior to the plan rules being suspended in July 2019) was in December 2018. This meant that tributary flows below Burrendong Dam were particularly important for assisting with drought recovery for the Macquarie Marshes.

Critical Needs of the Macquarie Marshes



Map of the Macquarie Marshes

The Macquarie Marshes is a Ramsar listed wetland of international importance covering 19,850 hectares and lies about 100 kilometres north of Warren in central west NSW. The Marshes are one of the most important nesting sites for waterbirds in Australia.

Despite good flows in the mid and lower reaches of the Macquarie-Castlereagh-Bogan River catchments over February and March 2020, most of the Northern Marshes reedbed was still dry in early April. The reedbed remained at high risk of continued decline. This wetland is the largest reedbed in the Murray Darling Basin.

After analysis of historical events, staff from the Biodiversity and Conservation Division of the department advised that a minimum volume of 30 GL over 3-5 months was required to meet the critical water demand of this environmental asset coming out of the current prolonged dry period.

This target was adopted to guide when supplementary access could be provided. The target volume is measured at the nearest gauge site - Pillicawarrina Gauge (421147).

This volume was required to inundate the Northern reedbed, which has been damaged by wildfires caused by a lightning strike in October 2019. Around 3,000 hectares of the reedbed and some adjacent river red gum woodland had been burnt. While the reedbed had re-sprouted from subsequent rainfall, it still needed inundation to replenish the root zones and ensure continued growth of the reeds. The rain-fed shoots are currently 20-90 cm in height over the fire zone, whereas a healthy reedbed stands between three and four metres high.



Wildfire – October 2019



Response to rain - March 2020



Main image - Bora Well March 2020 – Inserts at same location before reedbed fire with typical growth

Flows during the autumn months are important to the Marshes for supporting the main growth season of September onwards. The outer red gum areas that normally rely on higher flow rates from tributary events have not been watered since 2016. Up to 45 GL would be needed at Pillicawarrina to water the mixed marshes and redgum woodland in the Northern Marshes.

Flows in 2020 and restrictions on supplementary take

Following the rainfall events over late January/February 2020, by early March some 7 GL had been measured at Pillicawarrina. This inundated a small part of the critical northern reedbed area.

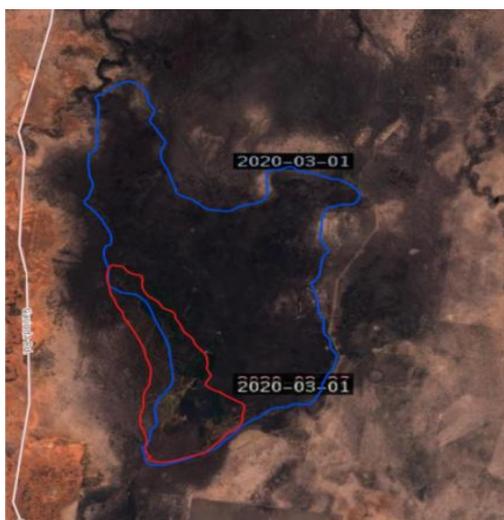
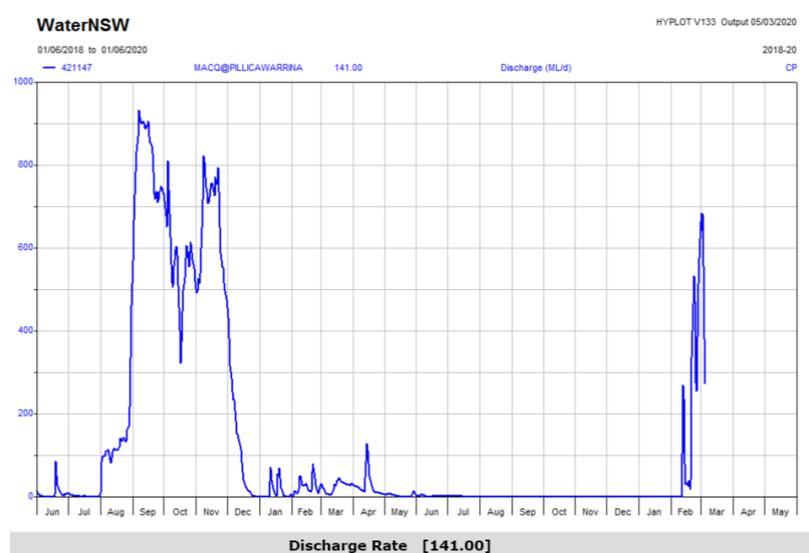


Image taken 1 March 2020 with red area showing inundation area at that time and the blue line the extent of the burnt area

Some of this water was diverted for stock and domestic replenishment of the lower Macquarie River. Some supplementary access was also permitted in late February as, at that time, the volume target for the Marshes was still being developed and the principles and targets that were used for the recent northern restrictions event were applied as an interim measure.

These initial flows helped 'prime' the streams and wetlands of the Southern Marshes, allowing more efficient transmission from any follow-up flows through to the Northern Marshes. Further flows occurred throughout March, bringing the total flow into the Marshes in three months to around 18 GL.

Flow in the Macquarie River @ Pillicawarrina since June 2019 until March 2020 is plotted below.

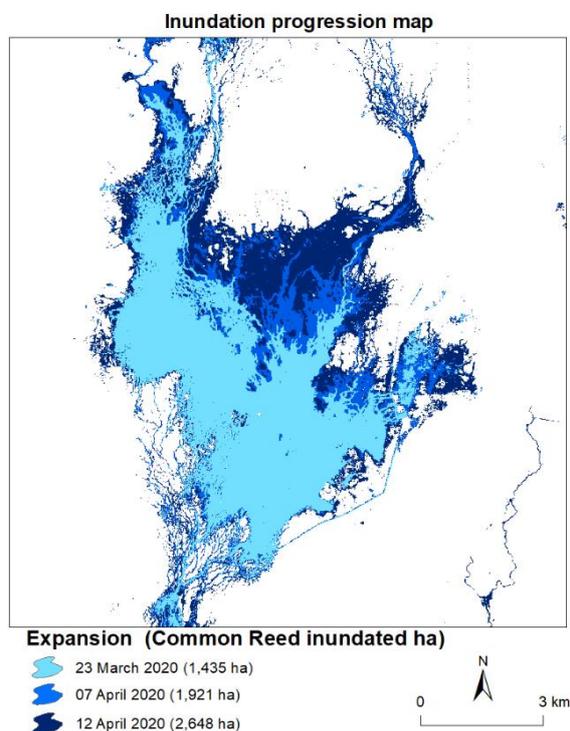


Macquarie River flows – June 2019 to March 2020

With flows occurring during the first week of April, it was forecast that 32 GL would arrive at Pillicawarrina by 23 April and that allowing some supplementary access would reduce the total by only 0.4 GL. Accordingly, supplementary access was permitted from 5 April to ensure the 30 GL target would not be compromised.

With the further rainfall over Easter, by 15 April the cumulative flow at Pillicawarrina was 30.7 GL and 37.7 GL by the 20 April.

For information on the location and timing of supplementary access, refer to WaterNSW's list of supplementary announcements at - www.watarnsw.com.au/supply/regional-nsw/supplementary



The map shows the progression of inundation within the North Marsh reedbed.

The legislative basis for restrictions

- The environmental rules in the water sharing plan for the regulated Macquarie River have been suspended under s.49B of the Act. The explanation of the suspension order (referenced below) contemplates making tributary inflows downstream of the dam available to meet some critical environmental needs until environmental releases from the dam resume. See - www.industry.nsw.gov.au/water/plans-programs/water-sharing-plans/suspensions/macquarie-cudgegong-regulated-rivers
- When a suspension under this provision is in place, the department is guided by section 60(3A) of the Act, wherein the first priority is critical human needs, followed by water for domestic purposes and essential town services, then the needs of the environment, then finally other licensed rights.
- Clause 47(5) of the water sharing plan says that supplementary access shall only be permitted when flows in the river will produce a flow which exceeds 5,000 ML/day at Warren above the requirements for the environment, basic landholder rights, replenishment flows and other licensed requirements. It does not require that supplementary access always be made available when flows at Warren exceed 5,000 ML/day.

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