



Department of Planning, Industry and Environment

# Macquarie-Castlereagh Catchment

Water for the Environment: Annual Priorities 2021-22



# Water for rivers and wetlands



In 2021-22, water managers will continue the ongoing task of drought recovery in the mid and lower Macquarie River.

Tributary flows, local rainfall, 'translucent' environmental water and managed environmental flows occurring from January 2020 to May 2021 started the recovery of the river and Macquarie Marshes after the record three-year drought of 2017-20.

As at May 2021, approximately 197 gigalitres of carryover water will be available for the 2021-22 water year.

With essential supplies secure in the regulated Macquarie, we assume drought refuge habitats in the Mid-Macquarie River will be supported for at least 24 months. Without further inflows to change water availability, targeting of managed environmental flows will be prioritised towards the second year of a three-year drought recovery plan for the Macquarie Marshes.

Subject to regulated Water Sharing Plan commencement and Windamere Dam storage levels, a new discretionary Environmental Water Allowance in the regulated Cudgegong River may become available for use in this water year. This was previously a translucent Environmental Water Allowance.



# Weather and water forecast



In April 2021, the Bureau of Meteorology confirmed the 2020–21 La Niña has now passed. Climate model outlooks indicate the El Niño–Southern Oscillation (ENSO<sup>1</sup>) is now neutral with no sign of either La Niña or El Niño developing at least until September 2021. Rainfall was below average and temperatures warmer than average in May and June 2021 for eastern mainland Australia, including the Macquarie catchment, and will continue in July.

Water managers have prepared watering plans that consider a range of weather and water availability scenarios. This is known as resource availability scenario planning. The prevailing condition in the Macquarie–Castlereagh catchment as at April 2021 is ‘moderate’.

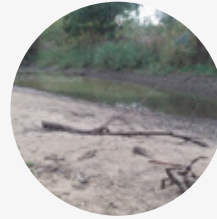
## Resource availability scenario



### Very dry

#### Main aim: Protect

- Avoid critical loss
- Maintain key refuges
- Avoid catastrophic events



### Dry

#### Main aim: Maintain

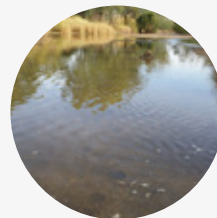
- Maintain river functioning
- Maintain key functions of high priority wetlands



### Moderate

#### Main aim: Recover

- Improve ecological health and resilience
- Improve opportunities for plants and animals to breed, move and thrive



### Wet to very wet

#### Main aim: Enhance

- Restore key floodplain and wetland linkages
- Enhance opportunities for plants and animals to breed, move and thrive

<sup>1</sup>ENSO: The interaction between the sea surface and atmosphere over the Pacific Ocean which results in dryer or wetter conditions (El Niño or La Niña).

# Key planned actions for 2021-22



## Vegetation

There will be environmental flows support for a second year of drought recovery for key wetland vegetation within the Macquarie Marshes via a pulse during late winter early spring for inundation of the inner 9000 to 19,000 hectares of the Macquarie Marshes, followed by lower flows during October and November to extend this inundation until summer.

Some riparian vegetation along the Mid and Lower-Macquarie River will be supported where flows are present that will also recharge groundwater systems to help sustain trees that rely on this water source.



## Waterbirds

An inundation event in the Macquarie Marshes will be provided from August to November 2021 through tributary flows and managed environmental water flows.



## Native fish

Water for the environment will be used to target native fish populations in the Mid-Macquarie River, specifically with:

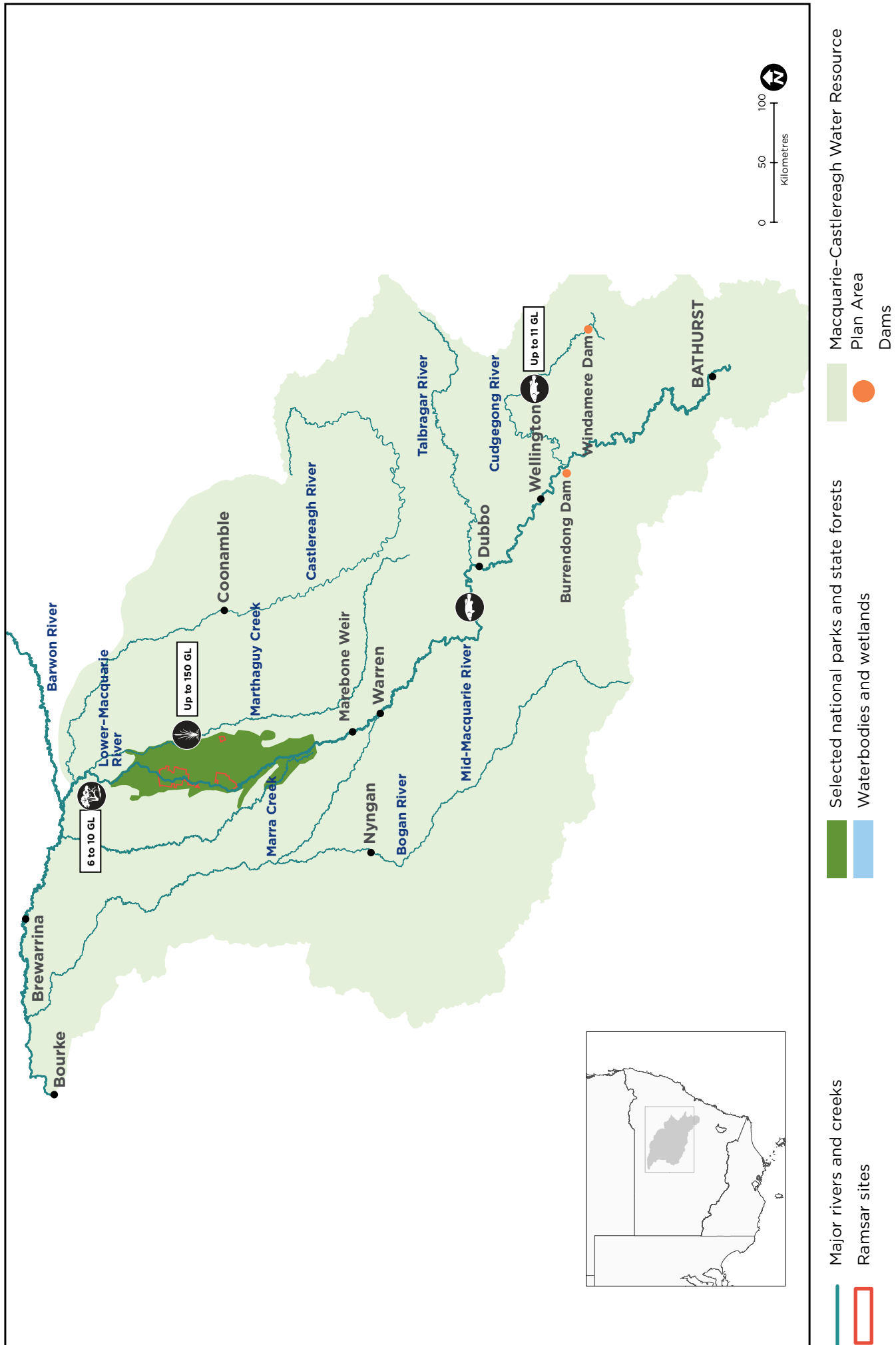
- a pulse in late winter-early spring to help fish hatched in October 2020 to grow and be recruited into the adult population
- a targeted native fish breeding event in October, with a stable flow at Dubbo for Murray cod, freshwater catfish and other small-bodied native fish
- a pulse flow at the end of this event (November) allowing newly hatched fish to spread through the catchment

The new Cudgegong River Environmental Water Allowance will probably be activated in the 2021-2022 water year to provide native fish breeding opportunities in spring 2021.



## Connectivity

In late winter early spring, a pulse is expected to create six to eight weeks of flow connection between the Macquarie and the Barwon rivers with the intention to allow young golden perch to travel from the Barwon River to the Macquarie-Castlereagh catchment.



**Figure 1** Map of proposed annual priority targets in the Macquarie-Castlereagh Water Resource Plan area 2021-22.

## How we make decisions



Department of Planning, Industry and Environment (the Department) is supporting the health and resilience of rivers and wetlands by delivering water for the environment where and when it is needed.

We use the best available science, management expertise and experience to manage water across the landscape.

This statement of annual priorities identifies the waterways and wetlands that are likely to receive water under predicted weather conditions.

Our decision-making process considers:

- expected availability of water in the coming year
- conditions of the previous year
- current health of the flow-dependent plants and animals.

Community-based environmental water advisory groups provide feedback and advice to the Department on the management of water for the environment. The NSW Government works with the Commonwealth Environmental Water Holder to manage water in the catchments.



## What is water for the environment?

Water for the environment is a share of the water in dams and rivers that is set aside to support the long-term health of local rivers, creeks and wetlands. Healthy rivers carry water to homes, farms, schools and businesses. The waterways are important cultural and spiritual sites for Aboriginal people and the broader community.

# About the catchment



The Macquarie-Castlereagh catchment covers more than 75,000 square kilometres in the State's central west. It extends from the Blue Mountains to the Barwon River Plains, with major tributaries including the Cudgegong, Talbragar and Bell rivers. The valley is home to the iconic Macquarie Marshes – one of the largest semi-permanent wetland systems and colonial waterbird breeding sites in inland Australia. The catchment supports important cultural heritage values for Wiradjuri and Ngemba-Wailwan people.

**Table 1** Expected environmental water volumes available at 1 July 2021.

Source	Maximum volume available (gigalitres – GL)	Volume expected 1 July under current conditions (gigalitres – GL)
<b>Planned environmental water</b>		
Macquarie River Environmental Water Allowance	160 GL	86 GL
Cudgegong River Environmental Water Allowance	11,400* GL	Approximately 11 GL 'Payback balance' at Water Sharing Plan commencement
<b>Water licensed to NSW</b>		
General security	48.4 GL	40 GL
Supplementary	1.4 GL	1.4 GL
Unregulated	2.9 GL	2.9 GL
<b>Water licensed to the Commonwealth</b>		
General security	126.2 GL	71 GL
Supplementary	8.3 GL	8.4 GL

**Note:** This is an indicative summary of expected volumes to be available. For further detail and information on available volumes, please contact the region via Department enquiries on 1300 361 967.

\*Cudgegong Environmental Water Allowance is subject to commencement of the revised 2021 Water Sharing Plan  
1 gigalitre = 1000 megalitres; 2.5 megalitre = 1 Olympic swimming pool

Environment, Energy and Science Group,  
Department of Planning, Industry and Environment,  
Locked Bag 5022, Parramatta NSW 2124.  
Phone: 1300 361 967 (environment information and publications requests);  
Email: [info@environment.nsw.gov.au](mailto:info@environment.nsw.gov.au);  
Website: [www.environment.nsw.gov.au](http://www.environment.nsw.gov.au).  
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Cover photo: Northern Macquarie Marshes (Kieran Fitzpatrick/DPIE); Page 2: Castlereagh River in Flood, Gilgandra (Rosie Nicolai/DPIE), Environmental Water, Macquarie Marshes Nature Reserve (Nicola Brookhouse/DPIE); Page 3: Castlereagh River in Flood, Gilgandra (Rosie Nicolai/DPIE), Infographic: J Humphries/DPIE; Page 6: Kayaking in the Macquarie Marshes (P Keyte), Castlereagh River in Flood, Gilgandra (Rosie Nicolai/DPIE); Page 7: Castlereagh River in Flood, Gilgandra (Rosie Nicolai/DPIE)